Infectious Diseases and Environmental Health

KEY MESSAGES:

- Cases of invasive pneumococcal disease jumped to 54 cases in 2023 from 16 cases in 2019, causing the rate of infection to significantly rise in Algoma as compared to Ontario⁽¹⁾.
- In early 2022, COVID-19 cases peaked in Algoma, resulting in increased illnesses, hospitalizations, and deaths.
- Algoma had 44 cases of invasive group A streptococcal (iGAS) disease in 2023, the highest it has been in 10 years⁽¹⁾.
- A significant rise in food-borne illness was observed in Algoma in 2023. The rate of infection in Algoma (49.2 per 100,000) was higher than Ontario (44.0 per 100,000) and NE PHUs (39.5 per 100,000)⁽¹⁾.



Pathogens are the cause of infectious diseases, but the environment can have a significant impact on the circumstances in which the viruses grow, spread, and cause harm. Through environmental interventions like basic sanitation, preventive methods like vaccine development, food and water safety awareness, and effective treatment in the form of antibiotics, significant progress has been made in the control of infectious diseases.

However, microorganisms adapt and evolve to their conditions which allow them to continue to grow. In addition, human behaviour (e.g. personal hygiene, sexual behaviour, drug use, needle and equipment sharing), globalization (e.g. travel), and the social determinants of health (e.g. income and income distribution) play a significant role in the spread of infectious diseases.

Even with all advancements, several long-established and emerging infectious diseases are difficult to control. They can cause serious or fatal infections, and might have the potential for outbreaks, imposing a significant burden on the health of the community. Algoma Public Health monitors <u>Diseases of Public Health Significance</u> (DOPHS) for timely management and surveillance to prevent communicable disease outbreaks from occurring.

This section includes a summary of selected DOPHS that had a higher than usual rate of infection during, and post-pandemic, in Algoma. Note that sexually transmitted and blood-borne infections (STBBIs) are summarised in the Healthy Sexuality chapter.

Vaccine preventable infectious diseases

There are some infectious diseases for which vaccines are available. Vaccines have prevented countless cases of infection and saved millions of lives. A gap in vaccination coverage along with limited access to routine healthcare services can lead to cases of vaccine preventable diseases (VPD) in a community. This section focuses on the rate of VPDs while the **Immunization chapter** summarizes the vaccination coverage in Algoma.

Pneumococcal disease

Pneumococcal disease is caused by the Streptococcus pneumoniae bacteria. Those most at risk for serious complications from invasive pneumococcal disease are individuals 65 years and older and children less than 2 years old. The invasive form of the pneumococcal disease (bacteria in the blood stream, spinal cord, or brain) is monitored across Ontario. The rate of streptococcal pneumonia invasive infection in Algoma has been rising since 2018 and in 2023, it was two times that of NE PHUs and four times that of the provincial rate.





Pertussis (whooping cough)

In Algoma, there was a pertussis ("whooping cough") outbreak that began in Fall 2023 (the first since 2016) infecting 17 people. While people of all ages were affected, most affected were infants and children under the age of 15 (10 out of 17 cases or 58.8%)⁽¹⁾. All the cases were among those not vaccinated for pertussis.

Measles

Starting September 2023 and continuing into 2024, Canada reported an unusually high number of measles cases. The majority of reported cases occurred in individuals who were unvaccinated, many of whom were children⁽²⁾.

While 12 cases of measles have been reported across Ontario from September 2023 to March 2024, 0 cases were from Algoma or Northeastern Ontario⁽¹⁾.

Childhood communicable diseases

There are many common childhood communicable diseases that families will experience. These diseases are not monitored and therefore infection rates are not available, nevertheless information on how to prevent and manage these illnesses is available on our <u>website</u>.



Fifth disease



Hand, Foot and Moth (HFM)



Impetigo







Head Lice

Respiratory infections: COVID-19, influenza and tuberculosis

COVID-19



Age-standardized rate (per 100,000) of COVID-19 cases

In 2020 and 2021, Algoma experienced a lower volume of COVID-19 cases than Northeastern Ontario and Ontario. Algoma's COVID-19 cases peaked in early 2022 when the Omicron variant began circulating, with case numbers dropping during the year.



long term care homes.

Due to the peak in COVID-19 cases throughout 2022, Algoma COVID-19-related hospitalizations and deaths also peaked in the first quarter (Q1) of 2022.

The magnitude and complexity of the COVID-19 pandemic made it a significant public health event both globally and locally. From the detection of the first confirmed case in Algoma on March 16, 2020, Algoma Public Health worked with external partners to respond effectively and to control the spread of the virus. The **Emergency Management** section elaborates on COVID-19 emergency response metrics in Algoma.



Throughout the pandemic, most of Algoma's outbreaks were within

COVID-19 outbreaks in Algoma by setting and season

Influenza

Influenza is a viral respiratory infection that occurs in annual epidemics during the winter months and is commonly referred to as the flu. The most important infection control measure to prevent serious morbidity and mortality is annual influenza immunization. All Ontario residents aged 6 months and older are eligible to receive publicly funded influenza vaccine yearly. Other infection prevention strategies include hand hygiene and proper respiratory etiquette (e.g., covering your cough).

Both COVID-19 and influenza can be causes of outbreaks in institutions such as retirement homes, hospitals, and long-term care homes.

Public health inspectors and public health nurses' complete case and contact management to determine the source of infection, possible lapses in infection control practices, and limit the spread of diseases to prevent an outbreak. Support and guidance are offered to facilities to ensure they are incorporating best practices for infection prevention.

From September 2022 to August 2023, there were 125 respiratory outbreaks in Algoma. Of these, 73 were due to COVID-19, 7 were due to influenza A virus, 13 were due to rhinovirus (common cold) and 32 were due to either unknown or other less common respiratory viruses⁽⁷⁾.



Number of influenza outbreaks in Algoma by season and setting⁽⁷⁾



Respiratory outbreaks from September 2022 to August 2023

Tuberculosis

Algoma continues to report among the lowest rates of active tuberculosis in Ontario. Between 2019 and 2023, six cases were diagnosed with active tuberculosis in Algoma⁽¹⁾.

It is important for health care providers to support the medical surveillance of tuberculosis by providing screening, and follow-up for clients to prevent further infection or progression of TB disease.

Group A streptococcal disease, invasive (iGAS)

The number of iGAS cases in Algoma have been increasing since 2018 to a record high of 44 cases in 2023⁽¹⁾. In Algoma, between July 2018 to June 2023, this serious bacterial infection affected the following high-risk groups: Increasing trends in iGAS cases are not exclusive to Algoma.

Although our cases are disproportionately high in the North due to the higher prevalence of the above risk factors, a surge in iGAS cases has also been seen in recent years (2022 - 2023), provincially, nationally as well as internationally⁽⁹⁾. Learn more about the severity of iGAS and how to avoid it, on our website.



Adults, 41 - 65 years in age (63.1% of cases)⁽⁸⁾







such as diabetes, chronic wounds, or immunodeficiencies⁽⁸⁾



Injection drug users (67.9% of cases)⁽⁸⁾

Homeless or underhoused (48.8% of cases)(8)

Blastomycosis

Blastomycosis is a rare fungal infection caused by breathing in a fungus (blastomyces dermatitis). The fungus is found in acidic, moist soil native to parts of Northern Ontario. Learn more about blastomycosis and how to avoid it, on our website.

The average yearly incidence of blastomycosis in Algoma from 2018 to 2022 was 1.4 cases per 100,000 people. However, it increased to 7.6 per 100,000 people in 2023 and is significantly higher than the provincial 0.8 per 100,000 $people^{(1)}$.

There are no identifiable trends in common exposures/locations among detected cases during 2023. Therefore, this increase may be a positive sign that detection/diagnosis is improving, which is important as the outcome of blastomycosis infection can be greatly improved with early detection.

Age-standardized rate (per 100,000) and case count of group A streptococcal (iGAS) infection⁽¹⁾



Age-standardized rate (per 100,000) and case count of blastomycosis infection



Enteric infections

Food-borne illness[®]

PHIs complete routine inspections to ensure facilities follow mandatory food regulations and guidelines. <u>Safe Food Handler courses</u> are also offered through APH to certify that individuals are prepared with knowledge and training to prevent improper handling of food.





Despite these efforts, food-borne illnesses still occur. When food-borne illnesses are suspected or confirmed, PHIs work directly with those experiencing symptoms to help identify potential sources of exposure and to avoid re-infection.

The rate of food-borne illnesses in Algoma has notably fluctuated between 2018 and 2023, with a rise in 2020 and peaking in 2023 during which time the rate was higher than NE PHUs and Ontario⁽¹⁾.

The average rate (per 100,000) of food-borne illnesses from 2019 to 2023 was:





38.5 Ontario

Focus on salmonellosis and campylobacteriosis

Salmonellosis and Campylobacteriosis are the most common food-borne illnesses worldwide. <u>Visit our website</u> to learn more about the symptoms, and how to protect yourself from getting sick.

Who is most at risk?



When unsafe water is anticipated or confirmed, Algoma Public Health takes precautionary measures which include: issuing drinking and boil water advisories, closure of pools and spas, and posting warnings at beaches, among other meaures.



The annual rate of infection for both the diseases has fluctuated over the past five years. The rate of infection in Algoma during 2023 exceeded the provincial as well as NE PHUs rate.



During 2023, a record high of 23 Salmonellosis cases were reported in Algoma resulting in 19.5 cases (per 100,000) in comparison to 15.4 cases (per 100,000) in Ontario⁽¹⁾.

Water-borne illness

It is important that the water we use for drinking, bathing, swimming, and playing is safe to prevent illnesses and injuries. PHIs complete routine inspections of small drinking water systems to ensure individuals have access to safe and reliable drinking water. PHIs also inspect recreational water facilities including public pools, spas, and splash pads to help ensure public safety. Despite these efforts, water-borne illnesses still occur.

The rate of water-borne illnesses in Algoma remained higher than NE PHUs and Ontario from 2018 to 2022, followed by a noticeable drop in 2023⁽¹⁾. The average rate (per 100,000) of water-borne illnesses from 2019 to 2023 was:

 13.8
 12.1
 10.2

 Algoma
 NE PHUs
 Ontario





During 2023, a record high of 26 Campylobacteriosis cases were reported in Algoma resulting in 21.1 cases (per 100,000) in comparison to 16.4 cases (per 100,000) in Ontario⁽¹⁾.





Vector-borne illness

Vector-borne illness are diseases that are caused by viruses, bacteria or parasites that originate in animals and are transmitted to humans through a 'vector' (i.e. tick or mosquito). Blacklegged ticks (ixodes scapularis) are found in the Algoma region. This species of ticks can carry the pathogen that causes Lyme disease.

Anaplasmosis, babesiosis and Powassan disease, are vector-borne diseases transmitted through infected blacklegged ticks, that have recently (July 2023) been added to the DOPHS list for surveillance of local cases. This will now allow us to collect data for future reporting.

While the risk of vector-borne infection in Algoma region is currently low, warming weather due to climate change means animal vectors that carry these pathogens are found further north every year⁽¹¹⁾. Visit our website to learn more about how to avoid getting a <u>tick bite</u> and what to do if you have been bitten.

West Nile Virus disease is rare in Algoma. Between 2017 - 2023, Algoma has had **O** confirmed cases of West Nile Virus disease⁽¹⁾.



The average rate of Lyme disease between 2018 - 2022 is **0.5** (per 100,000) compared to the Ontario rate of 7.6 (per 100,000)⁽¹⁾.



cases of lyme disease were reported and diagnosed in Algoma residents between 2018 - 2022.



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