

Infectious Disease Spotlight: Mpox (formerly known as monkeypox), Pertussis and Invasive Group A Streptococcal (iGAS) Disease

To: Chair and Members of the Board of Health

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Recommendations

That the Board of Health receive this report for information.

Key Points

- Infectious diseases, such as mpox, pertussis and invasive group A streptococcal (iGAS) disease have raised media and public interest regarding local impact.
- Public Health has a 24/7 on-call system to receive and assess reports of diseases of public health significant (DoPHS) and clusters of illnesses.
- Public Health is a key partner in the management and surveillance of infectious diseases in the Wellington-Dufferin-Guelph (WDG) area.

Background

Public Health Role in Infectious Diseases and/or Diseases of Public Health Significance

Under the Health Protection and Promotion Act (HPPA), infectious diseases are to be reported to the health unit for investigation on a 24/7 basis. O. Reg. 135/18: Designation of Diseases, under HHPA, states there are 68 Diseases of Public Health Significance (DoPHS) identified which vary in infectiousness and virulence (Appendix A). Management and control of infectious diseases are a program standard under the Ontario Public Health Standards with the goal to reduce the overall burden of diseases in the province.

Public Health systematically collects pertinent information in infectious disease case investigation, such as symptoms, onset, potential acquisition and transmission, health status and risk factors. Analysis of these factors inform decisions and guide public health interventions and actions.¹ Public Health may recommend a variety of interventions depending on the infectious disease reported. Working with the community and health care partners, Public Health interventions aim to prevent and reduce the spread of disease within WDG communities.

Infectious Diseases Spotlight: Mpox, Pertussis, and iGAS

There has been increased media and public attention to mpox, pertussis and iGAS. These diseases are reportable to Public Health and there has been activity of these diseases within the WDG area. This report will review these three diseases to demonstrate the response in infectious diseases and the importance of surveillance to identify an increase or cluster of cases that would require an enhanced response. Local epidemiological information can be found in Appendix B.

Mpox

In November 2022, the World Health Organization (WHO) recommended a name change from monkeypox to mpox to reduce negative social impacts and stigmatization.² The virus was named in 1958, after a group of infected research monkeys had the illness. Stigma and discrimination or anticipated fears can prevent individuals from coming forward and seeking treatment which disrupts public health interventions to help stop transmission.³

In May 2022, mpox cases were identified in 12 different countries that had no travel links to endemic areas and was declared by WHO a disease of global public health significance.⁴ Most cases have been identified in men who have sex with men (MSM), however anyone, regardless of sex, race, gender or sexual orientation, who has close, prolonged contact with someone infected with mpox or is in contact with contaminated materials is at risk of becoming infected.

This viral illness typically begins with fever, headache, swollen lymph nodes, fatigue and muscle aches. A few days later, a rash or lesions appear all over the body or at times a single location. Individuals are usually unwell for 2-4 weeks. The illness is usually mild but can be severe and result in death.

As of January 31, 2023, there have been 691 cases in Ontario.⁶ WDG had 6 confirmed cases of mpox between June and September 2022.⁷ No cases have been reported in the WDG region since October 2022 (Appendix B).

The infectious diseases program investigates confirmed and probable cases to gather information of where these individuals may have acquired the virus and identify anyone that may be at risk of developing the illness. Communication was provided to physicians, health care providers, hospitals, and the public about the signs and symptoms of mpox, testing, and how best to prevent exposure against the virus. The smallpox vaccine was identified as an effective prevention strategy for those at high risk of exposure to the virus. The vaccine was distributed by WDG Public Health and community partners, such as Aids/HIV Resources & Community House (ARCH) and a total of 407 doses were administered.⁸

Accurate and effective communication about mpox is critical to combat the disease and avoid increasing fear and stigma.^{2,9} It is important to recognize that the risk factors for acquiring mpox are not exclusive to any group. Providing public health information about mpox to the general public and strategic messaging to the lesbian, gay, bisexual, trans, queer or questioning, intersex, asexual (LGBTQIA+) community is important to reduce the transmission in the community. Public Health has strong partnerships with LGBTQIA+ organizations to decrease stigma and support individuals in staying healthy.

Pertussis (Whooping cough)

Over recent months, several surrounding health units have issued public health alerts due to the increased numbers of people getting sick with pertussis. Pertussis usually occurs in individuals that are unvaccinated or are not up to date with their

immunizations. As of February 7, 2023, there have been 3 probable cases of pertussis reported in the WDG area in under-vaccinated children since the beginning of 2023 (Appendix B).

Pertussis is a highly contagious disease that is caused by a bacteria called *Bordetella pertussis* and can spread from person to person through droplets when someone sick with pertussis coughs or sneezes. Typically, pertussis begins like a common cold, with a runny nose, mild cough, and low-grade fever for 1-2 weeks, followed by up to 2 months of severe coughing. A distinctive whooping sound occurs after the coughing episode, upon inhalation, which can lead to vomiting.

Symptoms can vary depending on age and vaccination status. Teenagers and adults can experience no symptoms or can have a prolonged persistent cough. Young infants may have no coughing but may have periods where it is difficult to breathe and can stop breathing for periods of time. Serious complications can occur such as pneumonia, brain infections, hospitalization, and death in babies under the age of 1 year and especially under 2 months of age.

Whooping cough can be treated with an antibiotic, but prevention through vaccination is best. Pertussis is part of the routine vaccines provided to infants, starting at the age of 2 months. Children are recommended to have 5 doses by the time they are 6 years old. Teenagers and adults are recommended to get booster doses. Vaccination is also recommended in the last trimester of pregnancy to protect newborn babies.

In Ontario, pertussis cases increase and circulate every 2-5 years.¹⁰ Pertussis protection from vaccines or natural infection wanes over time. Immunized individuals, however, will have less serious illness and complications.^{11,12} Over the COVID-19 pandemic there were less opportunities for getting routine vaccinations. Lower vaccination rates for pertussis creates a larger group of vulnerable children that are at risk of getting the disease.

Public health units provide significant interventions in vaccine preventable disease and infectious diseases programs to help support the health of the WDG community. Public Health Nurses review immunization records of all students in elementary and high school, as well as licensed day cares to make sure children are up to date with their immunizations. If vaccinations are not up to date a reminder of the outstanding doses of vaccine is provided.

When cases of pertussis are identified, the infectious disease (ID) program follows up on these reports to ensure proper case and contact management investigations. It is important to identify any high-risk contacts, specifically those under the age of 1 year and in the third semester of pregnancy.

Public health works to develop strong partnerships with vulnerable populations to provide education on the benefits of vaccination and key messaging to prevent illness. WDG has a significant Low-German Speaking (LGS) Mennonite population within the region.¹³ Surrounding health units have reported increasing cases of pertussis within the LGS Mennonite population.

Invasive Group A Streptococcal Disease (iGAS)

Group A Streptococcus (GAS) is a bacteria that is often found in the nose, throat and/or the skin of healthy people but can make some people sick. GAS can spread person-to-person through direct contact with secretions/fluids from the nose and throat or from direct contact with infected wounds or sores. GAS infection commonly causes mild illnesses such as skin infections, sore throat, and scarlet fever. In rare cases, it can become “invasive” (iGAS), meaning the bacteria enters the blood or deep tissue. This can result in life-threatening illnesses and even death.

There has been a lot of media attention regarding invasive group A strep (iGAS) killing children in the United Kingdom over the past few months.^{14,15,16} The World Health Organization (WHO) has reported an increase of scarlet fever and iGAS mostly affecting children under the age of 10 years in at least 5 European countries.¹⁷ There is no evidence of a new or antibiotic resistant strains.¹⁸ Respiratory infections, such as chickenpox and influenza, increase the chance of getting an iGAS infection.¹⁸

In Ontario in late 2022 there was a, a slight increase in laboratory-confirmed cases of iGAS; however, no deaths occurred in the under-18 years of age population. Locally, 9 lab-confirmed cases were reported in 2022 none of which involved children. To date no unusual trends have been observed (Appendix B) locally.

The signs and symptoms of iGAS can vary based on where the bacteria can be found. Some examples of iGAS are necrotizing fasciitis, meningitis, and toxic shock syndrome. Risk factors for iGAS include very young children (under 1 year of age) or people over 60 years of age, chronic diseases or weakened immune systems, recent surgery, people who are pregnant or postpartum, people that use intravenous drugs, and chronic skin lesions or breaks in the skin (e.g., chickenpox, ulcers).

Discussion

This report has provided the background and local data of three infectious diseases, mpox, pertussis and iGAS. Prevention is the key to reducing the burden of infectious diseases in the WDG community. Vaccination provides a level of protection for all these diseases. Increasing the vaccination rates for children, especially those children in hard-to-reach populations would improve the overall health of the community. Ensuring parents are knowledgeable and aware of the continued benefit of vaccines for their children and themselves in reducing infectious diseases over the lifetime can reduce the morbidity and mortality of vaccine preventable diseases.

Not all infectious diseases are able to be prevented with vaccines. Standard infection control approaches - handwashing, good respiratory etiquette, staying home when sick, avoiding sharing drinks, food, and utensils, are all appropriate ways to stay healthy. Seeking medical care when unwell, and getting appropriate testing done to identify the organisms that are the cause of the illness is important so that if an infectious disease is found, then appropriate public health management can occur.

Health Equity Implications

Health inequities and social determinants of health create conditions for the transmission of infectious diseases that can contribute to the unequal burden of illness and disease in communities.¹³

To address disparities, Public Health provides information about infectious diseases in clear, simple, non-judgemental language. Written materials can be translated into other languages to aid in understanding. School based vaccine programs ensure that all families have access to free vaccines. Schools with lower vaccine uptake are visited more often to provide more opportunities for vaccination. Additionally professional interpretation and transportation services are used when appropriate to reduce barriers to access service.

Conclusion

Public health surveillance of infectious diseases provides public health professionals with information to respond quickly to emergent situations. Developing strong community partnerships with health care professionals, institutions, and organizations, especially those with ties to hard-to-reach populations can enhance public health efforts to protect the WDG community from infectious diseases and illnesses.

Ontario Public Health Standards

Foundational Standards

- Population Health Assessment
- Health Equity
- Effective Public Health Practice
- Emergency Management

Program Standards

- Chronic Disease Prevention and Well-Being
- Food Safety
- Healthy Environments
- Healthy Growth and Development
- Immunization
- Infectious and Communicable Diseases Prevention and Control
- Safe Water
- School Health
- Substance Use and Injury Prevention

2023 WDGPH Strategic Directions

- People & Culture:** WDGPH has an organizational culture of engagement, inclusion and agility.
- Partner Relations:** WDGPH collaborates with partners to address priority health issues in the community.
- Health System Change:** WDGPH is positioned to be an agent of change within the broader health sector.

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[health advice on preventing and addressing stigma and discrimination related to mpox](#)

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Appendices

Appendix A: Diseases of Public Health Significance



Diseases of Public Health Significance

Report the following suspected or confirmed diseases to the Medical Officer of Health by telephone or fax as soon as possible.

Diseases marked with an asterisk (*) require immediate Public Health follow up. (*Health Protection and Promotion Act, O. Reg. 135/18, O. Reg. 569*)

To report diseases

Telephone:
Monday – Friday,
8:30 a.m.-4:30 p.m.
1-800-265-7293, ext. 4752

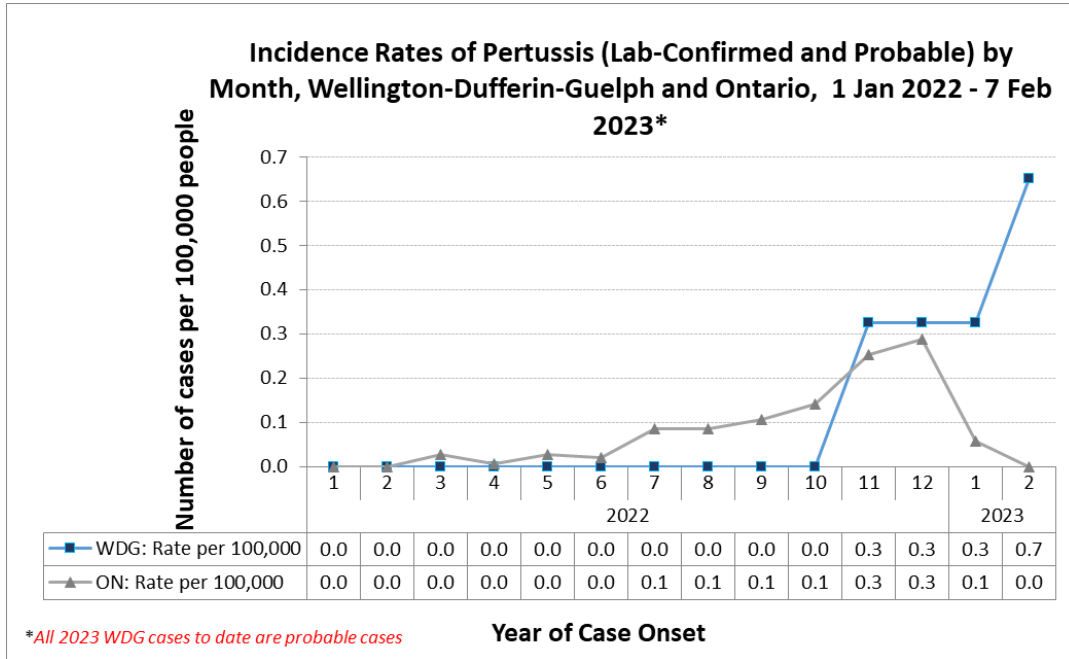
After hours and holidays,
1-877-884-8653

Fax:
1-855-934-5463
1-855-WDGLINE

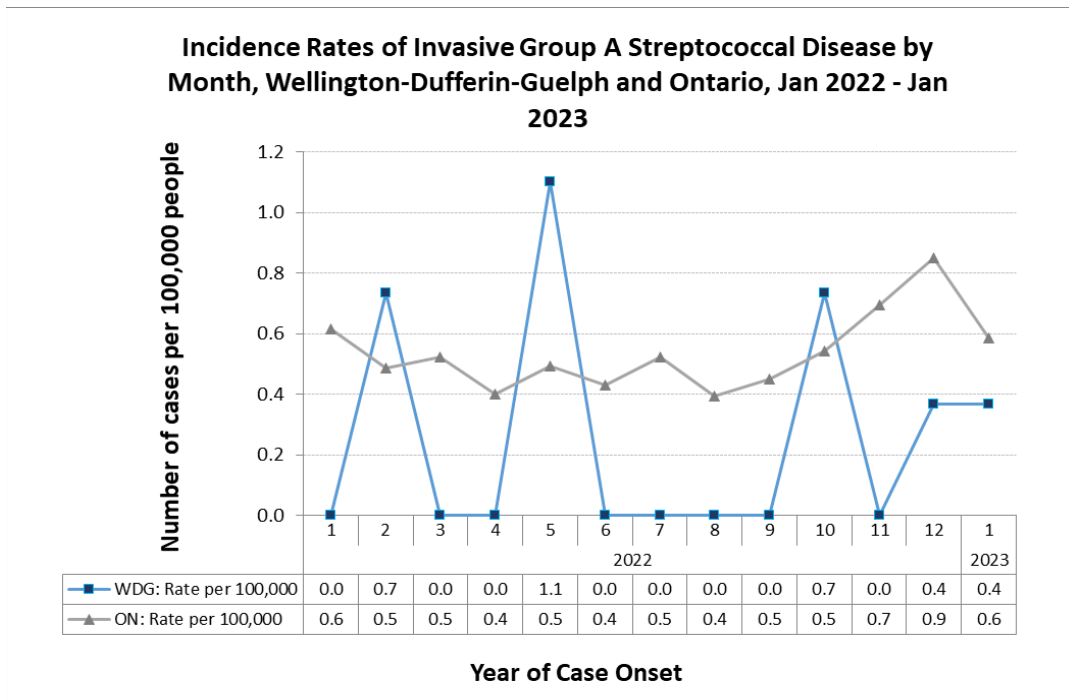
HPDCD(FS)20 – 12/2022am

Acquired Immunodeficiency Syndrome (AIDS)	Influenza
Acute Flaccid Paralysis (AFP) (under age 15)	* Legionellosis
Amebiasis	Leprosy
* Anthrax	* Listeriosis
Blastomycosis	Lyme Disease
* Botulism	* Measles
* Brucellosis	* Meningitis, acute
<i>Campylobacter</i> enteritis	* i. Bacterial
Carbapenamase-producing Enterobacteriaceae (CPE) (colonization or infection)	ii. Viral
Chancroid	iii. Other
Chickenpox (Varicella)	* Meningococcal disease, invasive
<i>Chlamydia trachomatis</i> infections	Mumps
Cholera	* Novel Coronaviruses (including COVID-19, SARS, MERS)
<i>Clostridium difficile</i> infection (CDI) outbreaks in public hospitals	Ophthalmia neonatorum
* Creutzfeldt-Jakob Disease, all types	Paralytic Shellfish Poisoning (PSP)
Cryptosporidiosis	Paratyphoid Fever
Cyclosporiasis	Pertussis (Whooping Cough)
* Diphtheria	* Plague (<i>Yersinia pestis</i>)
<i>Echinococcus multilocularis</i> infection	Pneumococcal disease (<i>Streptococcus pneumoniae</i>), invasive
Encephalitis, including	* Poliomyelitis, acute
i. Primary, viral	Psittacosis/Ornithosis
ii. Post-infectious	* Q Fever
iii. Vaccine-related	* Rabies
iv. Subacute sclerosing panencephalitis	* Respiratory infection outbreaks in institutions and public hospitals
* Food poisoning, all causes	Rubella
* Gastroenteritis, outbreaks in institutions and public hospitals	Rubella, congenital syndrome
Giardiasis, except asymptomatic cases	Salmonellosis
Gonorrhoea	Shigellosis
* Group A Streptococcal disease, invasive	* Smallpox, and other Orthopoxviruses, including
Group B Streptococcal disease, neonatal	i. Monkeypox
* <i>Haemophilus influenzae</i> disease (all types), invasive	Syphilis
* Hantavirus Pulmonary Syndrome	Tetanus
* Hemorrhagic fevers:	Trichinosis
i. Ebola virus disease	* Tuberculosis, active cases (also report positive skin tests in mm)
ii. Lassa fever	* Tularemia
iii. Marburg disease	* Typhoid Fever
iv. Other viral causes	* Verotoxin-producing <i>E. coli</i> infection indicator conditions, incl. Haemolytic Uraemic Syndrome (HUS)
Hepatitis, viral	West Nile Virus illness
i. Hepatitis A	Yersiniosis
ii. Hepatitis B	
iii. Hepatitis C	

Pertussis: 2022-2023:



iGAS 2022-2023:



iGAS case summary: 9 lab-conf cases 2022-Jan 2023: 5 males, 4 females; 6 from Guelph, 3 from Wellington County.

Age groups: 30-34 (n=1); 45-49 (n=1); 50-54 (n=1); 55-59 (n=4); 75-79 (n=1) and 90+ years (n=1)

Data Source (all charts): Integrated Public Health Integrated System: Extracted from PHO ID Query February 7, 2023.