

Annual report for health care providers on infectious diseases of public health importance in the NBPSDHU region

Contact Information

The North Bay office will be moving to 345 Oak Street, North Bay in 2017. Our main telephone number will not be changing.

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Echinococcus Tapeworms Emerging in Ontario

Echinococcus multilocularis is a small tapeworm that may now be endemic in wild and domestic canids (coyotes, foxes and dogs) in Ontario, creating the potential for human exposure and alveolar echinococcosis disease.¹ Alveolar hydatid cysts behave like a tumour, and after first developing in the liver may spread elsewhere in the body. They have a clinical incubation period of 5-15 years. Presenting signs and symptoms are most often consistent with hepatic disease. Early diagnosis and treatment with albendazole improves life expectancy significantly.¹ The diagnosis of alveolar hydatid in humans is confirmed serologically, and supported by compatible radiographic imaging (i.e., abdomen CT scan or MRI), and histopathology of biopsied tissue.¹

Pertussis (Whooping Cough) Outbreak

In 2016, 29 cases of pertussis were reported in the NBPSDHU region, and the age-standardized rate for pertussis cases was about seven times higher than the Ontario rate (Figure 1). Between April 23, 2016 and August 2, 2016, a pertussis outbreak involving 24 cases occurred in the West Nipissing area. Pertussis tends to be cyclical in nature, with peaks in activity occurring every 2-5 years.²

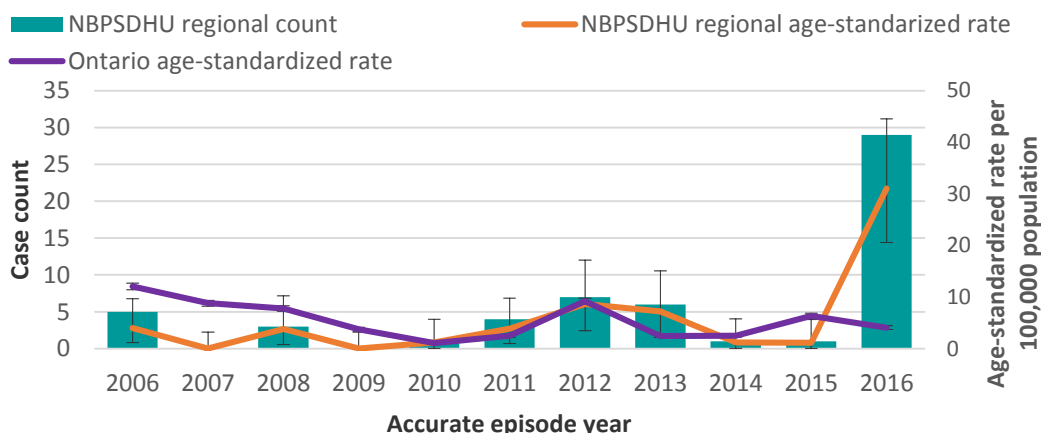


Figure 1: Count and Age-Standardized Rate per 100,000 Population of Confirmed & Probable Pertussis Cases, by Region, 2006-2016

Pertussis (Whooping Cough) Outbreak

All of the 24 cases reported during the 2016 outbreak were partially or fully vaccinated against pertussis and the median age of cases was 13 years. Increased cases have been reported in school-aged children, adolescents and adults as a result of a lack of natural booster events and waning immunity since most recent immunization.³ These factors may have contributed to this outbreak.

The acellular pertussis vaccine was introduced in Canada in 1997/1998 and has an estimated effectiveness of 80 - 85%.^{2,4} Protection against pertussis is not lifelong and wanes after approximately 4-12 years.⁴ There is also some suggestion that acellular vaccines may be associated with earlier waning of immunity.^{3,5}

- Adults (18 years of age and older) should receive one dose of Tetanus, diphtheria and pertussis (Tdap) vaccine in adulthood, which can be administered regardless of the interval since the last dose of a tetanus and diphtheria toxoid-containing vaccine.⁴
- All pregnant women at or after 26 weeks of pregnancy who have not received a dose of a pertussis-containing vaccine in adulthood should be encouraged to receive the Tdap vaccination.⁴

Legionellosis

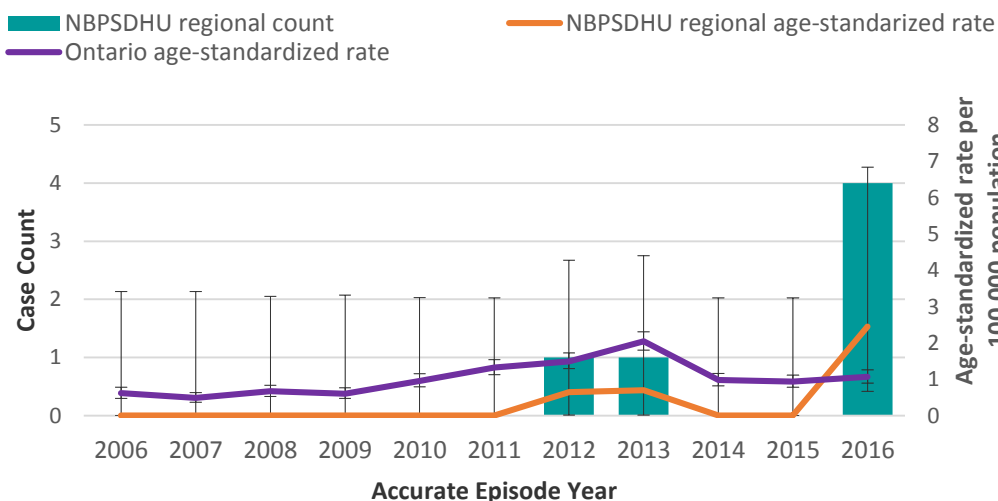
Legionella bacteria are found naturally in freshwater environments, but can become a health concern in human-made water systems (e.g. plumbing in large buildings, cooling towers, water heaters, decorative fountains and hot tubs) where conditions allow it to multiply and be transmitted to susceptible hosts via aerosolization.⁶

There are two distinct clinical manifestations of Legionellosis:⁷

Legionnaires' disease: characterized by pneumonia and a non-productive cough. Chest imaging findings are variable and may show patchy or focal areas of consolidation or bilateral involvement. The illness may progress to respiratory failure.

Pontiac Fever: a self-limited febrile illness, usually accompanied by cough, which does not progress to pneumonia or death. Patients typically recover spontaneously in 2-5 days without treatment.⁷

In 2016, four legionellosis cases were reported in the NBPSDHU region, the highest annual count in the past eleven years (Figure 2). The age-standardized rate was statistically similar to the Ontario rate for all years between 2006 and 2016. Most (66.6%) of the cases that occurred in the past 11 years were aged 65 years or older and half (50.0%) reported out-of-province travel exposure.



Risk Factors for developing disease:⁶

- Age ≥50 years
- Smoking (current or historical)
- Renal or hepatic failure
- Diabetes
- Chronic lung disease
- Systemic malignancy
- Immune system disorders

Figure 2. Count and Age-Standardized Rate per 100,000 Population of Confirmed & Probable Legionellosis Cases, by Region, 2006-2016

Testing

Preferred diagnostic tests for Legionnaires' disease are **culture of lower respiratory secretions** (eg. sputum, bronchoalveolar lavage) and the **urinary antigen test**. The urinary antigen test is more rapid and sensitive but detects only *Legionella pneumophila* serogroup 1, the most common cause of Legionnaire's disease.^{6,8}

Invasive Pneumococcal Disease

There was an increase in reported invasive *Streptococcus pneumoniae* cases in 2016, compared to the three years prior, however, the age-standardized rate for the NBPSDHU region was statistically similar to the Ontario rate between 2006 and 2016 (Figure 3). Over the past five years, 47% of cases in the NBPSDHU region were aged 65 years or older, 43% were aged 20 to 64 years, and 9.4% were aged 19 years or younger. Almost half of all cases (45.9%) reported between 2006 and 2016 had a chronic illness or underlying health condition and one quarter (25.4%) had not received a pneumococcal vaccination.

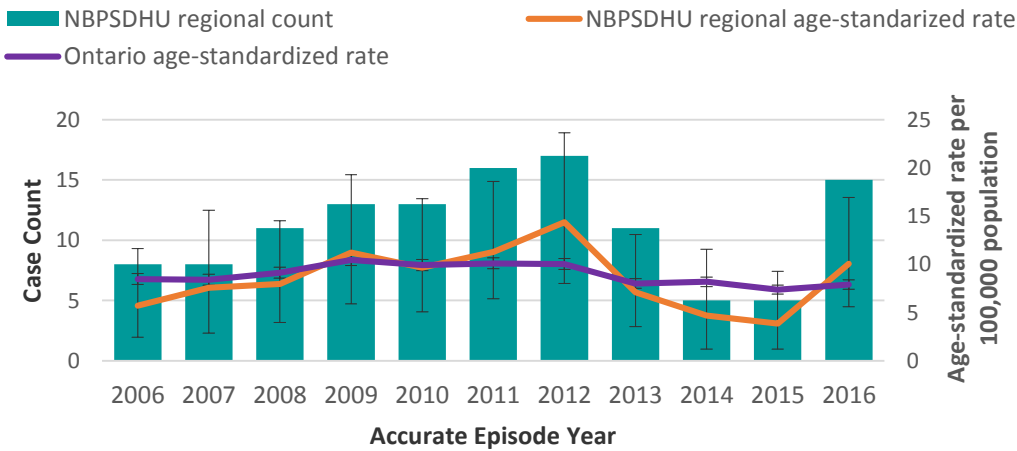


Figure 3: Count and Age-Standardized Rate per 100,000 Population of Confirmed Invasive Streptococcus Pneumoniae Cases, by Region, 2006-2016

Vaccination

The pneumococcal conjugate vaccine (Pneumovax®13) is part of the publicly funded immunization schedule for children in Ontario and adults 50 years of age and older with immunosuppressive conditions.⁹ The pneumococcal polysaccharide vaccine (Pneumovax®23) is part of the publicly funded immunization schedule for adults 65 years of age and older, residents of long-term/chronic care facilities and for persons 2-64 years of age with high risk medical conditions.⁹

Lyme Disease

In 2016, one case of Lyme disease was reported within our region (Figure 4). The age-standardized rate for Lyme disease was statistically similar to the Ontario rate for all years between 2006 and 2016. In 2016, 32 ticks were removed from humans and submitted to the health unit for testing. Of the 32 ticks, 12 were identified as blacklegged ticks (deer tick or *Ixodes scapularis*), which can spread Lyme disease. One tick tested positive for *Borrelia burgdorferi*, the bacteria that causes Lyme disease.

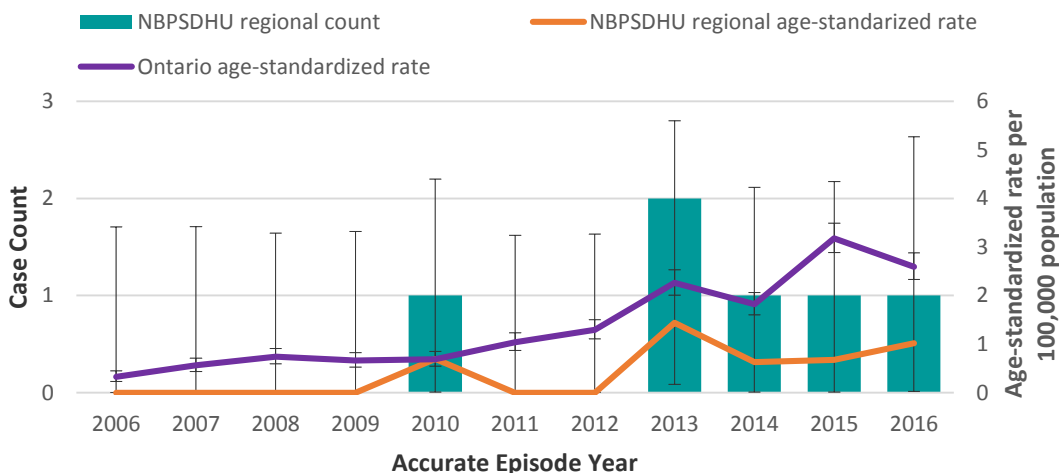


Figure 4. Count and Age-Standardized Rate per 100,000 Population of Confirmed & Probable Lyme disease Cases, by Region, 2006-2016

For information on the clinical manifestations of Lyme disease (including example pictures of skin lesions), diagnosis, and laboratory testing see the [Government of Canada website for health professionals](#).¹¹

For further information on laboratory testing and interpretation of results see the [Canada Communicable Disease Report](#).¹²

A map of Ontario indicating estimated areas of greater risk for exposure to Lyme disease can be found on the Public Health Ontario website at: https://www.publichealthontario.ca/en/eRepository/Lyme_disease_risk_areas_map.pdf

While the probability is low, it's possible to encounter an infected tick almost anywhere in Ontario.¹⁰ Blacklegged ticks spread to new areas of the province because of warmer winter temperatures and by traveling on birds and deer.

Counts and Age Standardized Rates of Reportable Diseases

Table 1. Counts and Age-Standardized Rates of Reportable Diseases†, NBPSDHU Region & Ontario, 2016

| Disease | NBPSDHU Region: Number of Cases | NBPSDHU Region: Age-standardized Rate per 100,000 Population | Ontario: Number of Cases | Ontario Region: Age-standardized Rate per 100,000 Population |
|---|---------------------------------|--|--------------------------|--|
| AIDS | 1 | 0.7 | 65 | 0.5 |
| Campylobacter ^Δ | 16 | 12.1 (↓) | 3,436 | 24.9 |
| Chlamydia | 345 | 300.7 | 41,762 | 296.0 |
| Cryptosporidiosis ^Δ | 3 | 2.6 | 430 | 3.1 |
| Cyclosporiasis ^Δ | 1 | 0.9 | 277 | 2.0 |
| Giardiasis ^Δ | 7 | 5.2 | 1,238 | 8.9 |
| Gonorrhoea | 37 | 33.6 (↓) | 6,777 | 48.6 |
| Invasive Group A Streptococcal disease | 7 | 5.2 | 712 | 5.2 |
| Hepatitis B | 1 | 0.7 | 106 | 0.8 |
| Hepatitis C | 55 | 47.7 (↑) | 4,311 | 31.5 |
| HIV | 2 | 1.3 (↓) | 775 | 5.7 |
| Influenza | 227 | 188.4 (↑) | 14,380 | 106.8 |
| Legionellosis ^Δ | 4 | 2.5 | 145 | 1.1 |
| Lyme disease ^Δ | 1 | 1.0 | 358 | 2.6 |
| Malaria | 1 | 0.7 | 206 | 1.5 |
| Meningitis ^Δ | 5 | 5.6 | 313 | 2.8 |
| Pertussis ^Δ | 29 | 27.3(↑) | 463 | 3.6 |
| Salmonellosis ^Δ | 28 | 21.7 | 3,130 | 22.8 |
| Shigellosis ^Δ | 2 | 1.6 | 373 | 2.7 |
| Invasive <i>Streptococcus pneumoniae</i> | 15 | 10.1 | 1,071 | 7.9 |
| Syphilis, infectious | 1 | 1.0 (↓) | 1,278 | 9.2 |
| Syphilis, other | 3 | 2.2 | 674 | 4.9 |
| Tuberculosis | 1 | 0.6 | 632 | 4.6 |
| Verotoxin producing <i>E. coli</i> ^Δ | 1 | 0.6 | 185 | 1.3 |
| Yersiniosis ^Δ | 3 | 2.0 | 258 | 1.9 |
| Tuberculosis, Latent Infection (LTBI)* | 22 | 19.1 | - | - |

† - Counts and rates for reportable diseases were excluded from the table if there were no confirmed cases reported in the NBPSDHU region in 2016

Δ - Counts include confirmed and probable cases to facilitate analyses of trends over time due to changes in provincial case definitions

* Counts based on reported date, rather than accurate episode (symptom onset) date

(↑) - Age-standardized rate is significantly higher compared to the Ontario rate

(↓) - Age-standardized rate is significantly lower compared to the Ontario rate

Data Sources: 1) NBPSDHU LTBI counts: Integrated Public Health Information System (iPHIS), extracted 2017/06/23.

2) NBPSDHU & Ontario counts: Public Health Ontario. Query: Case counts of reportable disease by disease, year, age group, and gender. Toronto, ON: Ontario Agency for Health Protection and Promotion; 2017 Mar 01. Available from: <http://www.publichealthontario.ca/en/DataAndAnalytics/Query/>

3) Population estimates: Statistics Canada 2006-2015, IntelliHEALTH Ontario, Ministry of Health and Long-term Care, extracted 2016/09/07.

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