

ANNUAL REPORTABLE COMMUNICABLE DISEASES SUMMARY 2024

Northern Health



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Acknowledgement

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Purpose

This report provides a high-level summary of the incidence of reportable diseases among Northern Health (NH) residents. Infectious diseases are caused by microorganisms (such as bacteria, parasites, or viruses) or by the toxins they produce. These diseases are spread by contact with infected persons or contaminated surfaces/articles; animals or insects; consumption of contaminated food or water; or exposure to airborne particles or other environmental sources.

For the purposes of this report, only infectious diseases that are deemed reportable communicable diseases (RCDs) are included. These are infectious diseases that as per the Health Act Communicable Disease Regulation must be reported to a Medical Health Officer (MHO) in a timely manner. For a complete list of RCDs, see Appendix A. NOTE: sexually transmitted infections and blood-borne infections (e.g.: chlamydia, syphilis, etc) are not included in this report.

Due to the small population size of NH, many RCDs occur infrequently, and as a result it is difficult to ascertain patterns and trends. In addition, to reduce the likelihood of identifying any persons from this report, only RCDs where there is a five-year average of ten or more cases per year – based on data from 2018 through 2022 – are included. Also, in any year where there are fewer than five cases, data will be suppressed and represented as “<5”.

The list of RCDs included in this report are categorized by the primary route of transmission. Some diseases, such as pertussis, may fall into two or more categories. Pertussis (aka: “whooping cough”) is transmitted by respiratory droplets when an infected person coughs or sneezes; however, pertussis is preventable through vaccination, and is therefore characterized as a vaccine preventable disease.

There may be under- or over-reporting of some diseases. An infected individual who presents with mild symptoms, for example from a respiratory illness, may not seek medical attention. As such, no laboratory testing will be performed, and the case will not be reported. In addition, events such as an outbreak or enhanced surveillance protocols may lead to an increase in testing for any given RCD. For example, in the event of an influenza outbreak in a long-term care facility, additional screening may be done where there was previously no impetus to do so. Therefore, data from illnesses such as COVID-19, influenza, salmonella, etc., need to be interpreted with these caveats.

Summary

In 2023, the global COVID-19 (C19) pandemic was continuing to wind down, however C19 still represented a significant number of the RCDs reported to NH. Among the RCDs tabulated in this report, three quarters were C19 (73.5%) with over just over 1,000 cases (Table 1). When excluding C19, the next most common disease reported in 2023 was invasive pneumococcal disease (iPD) at 76 cases (5.2% of total). The next most common illness reported was invasive group A streptococcal disease (iGAS; n=58 or 3.9% of total). Case counts of both iPD and iGAS were higher than expected in 2023 based on the 2018-2022 five-year average and represented the highest burden of respiratory and direct contact RCDs at 38.2% and 29.1%, respectively. Respiratory and direct contact diseases were the most reported RCDs in NH, totalling 199 or 51.2% of *non-C19* illnesses.

Among food and waterborne diseases (FWD), salmonellosis was the most reported in NH with 44 cases (36.7% of FWDs). In general, the number of FWD cases reported to NH has been stable, with some decline among campylobacter and yersiniosis over the past five years. All case counts in 2023 were lower than the 2018-2022 five-year average.

Excluding C19, pertussis was the most common vaccine preventable disease (VPD) reported to NH at 18 cases (just under half of all non-C19 VPDs). This is higher than expected based on the five-year average. Routine immunization of children is the most effective method to prevent the occurrence and spread of pertussis. The number of influenza cases dropped significantly from 417 in 2022 to 13 in 2023. The reason for the sharp decline in influenza cases is likely a result of a provincial decision to not report influenza cases unless they were part of an outbreak.

Very few vector-borne or zoonotic diseases are reported to NH. However, there is an average of 85 cases of potential rabies exposures reported to NH per year; of these, roughly one-third (29.0%) require rabies post-exposure prophylaxis (RPEP) – meaning these individuals were deemed high enough risk to require rabies vaccination. In 2023, there were fewer than expected rabies exposures by a count of roughly 50.

Not reported in Table 1 are illnesses where an etiologic agent is not identified, though are categorized by symptoms or suite of syndromes. For instance, gastroenteritis, encephalitis, and meningitis. Of these, there were 40 reported to NH in 2023, similar to previous years.

Table 1. Counts*, five-year average and percent of cases by transmission route of RCDs per year, NH; 2018 – 2023.

Transmission Route Disease	2018	2019	2020	2021	2022	2023	% (2023)	2018-2022 Avg.
Food and Waterborne								
Amebiasis	15	34	24	14	18	8	6.7	21
Campylobacter Infection	57	64	44	29	30	30	25.0	45
Giardia Infection	29	30	20	24	18	25	20.8	24
Salmonella Infection	70	55	40	22	38	44	36.7	45
Yersinia infection	27	15	12	12	8	13	10.8	15
Direct and Respiratory								
Pneumococcal Disease (invasive)	47	66	31	41	66	76	38.2	50
Streptococcal disease (invasive group A - iGAS)	39	22	46	45	39	58	29.1	38
Tuberculosis: Active	8	14	9	18	13	16	8.0	12
Tuberculosis: Latent	27	28	43	25	46	39	19.6	34
Tuberculosis: Other/Unspecified	<5	<5	<5	11	9	10	5.0	6
Vaccine Preventable								
COVID-19			2004	17,149	12,128	1,080	-	10,427
Haemophilus Influenzae (invasive, type unknown)	11	7	<5	9	<5	<5	<1	7
Hepatitis B: Undetermined Status	7	8	7	13	7	<5	<1	8
Influenza	227	250	496	10	417	13	1.2	280
Pertussis	16	15	<5	<5	<5	18	1.6	7
Zoonotic and Rare								
Rabies Exposure (no RPEP) [†]	39	71	57	55	62	22	71.0	57
Rabies Exposure (RPEP)	12	59	13	30	24	9	29.0	28
TOTAL	635	740	2,854	17,508	12,928	1,469		6,933
TOTAL (no C19)	635	740	850	359	800	389		677

* case counts may change over time due to lag in reporting or changes in episode date;

† RPEP = rabies post-exposure prophylaxis;

red text indicates higher than expected, based on five-year average;

blue text indicates lower than expected, based on five-year average.

Highlights

Pneumococcal Disease (invasive)

Pneumococcal infection is caused by the *bacteria Streptococcus pneumoniae*. It can cause ear and sinus infections, and when it infects sterile sites (e.g.: the blood, causing septicemia), is considered invasive and potentially life threatening. Permanent complications of pneumococcal meningitis (an infection of the lining of the brain) can include brain damage and deafness. Symptoms of pneumococcal meningitis include severe headache, neck stiffness and fever. Infection is spread person-to-person through respiratory droplets. Vaccination is available for some types of pneumococcal strains and are part of routine child immunization.

Between 2018 and 2022, there was an average of 50 invasive pneumococcal disease (iPD) cases (range: 31 – 66) and in 2023 there were 76 cases (Table 2). There have generally been more male cases compared to females and the average age and age ranges are similar between both sexes. The number of cases and crude incidence rate of iPD has been increasing since 2020 (Figure 1). This reduction is likely due to the impacts of restrictions put in place during the C19 pandemic. Cases and rates were highest in 2023; it will be important to monitor this trend to determine if this continues, or if it is a “return to normal” after the pandemic. Just over half (57.2%) of iPD cases occurred in the Northern Interior (NI) Health Service Delivery Area (HSDA) between 2018 and 2023, and in 2023 the NI had the highest crude incidence rate (Figure 2). Generally, case counts and crude incidence rates increased in all HSDAs, including the Northeast (NE) and Northwest (NW), where the rates have increased nearly five-fold since 2020.

Table 2. Invasive Pneumococcal Disease summary data, Northern Health; 2018-2023.

	2023			2018-2022 Avg.		
	Males	Females	Total	Males	Females	Total
Cases # (%)	43 (56.6)	33 (43.4)	76	32 (62.9)	19 (37.1)	50
Crude Rate*	27.2	21.8	24.6	20.5	12.7	16.7
Avg. Age	54.1	52.0	53.2	50.9	50.6	50.8
Age Range	20 – 90	6 – 91	6 – 91	0 – 89	4 – 81	0 – 89

* per 100,000

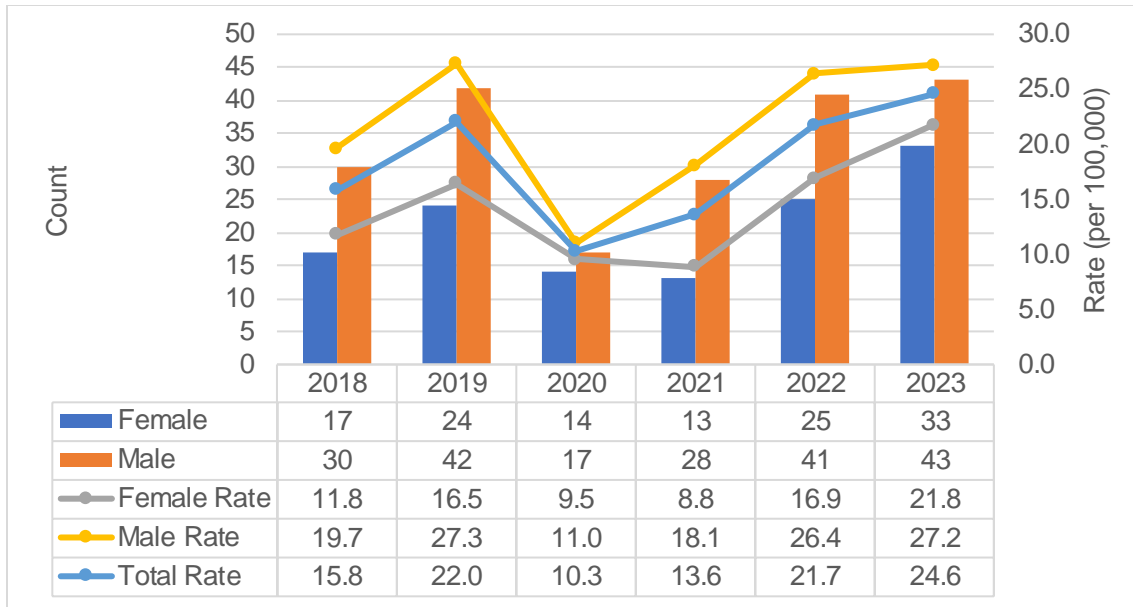


Figure 1. Number and crude incidence rates of Invasive Pneumococcal Disease by sex, Northern Health; 2018-2023.

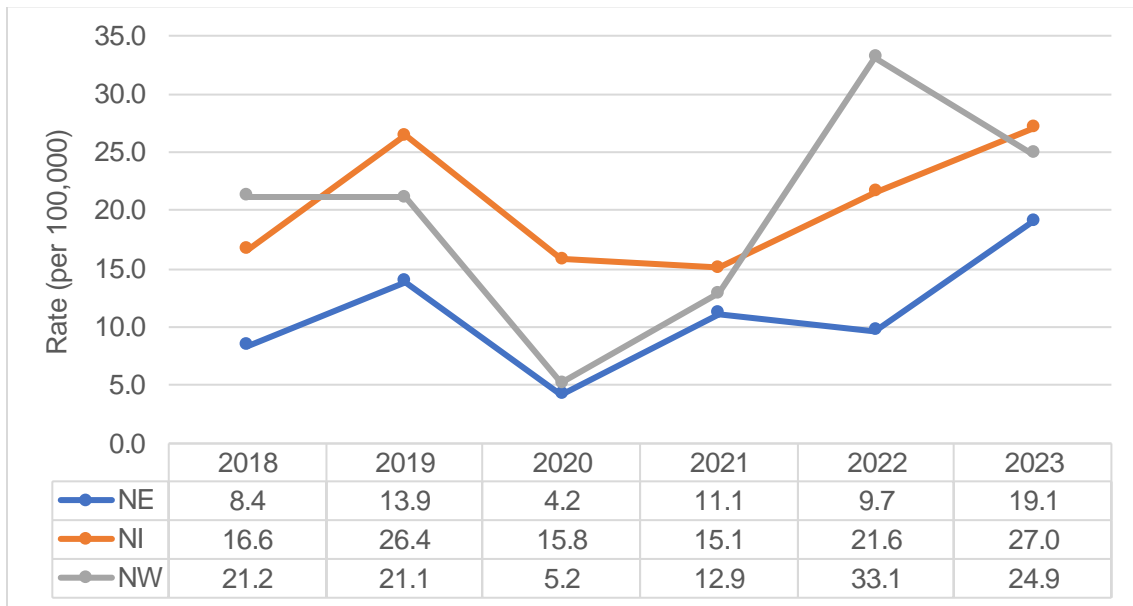


Figure 2. Crude incidence rates of Invasive Pneumococcal Disease by HSDA, Northern Health; 2018-2023.

Invasive Group A Streptococcal Disease

Invasive Group A Streptococcal Disease (iGAS) is caused by a bacteria called *Streptococcus pyogenes*, group A. Most often, group A streptococcal infections are mild illnesses such as strep throat. Similar to pneumococcal infections, this bacterium can also infect sterile sites such as the lungs and blood; iGAS can also be life-threatening. Symptoms of septicemia (blood poisoning) include fever, chills, headache, and increased heart rate. Infections are spread person-to-person through close personal contact with the nose and throat secretions of an infected person. Cases of iGAS are often hospitalized and treated with antibiotics.

Between 2018 and 2022, there was an average of 38 iGAS cases (range: 9 – 27) and in 2023 there were 58 cases (Table 3). There have generally been more male cases compared to females and the average age and age ranges are similar between both sexes. The number of cases and crude incidence rate of iGAS has been increasing since 2019 (Figure 3); this trend has also been occurring in the province. Cases and rates were highest in 2023 and the male rate was nearly double that of the female rate. In addition, the male rate has increased four-fold since 2019. Just over half (53.4%) of iGAS cases occurred in the NI HSDA between 2018 and 2023. In 2023, the NE had the highest crude incidence rate (Figure 4) as well as the greatest rate increase between 2018 and 2023, while other HSDAs were relatively stable between 2020 and 2023.

Table 3. iGAS summary data, Northern Health; 2018-2023.

	2023			2018-2022 Avg.		
	Males	Females	Total	Males	Females	Total
Cases # (%)	38 (65.5)	20 (34.5)	58	21 (56.0)	17 (44.0)	38
Crude Rate*	24.1	13.2	18.8	13.9	11.5	12.7
Avg. Age	44.6	43.4	44.2	48.7	46.7	47.8
Age Range	0 – 85	5 – 75	0 – 85	0 – 95	0 – 86	0 – 95

* per 100,000

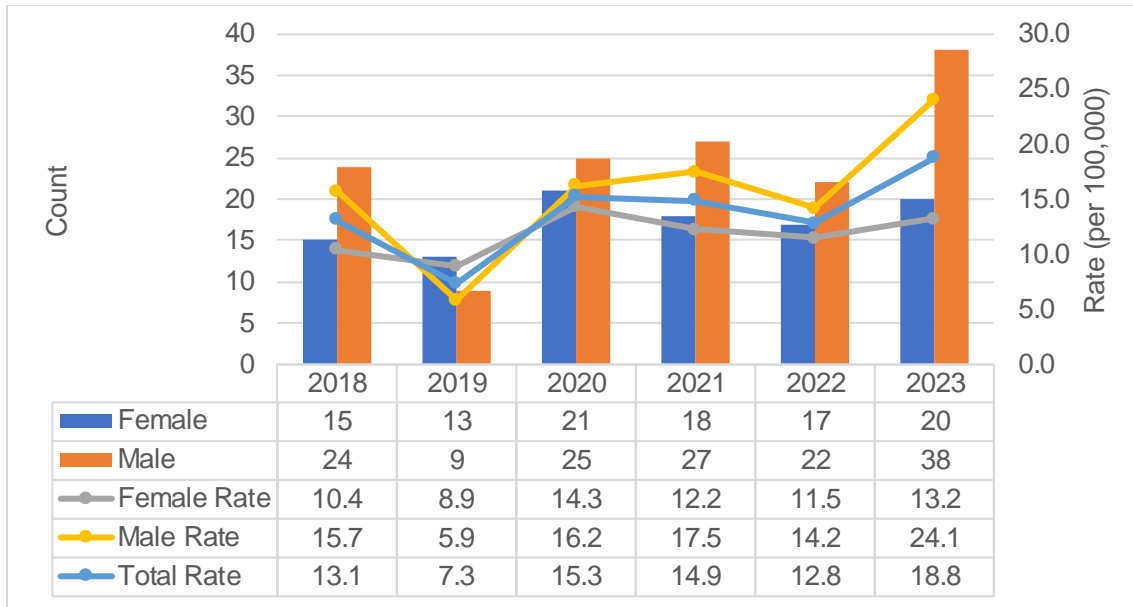


Figure 3. Number and crude incidence rates of iGAS by sex, Northern Health; 2018-2023.

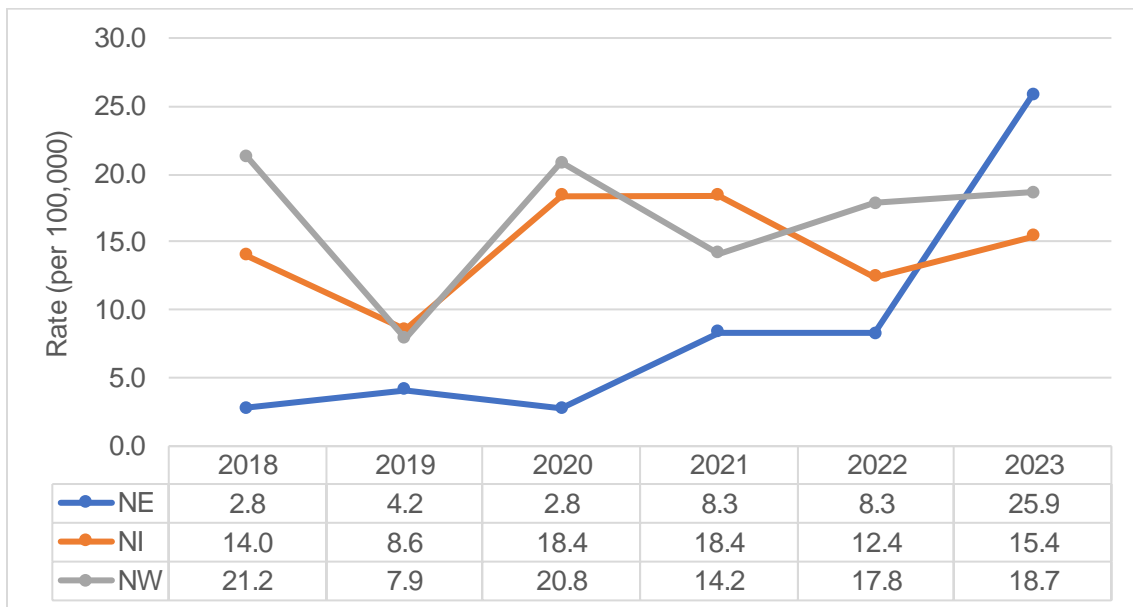


Figure 4. Crude incidence rates of iGAS by HSDA, Northern Health; 2018-2023.

Pertussis

Pertussis is also known as *whooping cough* due to the classic spasmodic cough and inspiratory “whoop”. It is an acute bacterial infection of the respiratory tract caused by *Bordetella pertussis*.

Complications of pertussis include: pulmonary hypertension; pneumonia; encephalopathy; hernias; and death. Pertussis is transmitted through direct contact with discharges from respiratory mucous membranes of infected individuals by the airborne route. Pertussis is highly contagious during the early stages of the disease and all non-immunized individuals are susceptible. Immunization remains the best measure to control pertussis.

Between 2018 and 2023, there was an average of 7 – 8 pertussis cases (range: <5 – 16) and in 2023 there were 18 cases (Table 4). There have been roughly equal number of male and female cases. Generally, pertussis cases occur among unimmunized children and youth; however, in 2018 and 2019, two thirds of cases were aged 20 and older (not shown) compared to 89% of cases in 2023 being under the age of 20. Due to the small number of cases, crude incidence rates of pertussis can vary significantly (Figure 5). In 2023, cases and rates of pertussis were highest in the NE and tended to occur among large families with unimmunized children (not shown).

Table 4. Pertussis summary data, Northern Health; 2018-2023.

	2023			2018-2022 Avg.		
	Males	Females	Total	Males	Females	Total
Cases # (%)	8 (44.4)	10 (55.6)	18	<5 (50.0)	<5 (50.0)	7†
Crude Rate*	5.1	6.6	5.8	2.3	2.5	2.4
Avg. Age	10.3	7.9	8.9	35.3	24.1	30.2
Age Range	0 – 47	0 – 44	0 – 47	0 – 73	0 – 69	0 – 73

* per 100,000
 † may not sum due to rounding

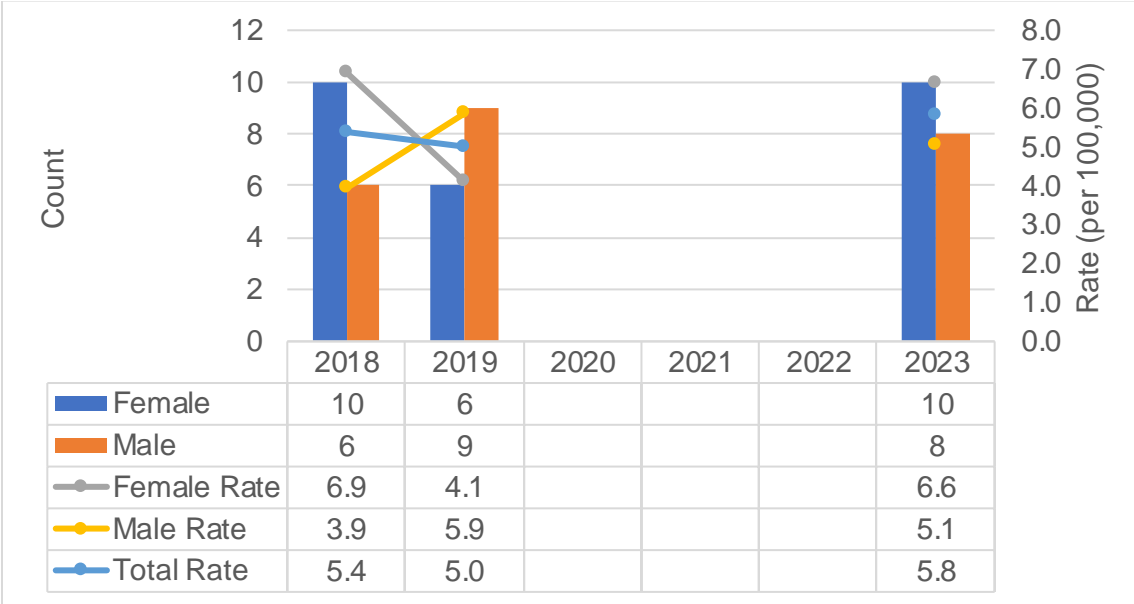


Figure 5. Number and crude incidence rates of pertussis by sex, Northern Health; 2018-2023.

Technical Notes

Data Sources

COVID-19: British Columbia Centre for Disease Control COVID-19 Situation Report. Available: [COVID-19 Situation Report \(shinyapps.io\)](https://shinyapps.io/covid-19-situation-report/). Extracted March 2024

Reportable Communicable Disease: Public Health Reporting Database Warehouse, CD Cube. Data extracted March 2024. Cases that are included in this report are classified as *Clinical*, *Confirmed*, *Confirmed Epi-Linked*, and *Probable*, which may result in different case counts from other sources. Surveillance Date Range: 2018/01/01 - 2023/12/31; PHAC Date.

POPULATION: P.E.O.P.L.E. Population Projections and Estimates. Retrieved September 2023.

References

BCCDC. Health Info. Diseases and Conditions: Pneumococcal. Available: <http://www.bccdc.ca/health-info/diseases-conditions/pneumococcal>

BCCDC. Health Info. Diseases and Conditions: Streptococcal, Invasive, Group A. Available: <http://www.bccdc.ca/health-info/diseases-conditions/streptococcal-disease-invasive-group-a>

BCCDC. Health Info. Diseases and Conditions: Whooping Cough / Pertussis. Available: <http://www.bccdc.ca/health-info/diseases-conditions/whooping-cough-pertussis>

Appendix A: List of Reportable Communicable Diseases in British Columbia

As per Health Act Communicable Disease Regulation B.C. Reg. 4/83 O.C. 6/83 includes amendments up to B.C. Reg. 380/2012, March 18, 2013

Schedule A: Reportable by all sources, including Laboratories

Acquired Immune Deficiency; Syndrome;
Anthrax;
Botulism;
Brucellosis;
Carbapenemase Producing Organism (CPO);
Chancroid;
Cholera;
Congenital Infections:
• Toxoplasmosis Rubella
• Cytomegalovirus
• Herpes Simplex
• Varicella-Zoster
• Hepatitis B Virus
• Congenital Rubella Syndrome
• Listeriosis and any other congenital infection;
Creutzfeldt-Jacob Disease;
Cryptococcal infection;
Cryptosporidiosis;
Cyclospora infection;
Diffuse Lamellar Keratitis;
Diphtheria;
Encephalitis;
Foodborne illness: All causes;
Gastroenteritis epidemic: Bacterial, Parasitic, Viral;
Genital Chlamydia Infection;
Giardiasis;
Gonorrhea – all sites;
Group A Streptococcal Disease, Invasive;
H5 and H7 strains of the Influenza virus;
Haemophilus influenzae Disease,
Hantavirus Pulmonary Syndrome;
Hemolytic Uremic Syndrome (HUS);
Hemorrhagic Viral Fevers;
Hepatitis Viral:
• Hepatitis A
• Hepatitis B
• Hepatitis C
• Hepatitis E
• Other Viral Hepatitis;
Human Immunodeficiency Virus; Infection

Leprosy;
Lyme Disease;
Measles Meningitis: All causes
Meningococcal Disease;
Mumps;
Neonatal Group B Streptococcal Infection;
Paralytic Shellfish Poisoning (PSP);
Pertussis (Whooping Cough);
Plague;
Poliomyelitis;
Rabies;
Reye's Syndrome;
Rubella;
Severe Acute Respiratory Syndrome (SARS);
Smallpox;
Streptococcus pneumoniae Infection, Invasive;
Syphilis;
Tetanus;
Transfusion Transmitted Infection;
Tuberculosis;
Tularemia;
Typhoid Fever and Paratyphoid Fever;
Waterborne Illness All causes;
West Nile Virus Infection;
Yellow Fever.

Schedule B: Reportable by Laboratories only

All specific bacterial and viral stool pathogens:
Campylobacter, Salmonella, Shigella, Yersinia
Amoebiasis;
Borrelia burgdorferi infection;
Cerebrospinal Fluid Micro-organisms;
Chlamydial Diseases, including Psittacosis;
Creutzfeldt-Jacob Disease;
Cryptococcal Infection;
Herpes Genitalis;
Human Immunodeficiency Virus Infection;
Influenza virus, including the H5 and H7 strains;
Legionellosis;
Leptospirosis;
Listeriosis;
Malaria;
Q Fever;

Rickettsial Diseases;
Severe Acute Respiratory Syndrome (SARS);
Smallpox;
Tularemia;
West Nile Virus Infect