

### **Purpose of Report**

The intent of this report is to share the most recent data for reportable communicable diseases in Toronto with the larger health community. The data are presented as crude counts of cases and incidence rates, to give an overall picture of the disease activity in Toronto. A more in-depth understanding of disease risk would also require consideration of descriptive epidemiologic factors such as age, gender, and risk factors and how these have changed over time. These are typically included in our annual report on communicable diseases ([link](#)).

### **Frequency and Timing of Report**

Data are summarized one full month after the month being summarized, to allow time for most diseases to be reported and suspect cases to be assessed (e.g., January's report is generated no earlier than March 1<sup>st</sup>). Reports are generated and shared by the middle of the following month (usually by the 15<sup>th</sup> – March 15<sup>th</sup> in the previous example).

### **Disease Report Sources**

Data for Toronto residents with a reportable communicable disease are reported to the Medical Officer of Health at Toronto Public Health (TPH) under the auspices of the [Health Protection and Promotion Act \(HPPA\)](#) and associated regulations for Reportable Diseases.

Reports are primarily made by laboratories, physicians, infection control practitioners, administrators of long term care homes, day nurseries, and schools.

### **Data Sources**

All reportable disease data are stored in and retrieved from the provincially mandated Integrated Public Health Information System (iPHIS), in which all case management and surveillance information is stored.

### **Format**

- Disease groupings reflect their main mode of transmission and disease groups are presented in order of those with the most number of reports on an annual basis.
- With the exception of tuberculosis, cases are analyzed according to the 'episode date' as recorded in iPHIS. The episode date is the date that is closest to the time when symptoms first appear. This date can range from the first appearance of symptoms to the date the report was made to Toronto Public Health.
  - Effective June 1 2011, provincial reporting standards for tuberculosis were changed. Prior to this date, cases were reported by episode date; cases reported on or after this date are reported by diagnosis date. Diagnosis date refers to the date on which a case is first diagnosed with tuberculosis.
- Previous year means are calculated based on the most updated data for the same month for the previous 3-year period. These are intended as a point of comparison,

but may occasionally reflect outbreaks or other anomalous events that could inflate counts.

- Year-to-date totals do not reflect what was known at that time, but rather how many cases with an episode date for the given month are known now. This can lead to an over-representation of previous years and a more conservative point of comparison.

### **Incidence Rates**

Rates are calculated as reports per 100,000 population, based on April 2010 post-censal population estimates, obtained from Intellihealth.

### **Limitations**

There is a lag in reporting associated with most reportable communicable diseases and can range anywhere from hours (for highly acute diseases) to several years (as is the case with some HIV/AIDS cases).

Reportable communicable diseases are generally underreported due to several factors, which may include: low morbidity and incentive for testing, no health care sought, lack of awareness of appropriate diagnostic testing by physicians, and inability to isolate an appropriate organism due to specimen sample size, timing, or other technical factors.

- The results of continuing investigations of some reports of disease may lead to changes in the number of cases listed for a given month or to a previous three-year mean.
- Rates based on small numbers (e.g., mumps) may fluctuate dramatically from year to year, even when there is no meaningful difference. Year to year comparisons of these diseases should be interpreted with caution.
- Only diseases with at least one report in the previous year are listed. Those omitted are rare diseases, such as: anthrax, brucellosis, chancroid, cholera, CMV congenital, diphtheria, hantavirus pulmonary syndrome, hepatitis D, hemorrhagic fevers, leprosy, plague, polio, psittacosis/ornithosis, SARS, smallpox, tetanus, trichinosis, tularemia, rabies, yellow fever, and others.

## Case Definitions

All suspect cases of a reportable disease are assessed to see if they meet the case definition provided by the Ministry of Health and Long Term Care (MOHLTC) for the purposes of reporting. Case definitions are based on laboratory test results, clinical diagnostic criteria and/or epidemiological links.

The surveillance case definitions for reportable communicable diseases in Ontario were revised in the Infectious Disease Protocol of the new Ontario Public Health Standards (OPHS), which replaced the Mandatory Programs and Services Guidelines. These updated case definitions apply to all cases of reportable communicable diseases reported to public health on or after April 28, 2009. Toronto Public Health has reclassified case information dating back to April 28, 2009 in iPHIS to reflect the new case definitions.

As the case definitions have changed for many of the reportable diseases, making comparisons to historical case counts and rates (e.g., previous 3-year monthly average) may no longer be valid. These technical notes explain how comparisons between current and historical data can be made. For a large number of reportable diseases, an additional classification of “probable” case has been added, where before only “confirmed” cases were reportable. A list of current case classifications included in the monthly surveillance report, by disease, is included in Appendix A.

## Sexually Transmitted Infections

For all diseases in this section, only the new confirmed case classification is included in this report. The implications of changes to surveillance reporting are described below.

| Disease(s)                           | Implications for comparability of surveillance numbers   |
|--------------------------------------|--|
| Chlamydia, gonorrhoea, and chancroid | Epi-linked cases were previously confirmed, but now they do not meet the confirmed case definition, and are no longer reportable. As such, the number of confirmed cases may be expected to decrease. For these diseases, comparisons should not be made to historical values in this surveillance report without taking this change into account during interpretation. |
| Syphilis                             | Within the seven categories of confirmed syphilis cases, and associated sub-categories, many small changes have been made with respect to number of lesions observed, age ranges (for congenital cases), number of months since first diagnosis, and laboratory procedures, among others. Taken together, the overall impact of these changes on the number of reported  |

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|---|---|
|   | cases is not known. Based on our current understanding, direct comparisons cannot be made to historical values in this surveillance report. |
| Cytomegalovirus infection, congenital, Hepatitis B, hepatitis C, hepatitis D, HIV/AIDS, and ophthalmia neonatarum | Values presented in the current report can be directly compared to previously published data.   |

### Enteric, Food, and Waterborne

For all diseases in this section, epi-linked cases are now considered to be probable cases of disease whereas, for most diseases, they were previously considered confirmed cases (exceptions described below). As well, asymptomatic cases of disease became reportable as probable cases for some diseases, whereas they were not previously reportable. For all diseases in this section, both confirmed and probable cases of disease are now included in this report. The implications of changes to surveillance reporting are described below.

| Disease(s)   | Implications for comparability of surveillance numbers  |
|--|---|
| Amebiasis, <i>Campylobacter</i> enteritis, cryptosporidiosis, cyclosporiasis, food poisoning, giardiasis, hepatitis A, salmonellosis, shigellosis, typhoid fever, verotoxigenic <i>E.coli</i> , and yersiniosis. | Individuals with an epi-link to a laboratory confirmed case, and who do not have laboratory confirmation themselves, are now categorized as probable cases, whereas they were previously confirmed cases. As both probable and confirmed cases are included in this report, data from 2009 are directly comparable to previous years.   |
| Amebiasis, <i>Campylobacter</i> enteritis, cryptosporidiosis, cyclosporiasis, salmonellosis, shigellosis, verotoxigenic <i>E.coli</i> , and yersiniosis  | Asymptomatic cases of disease are now probable cases, whereas they were not previously reportable. This may increase the number of reported cases; however it is not expected to greatly increase the number of cases. For these diseases, comparisons should not be made to historical values in this surveillance report without taking this change into account during interpretation. |
| Listeriosis and paratyphoid fever.   | Epi-linked cases of disease were not previously reportable and now must be reported as probable cases, which may increase the number of reported cases. The effect of including these cases is not yet known, and comparisons should not be made to historical values in this surveillance report without taking this change into account during interpretation.                          |

### Diseases Preventable by Routine Vaccination

For diseases in this section, the most significant changes resulted from the addition of a probable case definition for some diseases.

| Disease(s)                         | Implications for comparability of surveillance numbers  |
|------------------------------------|---|
| Measles, mumps, pertussis, rubella | Probable cases of these diseases are those with clinically compatible signs & symptoms in the absence of appropriate lab tests and in the absence of an epi-link to a lab confirmed case; or clinically compatible signs and symptoms in a person with recent travel to an area of known disease activity. Previously, these cases would have been categorized as confirmed cases. In this report, both confirmed and probable cases are included, which is directly comparable to confirmed cases in previous years. |
| Influenza                          | Influenza did not undergo changes which affect the interpretation of surveillance data; data from 2009 are directly comparable to previous years.   |

### Direct Contact and Respiratory

Diseases in this group have undergone various changes, related in general to the categorization of epi-linked cases and laboratory testing methods. The implications of changes to surveillance reporting are described below.

| Disease(s)                        | Implications for comparability of surveillance numbers  |
|-----------------------------------|---|
| Legionellosis                     | The new probable case definition includes cases identified through NAT, the effect of which is unclear. Comparisons should not be made to historical values in this surveillance report without taking this change into account during interpretation.  |
| Leprosy                           | Epi-linked cases are now reportable as probable cases, whereas they were not reportable previously, which may increase the number of reported cases. The effect of including these cases is not yet known, and comparisons should not be made to historical values in this surveillance report without taking this change into account during interpretation. |
| Streptococcal infections, Group A | Clinically severe epi-linked cases are now reportable as  |

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|--|---|
| invasive   | probable cases, whereas they were not reportable previously. The effect of including these cases is not yet known, and comparisons should not be made to historical values in this surveillance report without taking this change into account during interpretation.   |
| <i>Streptococcus pneumoniae</i> , invasive                                 | Epi-linked cases were previously confirmed, but now they do not meet the case definition for reporting. This is expected to decrease the number of reported cases. Comparisons should not be made to historical values in this surveillance report without taking this change into account during interpretation. |
| Chickenpox, streptococcal infections (Group B neonatal), and tuberculosis. | These diseases did not undergo changes which impact the interpretation of surveillance data; as such, data from 2009 are directly comparable to previous years.   |

### Vectorborne and Zoonotic Diseases

Diseases in this group did not undergo changes which impact the interpretation of surveillance data; as such, data from 2009 are directly comparable to previous years.

### Encephalitis / Meningitis

For diseases in this section, the most significant changes resulted from the addition of a probable case definition. Probable cases of encephalitis and meningitis are those with clinically compatible signs and symptoms in the absence of appropriate laboratory test results. Previously, these cases would have been categorized as confirmed cases. In this report, both confirmed and probable cases are reported, which are directly comparable to confirmed cases in previous years.

**Appendix A.** Case classifications included in monthly surveillance report, by disease.

|   | Disease                                   | Classifications included in monthly surveillance report |
|---|---|---|
| Sexually Transmitted Infections             | AIDS                                      | Confirmed   |
|   | HIV                                       | Confirmed   |
|   | Chlamydia                                 | Confirmed   |
|   | Chancroid                                 | Confirmed   |
|   | Cytomegalovirus infection, congenital     | Confirmed   |
|   | Gonorrhea                                 | Confirmed   |
|   | Hepatitis B                               | Confirmed   |
|   | Hepatitis C                               | Confirmed   |
|   | Hepatitis D                               | Confirmed   |
|   | Herpes, neonatal                          | Confirmed   |
|   | Ophthalmia neonatorum                     | Confirmed   |
|   | Syphilis, infectious                      | Confirmed   |
|   | Syphilis, other                           | Confirmed   |
| Enteric, Food, and Waterborne               | Amebiasis                                 | Confirmed & probable                                    |
|   | Botulism                                  | Confirmed & probable                                    |
|   | <i>Campylobacter</i> enteritis            | Confirmed & probable                                    |
|   | Cryptosporidiosis                         | Confirmed & probable                                    |
|   | Cyclosporiasis                            | Confirmed & probable                                    |
|   | Food poisoning                            | Confirmed & probable                                    |
|   | Giardiasis                                | Confirmed & probable                                    |
|   | Hepatitis A                               | Confirmed & probable                                    |
|   | Listeriosis                               | Confirmed & probable                                    |
|   | Paratyphoid fever                         | Confirmed & probable                                    |
|   | Salmonellosis                             | Confirmed & probable                                    |
|   | Shigellosis                               | Confirmed & probable                                    |
|   | Typhoid fever                             | Confirmed & probable                                    |
|   | Verotoxigenic <i>E. coli</i> (VTEC)       | Confirmed & probable                                    |
| Yersiniosis                                 | Confirmed & probable                      |   |
| Diseases Preventable by Routine Vaccination | <i>Haemophilus influenzae</i> b, invasive | Confirmed   |
|   | Influenza, seasonal                       | Confirmed   |
|   | Influenza, pH1N1                          | Confirmed   |
|   | Measles                                   | Confirmed & probable                                    |
|   | Mumps                                     | Confirmed & probable                                    |
|   | Pertussis                                 | Confirmed & probable                                    |
|   | Rubella                                   | Confirmed & probable                                    |
|   | Rubella, congenital syndrome              | Confirmed   |

Continued...

**Appendix A.** Case classifications included in monthly surveillance report, by disease.

|                                | Disease                                    | Classifications included in monthly surveillance report |
|--------------------------------|--|---|
| Direct Contact and Respiratory | Chickenpox                                 | Confirmed   |
|                                | Legionellosis                              | Confirmed & probable                                    |
|                                | Leprosy                                    | Confirmed & probable                                    |
|                                | Meningococcal disease, invasive            | Confirmed & probable                                    |
|                                | Streptococcal infections, Group A invasive | Confirmed & probable                                    |
|                                | Streptococcal infections, Group B neonatal | Confirmed   |
|                                | <i>Streptococcus pneumoniae</i> , invasive | Confirmed   |
|                                | TB: Atypical mycobacterial infections      | Confirmed   |
|                                | Tuberculosis                               | Confirmed   |
| Vectorborne and Zoonotics      | Brucellosis                                | Confirmed & probable                                    |
|                                | Lyme disease                               | Confirmed   |
|                                | Malaria                                    | Confirmed   |
|                                | Q fever                                    | Confirmed   |
|                                | West Nile Virus                            | Confirmed & probable                                    |
| Encephalitis / Meningitis      | Encephalitis/Meningitis - bacterial        | Confirmed & probable                                    |
|                                | Encephalitis/Meningitis - viral            | Confirmed & probable                                    |
|                                | Encephalitis/Meningitis - other            | Confirmed & probable                                    |
|                                | Encephalitis/Meningitis - unknown          | Confirmed & probable                                    |