# COVID-19 Regional Incidence and Time to Case Notification in Ontario

## Contents

<table>
<thead>
<tr>
<th>Section</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>Contents</td>
<td>1</td>
</tr>
<tr>
<td>Purpose</td>
<td>3</td>
</tr>
<tr>
<td>Ontario</td>
<td>5</td>
</tr>
<tr>
<td>Toronto</td>
<td>9</td>
</tr>
<tr>
<td>Central East</td>
<td>13</td>
</tr>
<tr>
<td>Central West</td>
<td>17</td>
</tr>
<tr>
<td>Eastern</td>
<td>21</td>
</tr>
<tr>
<td>North</td>
<td>25</td>
</tr>
<tr>
<td>South West</td>
<td>29</td>
</tr>
<tr>
<td>GTA</td>
<td>33</td>
</tr>
<tr>
<td>Non-GTA</td>
<td>37</td>
</tr>
<tr>
<td>Algoma Public Health</td>
<td>41</td>
</tr>
<tr>
<td>Brant County Health Unit</td>
<td>45</td>
</tr>
<tr>
<td>Chatham-Kent Public Health</td>
<td>49</td>
</tr>
<tr>
<td>City of Hamilton Public Health Services</td>
<td>53</td>
</tr>
<tr>
<td>Durham Region Health Department</td>
<td>57</td>
</tr>
<tr>
<td>Eastern Ontario Health Unit</td>
<td>61</td>
</tr>
<tr>
<td>Grey Bruce Health Unit</td>
<td>65</td>
</tr>
<tr>
<td>Haldimand-Norfolk Health Unit</td>
<td>69</td>
</tr>
<tr>
<td>Haliburton, Kawartha, Pine Ridge District Health Unit</td>
<td>73</td>
</tr>
<tr>
<td>Halton Region Public Health</td>
<td>77</td>
</tr>
<tr>
<td>Hastings Prince Edward Public Health</td>
<td>81</td>
</tr>
<tr>
<td>Huron Perth Public Health</td>
<td>85</td>
</tr>
<tr>
<td>Kingston, Frontenac and Lennox &amp; Addington Public Health</td>
<td>89</td>
</tr>
<tr>
<td>Lambton Public Health</td>
<td>93</td>
</tr>
<tr>
<td>Leeds, Grenville &amp; Lanark District Health Unit</td>
<td>97</td>
</tr>
</tbody>
</table>
This report reflects cases that have been publicly reported up to 2021-03-25. Note that data from the CORES system were not available for cases from Toronto Public Health with a publicly reported date of 2020-08-13, and data from iPHIS were not available for cases from Algoma Public Health, Brant County Health Unit, Chatham-Kent Public Health, City of Hamilton Public Health Services, Niagara Region Public Health, Peterborough Public Health, Simcoe Muskoka District Health Unit, Southwestern Public Health, Public Health Sudbury & Districts, Timiskaming Health Unit, and Windsor-Essex County Health Unit with a publicly reported date of 2020-08-19; as such, estimates and figures reflecting or incorporating these health units will be impacted for these dates. Additionally,
due to a discrepancy in data extract times, cases in Ontario with a publicly reported date of 2020-11-22 were over-estimated, leading to an under-estimate for those with a publicly reported date of 2020-11-23. Due to a data processing error, cases with a publicly reported date of 2020-12-03 were over-estimated for Middlesex-London Health Unit and cases with a publicly reported date of 2020-12-04 were over-estimated for Ottawa Public Health. As such, metrics based on the public reporting date of 2020-12-03 and 2020-12-04 should be interpreted with caution as they may have been over-estimated. Due to a data processing error, cases with a publicly reported date of 2021-01-08 were over-estimated for Toronto Public Health. Due to a data processing error, cases with a publicly reported date of 2021-01-19 were over-estimated for Ottawa Public Health. Due to a data processing error, cases with a publicly reported date of 2021-02-02 should be interpreted with caution. Due to issues with CCM, cases with a publicly reported date of 2021-03-25 were over-estimated (mainly affecting Toronto Public Health) and should be interpreted with caution.

This report includes the most current information available from CCM.

Full French translation is available upon request.

Purpose

This report provides a summary of the regional case counts of COVID-19, likely source of acquisition, and the timeliness of testing and investigation in Ontario. These regional measures provide important information to support and monitor re-opening across Ontario.

A brief description of the measures included in this report are summarized below. Additional details are outlined in the Methods section, found toward the end of this document.

Case count

The daily number of COVID-19 cases is based on the date a case was publicly reported (i.e., the date the public health unit [PHU] reported the case to Public Health Ontario [PHO] plus one day to account for the delay in public reporting). These daily numbers are used to produce an epidemic curve showing numbers of cases over time. These epidemic curves can be used to determine the current trajectory of the epidemic in each region.

Reproduction number

The reproduction number is the average number of secondary cases of infection generated by each person infected with COVID-19. A reproduction number greater than one means that the overall number of new cases is growing in a region, while a reproduction number less than one means the overall number of new cases is decreasing and suggests that COVID-19 is coming under control in a region.

Likely source of acquisition

COVID-19 cases have been examined to determine whether a case travelled, was associated with an outbreak, was a contact of a case, had no known epidemiological link (sporadic community
transmission), or where information was pending or missing. Tracking the number of cases with no known epidemiologic link provides insight into how well we are able to ascertain where cases are coming from and may reflect the effectiveness and timeliness of the contact tracing process, as well as indicate adherence to public health guidance by individuals who are asked to isolate.

**Timeliness of case presentation, testing, and investigation**

To halt transmission, it is crucial that potential cases are rapidly identified, tested, reported, and managed (which includes contact tracing). We examined three timeliness metrics. First, the proportion of cases that have a specimen collected for testing within 2 days of symptom onset. Second, the proportion of cases that had a positive result reported to the PHU within 1 day of specimen collection. Third, the proportion of cases for which case management began within 1 day of a positive result reported to the PHU.

![Flow diagram of case presentation, testing, and investigation](image)

Flow diagram of case presentation, testing, and investigation
Ontario

Epidemic Curve: Ontario

Data Source: CCM
Reproduction Number: Ontario

Mar 25 Re = 1.17, 95% CI: 1.15-1.19

Note: the date used in this graph is the public reporting date
Shading represents 95% confidence interval around the estimate for Re

Data Source: CCM
Likely Acquisition: Ontario

Data Source: CCM

Note: the date used in this graph is the case reported date
Timeliness: Ontario

Data Source: CCM
Toronto

Epidemic Curve: Toronto

Data Source: CCM

Note: the date used in this graph is the public reporting date.
Reproduction Number: Toronto

Note: the date used in this graph is the public reporting date.
Shading represents 95% confidence interval around the estimate for Re.

Data Source: CCM
Likely Acquisition: Toronto

Data Source: CCM
Timeliness: Toronto

Data Source: CCM
Central East

Epidemic Curve: Central East

Date

Daily Cases

Note: the date used in this graph is the public reporting date

Data Source: CCM
Reproduction Number: Central East

Mar 25 Re = 1.18, 95% CI: 1.15-1.22

Note: the date used in this graph is the public reporting date.
Shading represents 95% confidence interval around the estimate for Re.

Data Source: CCM
Likely Acquisition: Central East

Data Source: CCM

Note: the date used in this graph is the case reported date
Timeliness: Central East

Symptoms to specimen collection (within 2 days)

Specimen collection to reporting (within 1 day)

Reporting to investigation (within 1 day)

Date

Note: the date used in this graph is the case reported date

Data Source: CCM
Central West

Epidemic Curve: Central West

Data Source: CCM
Reproduction Number: Central West

Mar 25 Re = 1.09, 95% CI: 1.04-1.14

Note: the date used in this graph is the public reporting date
Shading represents 95% confidence interval around the estimate for Re

Data Source: CCM
Likely Acquisition: Central West

Data Source: CCM

Note: the date used in this graph is the case reported date.

COVID-19 Regional Incidence and Time to Case Notification in Ontario
Timeliness: Central West

Symptoms to specimen collection (within 2 days)

Specimen collection to reporting (within 1 day)

Reporting to investigation (within 1 day)

Note: the date used in this graph is the case reported date

Data Source: CCM
Eastern

Epidemic Curve: Eastern

Data Source: CCM
Reproduction Number: Eastern

Mar 25 Re = 1.22, 95% CI: 1.15-1.29

Note: the date used in this graph is the public reporting date.
Shading represents 95% confidence interval around the estimate for Re.

Data Source: CCM
COVID-19 Regional Incidence and Time to Case Notification in Ontario

Likely Acquisition: Eastern

Data Source: CCM
Timeliness: Eastern

Data Source: CCM
North

Epidemic Curve: North

Data Source: CCM
Reproduction Number: North

Note: the date used in this graph is the public reporting date
Shading represents 95% confidence interval around the estimate for Re

Data Source: CCM
**Likely Acquisition: North**

Note: the date used in this graph is the case reported date

Data Source: CCM
Timeliness: North

Data Source: CCM

Note: the date used in this graph is the case reported date
South West

Epidemic Curve: South West

Data Source: CCM
Reproduction Number: South West

Mar 25 Re = 1.04, 95% CI: 0.96-1.11

Note: the date used in this graph is the public reporting date. Shading represents 95% confidence interval around the estimate for Re.

Data Source: CCM
Likely Acquisition: South West

Data Source: CCM

Note: the date used in this graph is the case reported date
Timeliness: South West

Data Source: CCM
COVID-19 Regional Incidence and Time to Case Notification in Ontario

GTA

Epidemic Curve: GTA

Data Source: CCM
Reproduction Number: GTA

![Reproduction Number Graph]

Note: the date used in this graph is the public reporting date. Shading represents 95% confidence interval around the estimate for Re.

Data Source: CCM
Likely Acquisition: GTA

Note: the date used in this graph is the case reported date

Data Source: CCM
Timeliness: GTA

Data Source: CCM
Non-GTA

Epidemic Curve: Non-GTA

Note: the date used in this graph is the public reporting date

Data Source: CCM
Reproduction Number: Non-GTA

Mar 25 Re = 1.07, 95% CI: 1.04-1.10

Note: The date used in this graph is the public reporting date. Shading represents 95% confidence interval around the estimate for Re.

Data Source: CCM
Likely Acquisition: Non-GTA

Data Source: CCM

Note: the date used in this graph is the case reported date

COVID-19 Regional Incidence and Time to Case Notification in Ontario
Timeliness: Non-GTA

Data Source: CCM
Epidemic Curve: Algoma Public Health

Data Source: CCM
Reproduction Number: Algoma Public Health

Mar 25 Re not provided: fewer than 12 cases in the 7 days prior to this date

Note: the date used in this graph is the public reporting date
Shading represents 95% confidence interval around the estimate for Re

Data Source: CCM
Likely Acquisition: Algoma Public Health

Data Source: CCM

Note: the date used in this graph is the case reported date

COVID-19 Regional Incidence and Time to Case Notification in Ontario
Timeliness: Algoma Public Health

Data Source: CCM
Brant County Health Unit

Epidemic Curve: Brant County Health Unit

Data Source: CCM
Reproduction Number: Brant County Health Unit

Mar 25 Re = 0.78, 95% CI: 0.61-0.98

Note: the date used in this graph is the public reporting date.
Shading represents 95% confidence interval around the estimate for Re.

Data Source: CCM
COVID-19 Regional Incidence and Time to Case Notification in Ontario

Likely Acquisition: Brant County Health Unit

Data Source: CCM

Note: the date used in this graph is the case reported date
Timeliness: Brant County Health Unit

Data Source: CCM
Chatham-Kent Public Health

Epidemic Curve: Chatham-Kent Public Health

Note: the date used in this graph is the public reporting date

Data Source: CCM
Reproduction Number: Chatham-Kent Public Health

Note: the date used in this graph is the public reporting date.
Shading represents 95% confidence interval around the estimate for Re.

Data Source: CCM
Likely Acquisition: Chatham-Kent Public Health

Data Source: CCM

Note: the date used in this graph is the case reported date
Timeliness: Chatham-Kent Public Health

Data Source: CCM

Note: the date used in this graph is the case reported date
City of Hamilton Public Health Services

Epidemic Curve: City of Hamilton Public Health Services

Daily Cases

Date

Note: the date used in this graph is the public reporting date

Data Source: CCM
Reproduction Number: City of Hamilton Public Health Services

Mar 25 Re = 1.12, 95% CI: 1.04-1.21

Note: the date used in this graph is the public reporting date.
Shading represents 95% confidence interval around the estimate for Re.

Data Source: CCM
Likely Acquisition: City of Hamilton Public Health Services

Note: the date used in this graph is the case reported date

Data Source: CCM
Timeliness: City of Hamilton Public Health Services

Data Source: CCM
Epidemic Curve: Durham Region Health Department

Data Source: CCM
Reproduction Number: Durham Region Health Department

Mar 25 Re = 1.37, 95% CI: 1.27-1.48

Note: the date used in this graph is the public reporting date.
Shading represents 95% confidence interval around the estimate for Re.

Data Source: CCM
Likely Acquisition: Durham Region Health Department

Proportion (%)

Date

- Missing information
- Unspecified epi link
- No known epi link
- Close contact
- Outbreak-associated
- Travel-related

Note: the date used in this graph is the case reported date

Data Source: CCM
Timeliness: Durham Region Health Department

- Symptoms to specimen collection (within 2 days)
- Specimen collection to reporting (within 1 day)
- Reporting to investigation (within 1 day)

Note: the date used in this graph is the case reported date

Data Source: CCM
Eastern Ontario Health Unit

Epidemic Curve: Eastern Ontario Health Unit

Data Source: CCM
Reproduction Number: Eastern Ontario Health Unit

Mar 25 Re = 1.45, 95% CI: 1.25-1.68

Note: the date used in this graph is the public reporting date
Shading represents 95% confidence interval around the estimate for Re

Data Source: CCM
Likely Acquisition: Eastern Ontario Health Unit

Data Source: CCM

Note: the date used in this graph is the case reported date
Timeliness: Eastern Ontario Health Unit

Data Source: CCM
Grey Bruce Health Unit

Epidemic Curve: Grey Bruce Health Unit

Data Source: CCM
Reproduction Number: Grey Bruce Health Unit

Mar 25 Re = 1.65, 95% CI: 1.15-2.27

Note: the date used in this graph is the public reporting date
Shading represents 95% confidence interval around the estimate for Re

Data Source: CCM
Likely Acquisition: Grey Bruce Health Unit

Note: the date used in this graph is the case reported date

Data Source: CCM
Timeliness: Grey Bruce Health Unit

Data Source: CCM
Haldimand-Norfolk Health Unit

Epidemic Curve: Haldimand-Norfolk Health Unit

Note: the date used in this graph is the public reporting date

Data Source: CCM
Reproduction Number: Haldimand-Norfolk Health Unit

Mar 25 Re = 1.46, 95% CI: 1.12-1.86

Note: the date used in this graph is the public reporting date.
Shading represents 95% confidence interval around the estimate for Re.

Data Source: CCM

COVID-19 Regional Incidence and Time to Case Notification in Ontario
Likely Acquisition: Haldimand-Norfolk Health Unit

![Graph showing proportion of COVID-19 cases by date and source of acquisition]

Note: the date used in this graph is the case reported date

Data Source: CCM
Timeliness: Haldimand-Norfolk Health Unit

Note: the date used in this graph is the case reported date

Data Source: CCM
Haliburton, Kawartha, Pine Ridge District Health Unit

Epidemic Curve: Haliburton, Kawartha, Pine Ridge District Health Unit

Data Source: CCM
Reproduction Number: Haliburton, Kawartha, Pine Ridge District Health Unit

Mar 25 Re = 0.83, 95% CI: 0.53-1.22

Note: the date used in this graph is the public reporting date
Shading represents 95% confidence interval around the estimate for Re

Data Source: CCM
Likely Acquisition: Haliburton, Kawartha, Pine Ridge District Health Unit

Data Source: CCM
Timeliness: Haliburton, Kawartha, Pine Ridge District Health Unit

Data Source: CCM
Halton Region Public Health

Epidemic Curve: Halton Region Public Health

Data Source: CCM
Reproduction Number: Halton Region Public Health

Mar 25 Re = 1.14, 95% CI: 1.02-1.27

Date

Reproduction Number

Note: the date used in this graph is the public reporting date
Shading represents 95% confidence interval around the estimate for Re

Data Source: CCM
Likely Acquisition: Halton Region Public Health

Note: the date used in this graph is the case reported date

Data Source: CCM
Timeliness: Halton Region Public Health

![Graphs showing timeliness metrics for COVID-19](Image)

- Symptoms to specimen collection (within 2 days)
- Specimen collection to reporting (within 1 day)
- Reporting to investigation (within 1 day)

**Note:** The date used in this graph is the case reported date.

**Data Source:** CCM
Hastings Prince Edward Public Health

Epidemic Curve: Hastings Prince Edward Public Health

Data Source: CCM
Reproduction Number: Hastings Prince Edward Public Health

Mar 25 Re not provided: fewer than 12 cases in the 7 days prior to this date

Note: the date used in this graph is the public reporting date
Shading represents 95% confidence interval around the estimate for Re

Data Source: CCM
Likely Acquisition: Hastings Prince Edward Public Health

![Graph showing the proportion of likely acquisitions by date]

- **Proportion (%)**
- **Date**
  - Missing information
  - No known epi link
  - Close contact
  - Outbreak-associated
  - Travel-related

Note: the date used in this graph is the case reported date

Data Source: CCM
Timeliness: Hastings Prince Edward Public Health

Data Source: CCM
Huron Perth Public Health

Epidemic Curve: Huron Perth Public Health

Data Source: CCM
Reproduction Number: Huron Perth Public Health

Note: the date used in this graph is the public reporting date.
Shading represents 95% confidence interval around the estimate for Re.

Data Source: CCM
Likely Acquisition: Huron Perth Public Health

Proportion (%)

Date

- Missing information
- No known epi link
- Close contact
- Outbreak-associated
- Travel-related

Note: the date used in this graph is the case reported date

Data Source: CCM
Timeliness: Huron Perth Public Health

Data Source: CCM
Epidemic Curve: Kingston, Frontenac and Lennox & Addington Public Health

Data Source: CCM
Reproduction Number: Kingston, Frontenac and Lennox & Addington Public Health

Mar 25 Re = 1.10, 95% CI: 0.87-1.37

Note: the date used in this graph is the public reporting date
Shading represents 95% confidence interval around the estimate for Re

Data Source: CCM
Likely Acquisition: Kingston, Frontenac and Lennox & Addington Public Health

Data Source: CCM

Note: the date used in this graph is the case reported date
Timeliness: Kingston, Frontenac and Lennox & Addington Public Health

Data Source: CCM
Lambton Public Health

Epidemic Curve: Lambton Public Health

Data Source: CCM
Reproduction Number: Lambton Public Health

Mar 25 Re = 1.04, 95% CI: 0.91-1.19

Note: the date used in this graph is the public reporting date
Shading represents 95% confidence interval around the estimate for Re

Data Source: CCM
Likely Acquisition: Lambton Public Health

Note: the date used in this graph is the case reported date

Data Source: CCM
Timeliness: Lambton Public Health

Data Source: CCM
Leeds, Grenville & Lanark District Health Unit

Epidemic Curve: Leeds, Grenville & Lanark District Health Unit

Data Source: CCM
Reproduction Number: Leeds, Grenville & Lanark District Health Unit

Mar 25 Re = 1.18, 95% CI: 1.00-1.39

Note: the date used in this graph is the public reporting date
Shading represents 95% confidence interval around the estimate for Re

Data Source: CCM
Likely Acquisition: Leeds, Grenville & Lanark District Health Unit

Data Source: CCM
Timeliness: Leeds, Grenville & Lanark District Health Unit

Data Source: CCM

Note: the date used in this graph is the case reported date
Middlesex-London Health Unit

Epidemic Curve: Middlesex-London Health Unit

Date: the date used in this graph is the public reporting date

Data Source: CCM
Reproduction Number: Middlesex-London Health Unit

Mar 25 Re = 1.15, 95% CI: 1.00-1.33

Note: the date used in this graph is the public reporting date
Shading represents 95% confidence interval around the estimate for Re

Data Source: CCM
Likely Acquisition: Middlesex-London Health Unit

Note: the date used in this graph is the case reported date

Data Source: CCM
Timeliness: Middlesex-London Health Unit

Data Source: CCM

Note: the date used in this graph is the case reported date
Epidemic Curve: Niagara Region Public Health

Note: the date used in this graph is the public reporting date

Data Source: CCM
Reproduction Number: Niagara Region Public Health

Mar 25 Re = 1.04, 95% CI: 0.92-1.17

Note: the date used in this graph is the public reporting date
Shading represents 95% confidence interval around the estimate for Re

Data Source: CCM
Likely Acquisition: Niagara Region Public Health

![Graph showing proportion of likely acquisition categories over time.](image)

Date

- Missing information
- No known epi link
- Close contact
- Outbreak-associated
- Travel-related

Note: the date used in this graph is the case reported date

Data Source: CCM
Timeliness: Niagara Region Public Health

Data Source: CCM
North Bay Parry Sound District Health Unit

Epidemic Curve: North Bay Parry Sound District Health Unit

Data Source: CCM

Note: the date used in this graph is the public reporting date
Reproduction Number: North Bay Parry Sound District Health Unit

Mar 25 $Re = 1.47$, 95% CI: 0.86-2.32

Note: the date used in this graph is the public reporting date.
Shading represents 95% confidence interval around the estimate for $Re$.

Data Source: CCM
Likely Acquisition: North Bay Parry Sound District Health Unit

Data Source: CCM

Note: the date used in this graph is the case reported date
Timeliness: North Bay Parry Sound District Health Unit

Note: the date used in this graph is the case reported date

Data Source: CCM
Northwestern Health Unit

Epidemic Curve: Northwestern Health Unit

Data Source: CCM
Reproduction Number: Northwestern Health Unit

Note: the date used in this graph is the public reporting date. Shading represents 95% confidence interval around the estimate for Re.

Data Source: CCM
Likely Acquisition: Northwestern Health Unit

Data Source: CCM

Note: the date used in this graph is the case reported date
Timeliness: Northwestern Health Unit

Data Source: CCM

Note: the date used in this graph is the case reported date
Ottawa Public Health

Epidemic Curve: Ottawa Public Health

Note: the date used in this graph is the public reporting date

Data Source: CCM
Reproduction Number: Ottawa Public Health

Mar 25 $Re = 1.19, 95\% CI: 1.10 - 1.28$

Note: the date used in this graph is the public reporting date.
Shading represents 95% confidence interval around the estimate for $Re$

Data Source: CCM
Likely Acquisition: Ottawa Public Health

Note: the date used in this graph is the case reported date

Data Source: CCM
Timeliness: Ottawa Public Health

Data Source: CCM
Peel Public Health

Epidemic Curve: Peel Public Health

Data Source: CCM
Reproduction Number: Peel Public Health

Mar 25 Re = 1.18, 95% CI: 1.13-1.23

Note: the date used in this graph is the public reporting date
Shading represents 95% confidence interval around the estimate for Re

Data Source: CCM
Likely Acquisition: Peel Public Health

Data Source: CCM
Timeliness: Peel Public Health

Data Source: CCM
Peterborough Public Health

Epidemic Curve: Peterborough Public Health

Data Source: CCM
Reproduction Number: Peterborough Public Health

Mar 25 Re = 0.79, 95% CI: 0.56-1.08

Note: the date used in this graph is the public reporting date.
Shading represents 95% confidence interval around the estimate for Re.

Data Source: CCM
Likely Acquisition: Peterborough Public Health

Data Source: CCM
Timeliness: Peterborough Public Health

Data Source: CCM
Porcupine Health Unit

Epidemic Curve: Porcupine Health Unit

Note: the date used in this graph is the public reporting date

Data Source: CCM
Reproduction Number: Porcupine Health Unit

Note: the date used in this graph is the public reporting date
Shading represents 95% confidence interval around the estimate for Re

Data Source: CCM
Likely Acquisition: Porcupine Health Unit

Data Source: CCM
Timeliness: Porcupine Health Unit

Data Source: CCM
Public Health Sudbury & Districts

Epidemic Curve: Public Health Sudbury & Districts

Data Source: CCM
Reproduction Number: Public Health Sudbury & Districts

Mar 25 Re = 1.08, 95% CI: 0.94-1.23

Note: the date used in this graph is the public reporting date
Shading represents 95% confidence interval around the estimate for Re

Data Source: CCM
Likely Acquisition: Public Health Sudbury & Districts

Data Source: CCM

Note: the date used in this graph is the case reported date
Timeliness: Public Health Sudbury & Districts

Symptoms to specimen collection (within 2 days)

Specimen collection to reporting (within 1 day)

Reporting to investigation (within 1 day)

Date

Note: the date used in this graph is the case reported date

Data Source: CCM
Renfrew County and District Health Unit

Epidemic Curve: Renfrew County and District Health Unit

Data Source: CCM
Reproduction Number: Renfrew County and District Health Unit

Mar 25 Re = 1.42, 95% CI: 0.84-2.21

Date

Note: the date used in this graph is the public reporting date
Shading represents 95% confidence interval around the estimate for Re

Data Source: CCM
Likely Acquisition: Renfrew County and District Health Unit

Data Source: CCM

Note: the date used in this graph is the case reported date
Timeliness: Renfrew County and District Health Unit

Data Source: CCM
Simcoe Muskoka District Health Unit

Epidemic Curve: Simcoe Muskoka District Health Unit

Note: the date used in this graph is the public reporting date

Data Source: CCM
Reproduction Number: Simcoe Muskoka District Health Unit

Mar 25 $Re = 1.08$, 95% CI: 0.96-1.21

Note: the date used in this graph is the public reporting date
Shading represents 95% confidence interval around the estimate for Re

Data Source: CCM
Likely Acquisition: Simcoe Muskoka District Health Unit

Proportion (%)

Date

- Missing information
- Unspecified epi link
- No known epi link
- Close contact
- Outbreak-associated
- Travel-related

Note: the date used in this graph is the case reported date

Data Source: CCM
Timeliness: Simcoe Muskoka District Health Unit

Data Source: CCM
Southwestern Public Health

Epidemic Curve: Southwestern Public Health

Data Source: CCM

Note: the date used in this graph is the public reporting date
Reproduction Number: Southwestern Public Health

Mar 25 Re = 1.14, 95% CI: 0.90-1.41

Note: the date used in this graph is the public reporting date
Shading represents 95% confidence interval around the estimate for Re

Data Source: CCM
Likely Acquisition: Southwestern Public Health

Note: the date used in this graph is the case reported date

Data Source: CCM
Timeliness: Southwestern Public Health

Note: the date used in this graph is the case reported date

Data Source: CCM
Thunder Bay District Health Unit

Epidemic Curve: Thunder Bay District Health Unit

Data Source: CCM
Reproduction Number: Thunder Bay District Health Unit

Mar 25 Re = 0.75, 95% CI: 0.66-0.86

Note: the date used in this graph is the public reporting date. Shading represents 95% confidence interval around the estimate for Re

Data Source: CCM
Likely Acquisition: Thunder Bay District Health Unit

Note: the date used in this graph is the case reported date

Data Source: CCM
Timeliness: Thunder Bay District Health Unit

Data Source: CCM
Timiskaming Health Unit

Epidemic Curve: Timiskaming Health Unit

Data Source: CCM
Reproduction Number: Timiskaming Health Unit

Mar 25 Re = 2.51, 95% CI: 1.43-4.01

Note: the date used in this graph is the public reporting date. Shading represents 95% confidence interval around the estimate for Re.

Data Source: CCM
Likely Acquisition: Timiskaming Health Unit

Note: the date used in this graph is the case reported date

Data Source: CCM
Timeliness: Timiskaming Health Unit

Data Source: CCM
Epidemic Curve: Toronto Public Health

Data Source: CCM
Reproduction Number: Toronto Public Health

Mar 25 Re = 1.27, 95% CI: 1.24-1.31

Data Source: CCM

Note: the date used in this graph is the public reporting date
Shading represents 95% confidence interval around the estimate for Re
Likely Acquisition: Toronto Public Health

Note: the date used in this graph is the case reported date

Data Source: CCM
Timeliness: Toronto Public Health

Symptoms to specimen collection (within 2 days)

Specimen collection to reporting (within 1 day)

Reporting to investigation (within 1 day)

Date

Note: the date used in this graph is the case reported date

Data Source: CCM
Waterloo Public Health and Emergency Services

Epidemic Curve: Waterloo Public Health and Emergency Services

Data Source: CCM
Reproduction Number: Waterloo Public Health and Emergency Services

Mar 25 Re = 0.98, 95% CI: 0.86-1.11

Note: the date used in this graph is the public reporting date
Shading represents 95% confidence interval around the estimate for Re

Data Source: CCM
Likely Acquisition: Waterloo Public Health and Emergency Services

Data Source: CCM

Note: the date used in this graph is the case reported date
Timeliness: Waterloo Public Health and Emergency Services

Notes:
- Data Source: CCM
- The date used in this graph is the case reported date.
Wellington-Dufferin-Guelph Public Health

Epidemic Curve: Wellington-Dufferin-Guelph Public Health

Data Source: CCM
Reproduction Number: Wellington-Dufferin-Guelph Public Health

Mar 25 Re = 1.21, 95% CI: 1.02-1.43

Note: the date used in this graph is the public reporting date
Shading represents 95% confidence interval around the estimate for Re

Data Source: CCM
Likely Acquisition: Wellington-Dufferin-Guelph Public Health

Data Source: CCM
Timeliness: Wellington-Dufferin-Guelph Public Health

Symptoms to specimen collection (within 2 days)

Specimen collection to reporting (within 1 day)

Reporting to investigation (within 1 day)

Note: the date used in this graph is the case reported date

Data Source: CCM
Windsor-Essex County Health Unit

Epidemic Curve: Windsor-Essex County Health Unit

Daily Cases

Date

Note: the date used in this graph is the public reporting date

Data Source: CCM
Reproduction Number: Windsor-Essex County Health Unit

Mar 25 Re = 0.85, 95% CI: 0.72-0.98

Note: the date used in this graph is the public reporting date. Shading represents 95% confidence interval around the estimate for Re.

Data Source: CCM
Likely Acquisition: Windsor-Essex County Health Unit

Note: the date used in this graph is the case reported date

Data Source: CCM
Timeliness: Windsor-Essex County Health Unit

Note: the date used in this graph is the case reported date

Data Source: CCM
York Region Public Health

Epidemic Curve: York Region Public Health

Daily Cases

Date

Note: the date used in this graph is the public reporting date

Data Source: CCM
Reproduction Number: York Region Public Health

Mar 25 Re = 1.17, 95% CI: 1.10-1.23

Note: the date used in this graph is the public reporting date
Shading represents 95% confidence interval around the estimate for Re

Data Source: CCM
Likely Acquisition: York Region Public Health

Note: the date used in this graph is the case reported date

Data Source: CCM
Timeliness: York Region Public Health

Data Source: CCM
Methods

• 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 1 p.m. on the day prior to this report.
  • The date variable used in the figures for the epidemic curve and the reproduction number throughout this report refers to the date that a case first appeared in the compiled data set + 1 additional day. This corresponds to the “public reporting date” of each case at the provincial level.
  • In order to account for certain instances when there were long lags between when a case’s specimen was collected and when their data was entered into CCM, we replaced the public reporting date with the specimen collection date + 3 days (the mode of the distribution from specimen collection to public reporting date). This replacement was made for cases whose delay between specimen collection and case creation was between 7 and 90 days.
  • In rare circumstances when this delay was more than 90 days, we did not make the date replacement.
  • Due to de-duplication efforts, cases from Toronto Public Health first appearing on February 10 and 11 and with a case created date in January were assigned a public reporting date based on case created date + 1.
  • The date variable used in the figures for the likely acquisition and the timeliness metrics refers to the case reported date, which is the date the case was reported to the public health unit.
  • Due to smaller case counts, we have combined the North West and North East regions into a single region in this report.
  • The PHUs were categorized into regions as follows:
    • Toronto: Toronto Public Health
    • Central East: Durham Region Health Department, Haliburton, Kawartha, Pine Ridge District Health Unit, Peel Public Health, Peterborough Public Health, Simcoe Muskoka District Health Unit, and York Region Public Health
    • Central West: Brant County Health Unit, City of Hamilton Public Health Services, Haldimand-Norfolk Health Unit, Halton Region Public Health, Niagara Region Public Health, Region of Waterloo Public Health and Emergency Services, and Wellington-Dufferin-Guelph Public Health
    • Northern: Northwestern Health Unit, Thunder Bay District Health Unit, Algoma Public Health, North Bay Parry Sound District Health Unit, Porcupine Health Unit, Public Health Sudbury & Districts, and Timiskaming Health Unit
• South West: Chatham-Kent Public Health, Grey Bruce Health Unit, Huron Perth Public Health, Lambton Public Health, Middlesex-London Health Unit, Southwestern Public Health, and Windsor-Essex County Health Unit

• GTA health units include: Durham Region Health Department, Peel Public Health, Toronto Public Health, and York Region Public Health.

• With the exception of the time from case reported date to investigation start date, 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. For the time from case reported date to investigation start date, responsible public health unit was used in order to align with the process for case management. Cases for which the responsible health unit was reported as the Ministry of Health (MOH) (to signify that the PHU is not responsible for case management, such as cases that are not residents of Ontario) have been excluded from the analyses.

• Epidemic curve: smoothed epidemic curves were estimated using generalized additive models of the daily number of cases.

• Reproduction number: the reproduction number was measured using the EpiEstim package in R. The procedure uses daily reported case counts and a 7-day rolling window for estimation. The mean serial interval was set at 4.5 days with a standard deviation of 2.5 days, as adapted from published estimates. EpiEstim uses a Markov Chain Monte Carlo sampling procedure, and the median represents the middle of the distribution of most probable values of the reproduction number. The reproduction number of a region was only calculated when there were at least 12 cases in that region in the last 7 days.

• Likely source of acquisition is determined by examining the epidemiologic link and epidemiologic link status fields in CCM and local systems. If no epidemiologic link is identified in those fields the risk factor fields are examined to determine whether a case travelled, was associated with an outbreak, was a contact of a case, had no known epidemiological link (sporadic community transmission) or was reported to have an unknown source/no information was reported. Some cases may have no information reported if the case is untraceable, was lost to follow-up or referred to FNIHB. Cases with multiple risk factors were assigned to a single likely acquisition source group which was determined hierarchically in the following order:

• For cases with an episode date on or after April 1, 2020: Outbreak-associated > close contact of a confirmed case > travel > no known epidemiological link > information missing or unknown.

• For cases with an episode date before April 1, 2020: Travel > outbreak-associated > close contact of a confirmed case > no known epidemiological link > information missing or unknown.

• Data for the three days prior to the extract date are not shown for this graph due to lags in data entry.

• Timeliness of reporting: smoothed curves were estimated using generalized additive models of the proportion of cases that were reported within the stated time frame. The dots in the graph
represent the individual proportions for a given reported date. The duration elapsed from reporting to investigation was only measured from May 1st onwards, as this is the date that the directive to enter investigation start date was issued. Cases with missing or pending dates have been excluded from the denominator in this analysis.

- For the time from case reported date to investigation start date, cases with a disposition status of referred to the First Nations and Inuit Health Branch (FNIHB), lost to follow up, or untraceable were excluded from the analyses.
- If there were no cases within 7 days of the case reported date, the smoothed curve for the proportion meeting the target is not shown.
- Data for the three days prior to the extract date are not shown for this graph due to lags in data entry.
- When CCM’s Virtual Assistant is the first point of contact with the client, the timing of a partially complete Virtual Assistant is considered to be the investigation start date for the purpose of reporting. The Virtual Assistant is considered partially complete if, at a minimum, the terms of use have been accepted, at which point the client will have read an introductory text that explains why public health is reaching out. The Virtual Assistant will auto-populate the investigation start date field with the date the client accepts the Terms of Use.

Limitations

- This report includes confirmed cases of COVID-19 as per the Ontario Ministry of Health case definition. However, this report excludes 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. Case detection is strongly influenced by the provincial testing strategy, which may also influence the time elapsed between various steps in the testing and notification process.
- 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.
- CCM is a dynamic disease reporting system, which allow ongoing updates to data previously entered. As a result, data extracted represent a snapshot at the time of extraction and may differ from previous or subsequent reports.
- The data only represent cases reported to public health units and recorded in CCM plus. 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.
- The public reporting date lags the infection date; as such, public reporting dates likely represent infections that occurred approximately 10 days earlier.
- For reproduction number analyses, all cases since initial importation were presumed to be locally transmitted. Further, the estimates of the reproduction number are influenced by the choice of
serial interval. As such, the reported estimates in the analysis are subject to change as additional data on the estimated serial interval are published.

• The epidemic curves in this report will not align with the curves provided in other reports due to the date chosen. In monitoring trends over time, the public reporting date was specifically chosen in order to identify early signals of increasing cases, which is challenging when using episode date or reported date due to lags in data entry and therefore the need for caution when reviewing case data for more recent days. As such, numbers from the epidemic curve should not be compared between this regional report and the daily/weekly epidemiologic summary.

References


Disclaimer

This document was developed by Public Health Ontario (PHO). PHO provides scientific and technical advice to Ontario’s government, public health organizations and health care providers. PHO’s work is guided by the current best available evidence at the time of publication.

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Citation


For Further Information

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Public Health Ontario

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