

## Program/Service Information Report

# Trends in Diseases of Public Health Significance (Excluding Sexually Transmitted Infections) in Wellington-Dufferin-Guelph

2013-2022

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To: Chair and Members of the Board of Health

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## Key Points

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- The Infectious Disease (ID) Program at Wellington-Dufferin-Guelph Public Health (WDGPH) receives all laboratory-confirmed reports of diseases of public health significance (DoPHS; formerly known as reportable diseases) for area residents.
- ID cases are recorded in a provincial database and followed up to collect disease information to prevent further transmission.
- Over a ten-year period (2013 to 2022), there were no obvious increasing or decreasing trends for most DoPHS, except for cryptosporidiosis and Lyme Disease.
- Reduced access to primary care over the course of the pandemic may have resulted in higher degrees of under-reporting of mild cases of DoPHSs, such as some enteric diseases.
- Data presented here inform program activities of the Infectious Diseases team.

# Program Requirements

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## Compliance with OPHS and Accountability Indicators:

In compliance

Not in compliance. If not in compliance, provide additional information about the variance and how it will be addressed.

## Highlights

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### Infectious Diseases Program Overview

Under the Health Protection and Promotion Act (1990), public health units are responsible for the control of infectious diseases and diseases of public health significance (DoPHS) to prevent the spread of communicable diseases and promote and protect the overall health of our community. There are 68 DoPHS identified under the Ontario regulation 135/18: These diseases range in communicability and virulence and have mandatory reporting requirements to public health units. Public Health provides a 24/7 on-call system for reporting and follow up of DoPHS.

Data collected by the ID Program is documented in an internal electronic medical record (Input Health) and are also reported in a provincial database, iPHIS.

Case management consists of the investigation and determination of disease acquisition/exposure history, identification of risk factors, health teaching, appropriate diagnostic testing and treatment, and identification of contacts. Where clusters of cases are identified in the community, additional investigations and enhanced case follow-up may be conducted, often involving other teams within WDGPH and, in the case of some multi-jurisdictional outbreaks, other public health units and agencies.

### Trends Over Time (DoPHS from 2013 to 2022):

Over the period 2013 to 2022, there were no obvious increasing or decreasing trends for all but two of the DoPHS. Exceptions were cryptosporidiosis, a parasitic disease, and Lyme Disease, which is transmitted by the black-legged tick. See Appendix A for a ten-year summary of all DoPHS reported to WDGPH by year from 2013 to 2022.

## 1. Cryptosporidiosis

*Cryptosporidium* causes gastrointestinal illness infecting several species of animals - which can serve as reservoirs for the organism - as well as people. *Cryptosporidium spp.* are therefore zoonotic organisms: they are transmitted from animals to humans, mainly by being shed in the faeces into the environment. Contact with contaminated soil, food or water can then cause infection and illness in people. Human to human transmission can also occur, from one infected person to another.

There has been a gradual increase in the number of cases of cryptosporidiosis diagnosed in people in WDGPH over the past few years. Some of the increase in cryptosporidiosis could be due to a more sensitive diagnostic technique (polymerase chain reaction or PCR) that was introduced at some laboratories in the province in 2018; however, continued increases in reported cases were being seen locally even before that change.<sup>1,2</sup> It is possible that climate change, with milder winter temperatures in Ontario, is partly responsible for the trend, i.e., that the increase partly reflects a true gradual rise in incidence over the years.

In addition to this general increase in incidence seen in WDGPH, the local incidence of this disease has consistently been higher than the provincial incidence throughout the ten-year period under review. *Cryptosporidium* is a pathogen frequently shed by farm animals, especially dairy calves, and contact with farm animals is frequently reported by cases reported in WDG.<sup>3</sup> The relative abundance of farm animals, notably dairy cattle, in the rural areas of WDGPH is therefore a likely explanation for the higher incidence of cryptosporidiosis seen in the region.

## 2. Lyme Disease:

Lyme disease is caused by the zoonotic bacterium *Borrelia spp.* which is carried by blacklegged ticks; ticks can transmit the bacteria to people while attached and feeding on a host. The incidence of Lyme disease in the USA and Canada has been increasing over the past few years due to climate change and the resulting expansion of areas where the ticks can survive.<sup>4</sup> This change has been reflected in the trend of reported cases in WDG over the past ten years: the number of cases rose from one per year before 2016 to over ten cases in 2022, with a corresponding increase in the incidence rate per 10,000 people

# Effect of Pandemic on (Or Post-Pandemic) WDGPH Infectious Diseases Program Activities

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The pandemic response implemented at WDGPH in 2020 resulted in some reduction in the normal activities of most programs. Reduced capacity for follow-up of some DoPHS resulted in less information being collected on some data elements, such as symptoms experienced by cases and exposures that may have resulted in acquisition of the disease. In addition, the wider pandemic response in the community may have caused or exacerbated the under-reporting of some DoPHS, as cases with milder and self-limiting symptoms may have been less willing, and/or less able, to access primary health care and so less likely to be tested and reported to Public Health. There may also have been a lower level of transmission of some diseases because of the effect of pandemic measures on person-to-person contact within the population.

With the gradual return to normal activities at WDGPH and in the wider society, it is anticipated that the detection, reporting and follow-up of cases will eventually attain the levels that existed before the COVID-19 pandemic began.

## Conclusion

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A review of the data on DoPHS over the past ten years does not show any definite increasing or decreasing trends over that period, except for the diseases mentioned earlier. Pandemic measures may have reduced the transmission of some diseases over the past two to three years; however, reduced access to primary care and testing, and reduced capacity for case follow-up and data collection within WDGPH, may have impacted this data.

## References

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1. Public Health Ontario email communication.
2. Johnson KO, Thayani P, Warshawsky B, Whitfield Y, Pritchard J, Murti M. The epidemiology of cryptosporidiosis in Ontario, Canada following the introduction of PCR testing in 2018. *Can Commun Dis Rep* 2020;46(7/8):227–30. <https://doi.org/10.14745/ccdr.v46i78a02>. (Accessed Dec 15, 2022)

3. Trotz-Williams LA, Jarvie BD, Martin SW, Leslie KE, Peregrine AS. Prevalence of *Cryptosporidium parvum* infection in southwestern Ontario and its association with diarrhea in neonatal dairy calves. *Can Vet J.* 2005 Apr;46(4):349-51. PMID: 15943123; PMCID: PMC1082880.  
<https://www.ncbi.nlm.nih.gov/pmc/articles/PMC1082880/>
4. Bouchard C, Dibernardo A, Koffi J, Wood H, Leighton PA, Lindsay LR. Increased risk of tick-borne diseases with climate and environmental changes. *Can Commun Dis Rep* 2019; 45(4):83–9. <https://doi.org/10.14745/ccdr.v45i04a02>

## Appendices

### Appendix A - Numbers of laboratory-confirmed cases of diseases of public health significance reported to WDG Public Health, 2013 to 2022

Disease	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	TOTAL
Influenza	147	231	180	212	232	349	253	172	<5	297	2074
<i>Campylobacter</i> enteritis	133	117	110	107	106	98	115	92	109	79	1066
Hepatitis C	73	70	91	106	80	98	86	49	69	42	764
Salmonellosis	55	95	67	74	69	91	53	50	32	49	635
Cryptosporidiosis	12	19	15	24	34	71	60	33	70	38	376
Giardiasis	34	25	46	35	26	52	33	29	32	38	350
Hepatitis B (all)	46	44	61	59	60	123	93	62	102	76	726
<i>Streptococcus pneumoniae</i> , invasive	27	17	22	30	25	34	18	18	10	25	226
Hepatitis B - chronic	27	21	16	18	15	33	26	16	22	22	216
Group A <i>Streptococcus</i> disease, invasive	10	8	18	18	14	19	14	19	10	8	138
Verotoxin-producing <i>E. coli</i>	<5	8	7	17	6	8	14	10	15	10	98
Cyclosporiasis	8	<5	<5	9	6	6	13	<5	<5	10	65
Tuberculosis (active)	8	7	6	10	7	6	6	5	5	5	65
Chickenpox	5	<5	5	7	6	8	9	8	5	7	64
<i>Yersinia</i>	<5	5	7	5	11	11	9	<5	<5	<5	60
Legionellosis	<5	<5	<5	<5	<5	6	12	9	11	6	59
Lyme	<5	<5	<5	<5	8	6	8	5	10	11	55
Hepatitis A	0	<5	<5	<5	<5	24	<5	<5	0	<5	37
Pertussis	8	5	<5	<5	5	<5	5	<5	0	<5	37
Hepatitis B - acute	9	0	<5	<5	<5	5	<5	<5	<5	<5	30
Meningitis (viral)	6	<5	6	<5	5	<5	<5	<5	0	<5	29
Mumps	0	0	15	0	10	<5	0	<5	0	0	27
<i>Haemophilus influenzae</i> disease, all types	0	0	0	0	0	<5	9	<5	<5	6	25
Shigella	<5	<5	0	7	5	<5	<5	<5	<5	<5	24
Meningitis (bacterial)/meningococcaemia	0	<5	<5	5	<5	<5	<5	0	<5	<5	22

Encephalitis/Meningitis (all)	<5	<5	<5	<5	<5	<5	<5	<5	0	<5	<b>17</b>
Malaria	<5	<5	<5	<5	<5	<5	0	0	0	0	<b>16</b>
Amebiasis	<5	<5	<5	<5	0	0	<5	<5	<5	0	<b>13</b>
Carbapenamase-producing enterobacteriaceae	0	0	0	0	0	<5	<5	<5	<5	5	<b>13</b>
Clostridium difficile infection	10	0	<5	0	0	0	0	0	0	0	<b>13</b>
Listeriosis	0	0	0	<5	<5	<5	<5	<5	<5	0	<b>11</b>
Monkeypox	0	0	0	0	0	0	0	0	0	6	<b>6</b>
Paratyphoid fever	<5	0	0	0	0	<5	0	<5	0	<5	<b>6</b>
Qfever	0	<5	0	0	<5	0	<5	0	0	<5	<b>5</b>
Trichinosis	0	0	0	0	<5	0	<5	<5	0	<5	<b>5</b>
West Nile Virus Illness	0	0	<5	<5	<5	0	0	<5	0	0	<b>5</b>
Creutzfeldt Jakob Disease	0	<5	0	0	0	0	0	0	<5	0	<b>&lt;5</b>
Blastomycosis	0	0	0	0	0	0	<5	<5	0	0	<b>&lt;5</b>
Typhoid	<5	0	0	0	0	0	0	<5	0	0	<b>&lt;5</b>
Measles	0	<5	0	0	0	0	0	0	0	0	<b>&lt;5</b>
Meningitis (other)	0	0	0	0	0	0	0	<5	0	0	<b>&lt;5</b>
Cytomegalovirus	0	0	0	0	0	0	0	0	0	0	<b>0</b>
Rubella	0	0	0	0	0	0	0	0	0	0	<b>0</b>