



COMMUNICABLE DISEASE REPORT

Quarterly Report

Volume 31, Number 1
2014

June

Immunization Programs in NEWFOUNDLAND AND LABRADOR

Routine Immunization Schedule (2 months - 6 years) July 1, 2014

In Newfoundland Labrador the following vaccines are provided by the provincial public health program to infants/children at the ages outlined below:

Age	Vaccines
Two months	<ul style="list-style-type: none"> • Diphtheria/Tetanus/acellular Pertussis/ Polio/ <i>Haemophilus influenzae</i> type b • Pneumococcal conjugate
Four months	<ul style="list-style-type: none"> • Diphtheria/Tetanus/acellular Pertussis/ Polio/<i>Haemophilus influenzae</i> type b • Pneumococcal conjugate
Six months	<ul style="list-style-type: none"> • Diphtheria/Tetanus/acellular Pertussis/ Polio/<i>Haemophilus influenzae</i> type b • Pneumococcal conjugate* • Influenza**
12 months	<ul style="list-style-type: none"> • Measles/Mumps/Rubella/Varicella (chickenpox) on or after the 1st birthday • Pneumococcal conjugate • Meningococcal C conjugate • Influenza**
18 Months	<ul style="list-style-type: none"> • Diphtheria/Tetanus/acellular Pertussis/ polio/<i>Haemophilus influenzae</i> type b • Measles/Mumps/Rubella/Varicella • Influenza**
4-6 years	<ul style="list-style-type: none"> • Diphtheria/Tetanus/acellular Pertussis / Polio • Influenza**

* Pneumococcal conjugate at 6 months **only** for those infants considered at high risk for disease.

**Yearly influenza vaccine is recommended for all children 6 months of age and older during the influenza season

Immunization Schedule for School Based Programs July 1, 2014

The school based immunization program carried out by public health ensures that we provide up-to-date immunizations for our students.

The following information provides an overview of the schedule for this year and includes any changes that may affect your child.

The vaccines listed on this schedule are provided by the provincial public health program.

Age	Vaccines
Grade Four	<ul style="list-style-type: none"> • Meningococcal
Grade Six	<ul style="list-style-type: none"> • Human Papillomavirus (HPV) for females • Hepatitis B
Grade Nine	<ul style="list-style-type: none"> • Tetanus/Diphtheria/acellular Pertussis

How are children immunized in Newfoundland Labrador?

- Young children aged two months to five years receive their immunization from community health nurses at their local public health unit.
- School aged children are offered immunization programs delivered by community health nurses in special immunization clinics at your child's school.
- Children at high risk may be eligible for additional vaccines. For more information consult your community health nurse in your local public health office.

Summary of immunization programs in Newfoundland and Labrador

Vaccine	Age
DTaP-IPV-Hib	2, 4, 6 & 18 months
Pneu-C-13	2, 4, & 12 months, high risk children 2, 4, 6, & 12 months
MMR-Var	12 & 18 months
Men-C	12 months
Inf	All residents of NL ≥ 6 months of age annually
DTaP-IPV/Tdap-IPV	4- 6 years
Men-C -ACYW-135	Grade 4
Hepatitis B	Grade 6 (2 doses)
HPV	Grade 6 (3 doses) females only
Tdap	Grade 9

For details on the immunization programs please visit the NL website @ <http://www.health.gov.nl.ca/health/publichealth/cdc/immunizations.html>

Immunization Coverage Rates 2005 -2013

Immunization coverage rates are calculated yearly. The coverage rate is calculated by taking the eligible cohort e.g. the birth cohort for a specific year and comparing it to the number immunized for that same birth cohort. Measuring vaccination coverage rates permits evaluation of vaccine programs and assessment of vaccination strategies in preventing disease. Each regional health authority reports to the province the collated immunization coverage for their region for the primary and school programs.

Newfoundland and Labrador's immunization coverage rates remain high and meet the national targeted coverage rate goals. The regional health authorities work tirelessly to improve access to immunization and to ensure that the province's immunization coverage rates remain high. Due to these rates of vaccination in Newfoundland and Labrador we have not experienced disease outbreaks such as measles or other vaccine preventable diseases that have been seen in other provinces and territories in Canada.

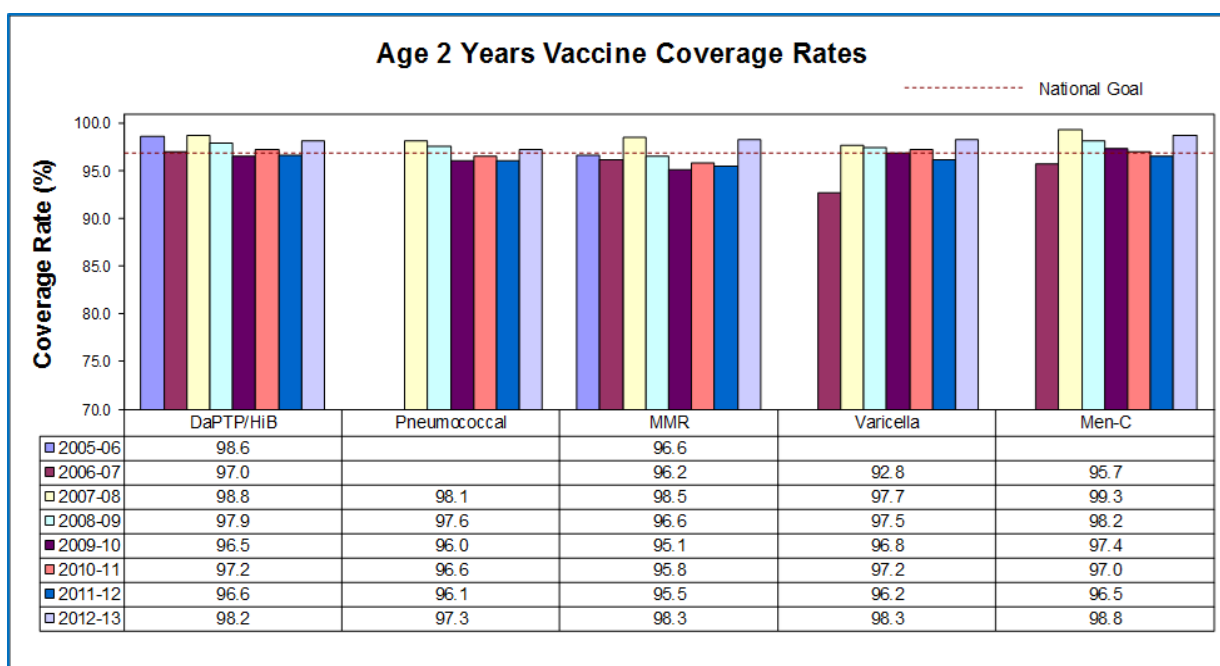


Figure 1: Coverage at age 2 years, primary series

- The Men-C and varicella vaccination program started in 2005 thus coverage first reported in 2006
- Pneu-C-7 vaccination program started in 2007 thus coverage first reported in 2008. In 2009 Pneu-C-10 replaced Pneu-C-7, in October 2010 Pneu-C-13 replaced Pneu-C-10.
- These numbers represent the percentage of two-year olds who have had their recommended vaccines by the time they reached their second birthday. For example, the data for 2011 -2012 represents children born in 2009.

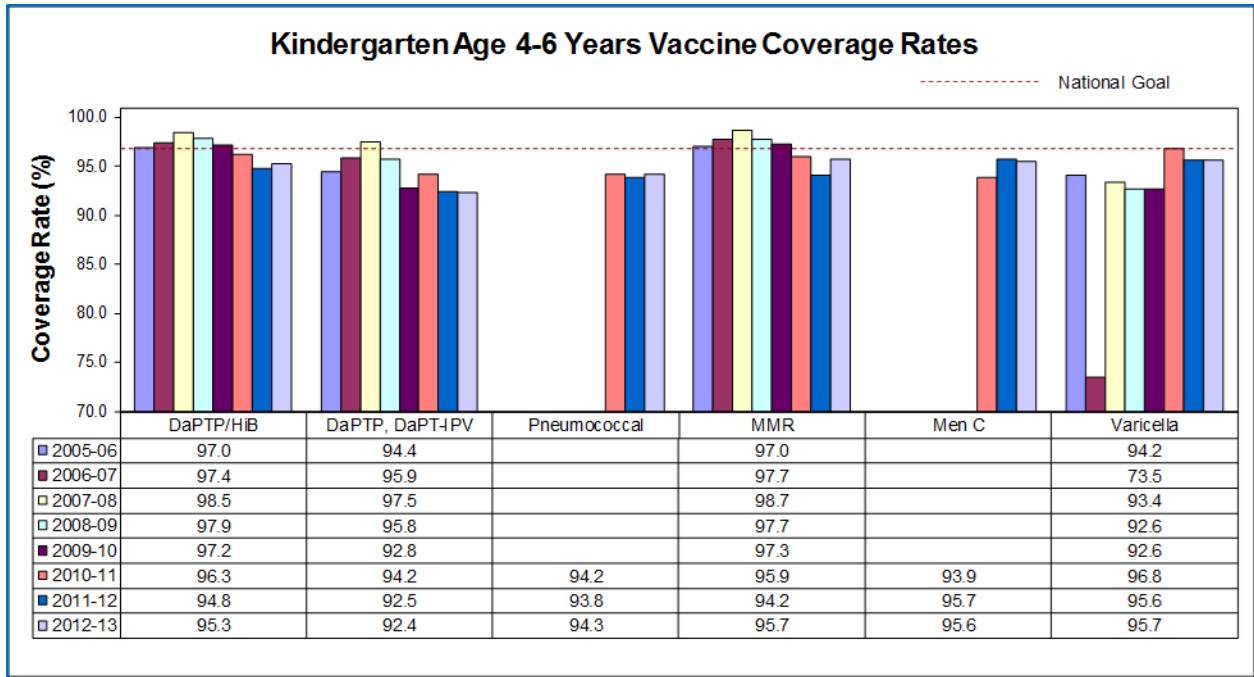


Figure 2: Children at school entry 4-6 years, full primary series plus DaPT-IPV

- The Men-C and Pneumococcal vaccination program started in 2005 thus coverage first reported in 2010 for this cohort

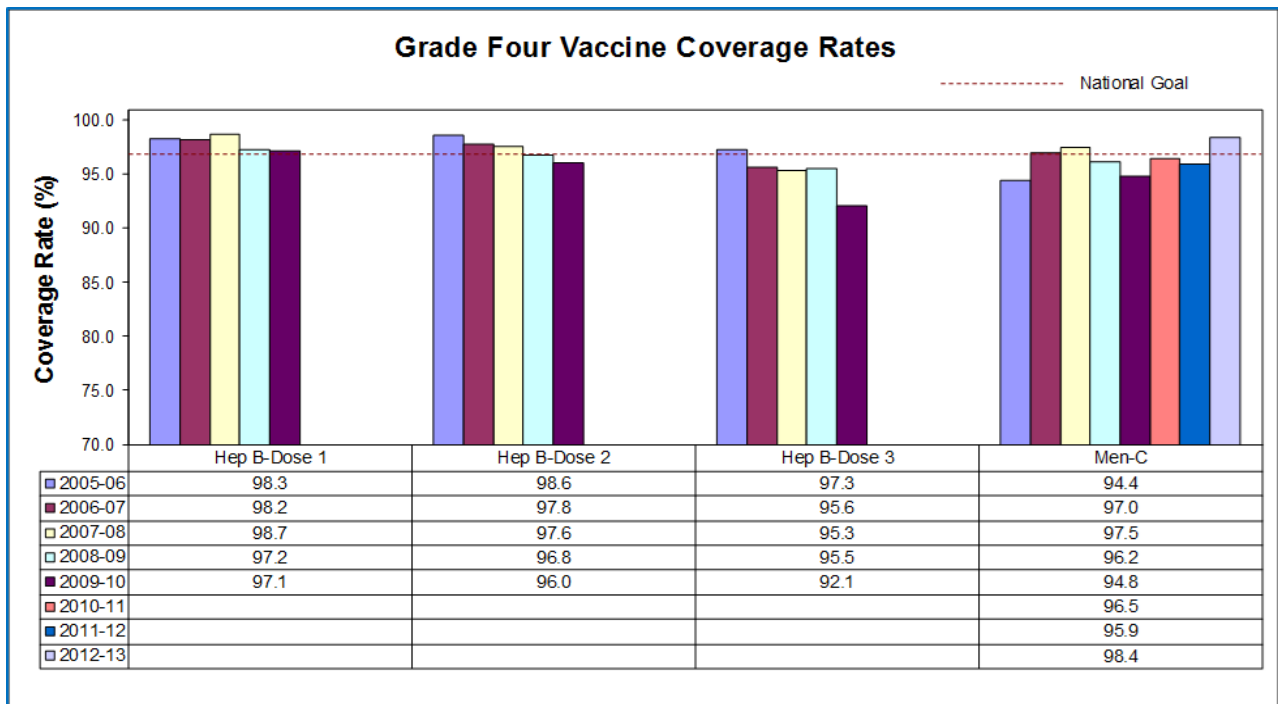


Figure 3: Grade four Hepatitis B to 2010 and Meningococcal

- In September 1995 a universal program grade four hepatitis B program was introduced. In 2010 this program moved to grade six. This program resumed in grade six in September 2012.

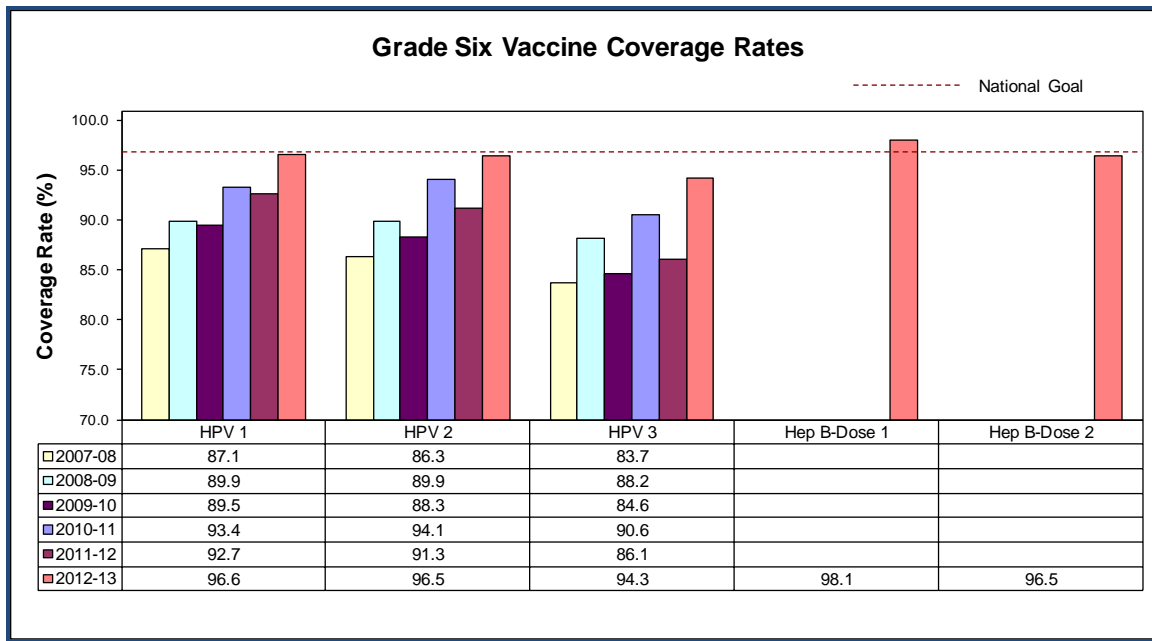


Figure 4: Grade 6, HPV for females and Hepatitis B (resuming in 2012-13)

- In September 1995 a universal program grade four hepatitis B program was introduced. In 2010 this program moved to grade six and resumed in September 2012 thus coverage rates for this program will not be reported until the end of 2012- 2013

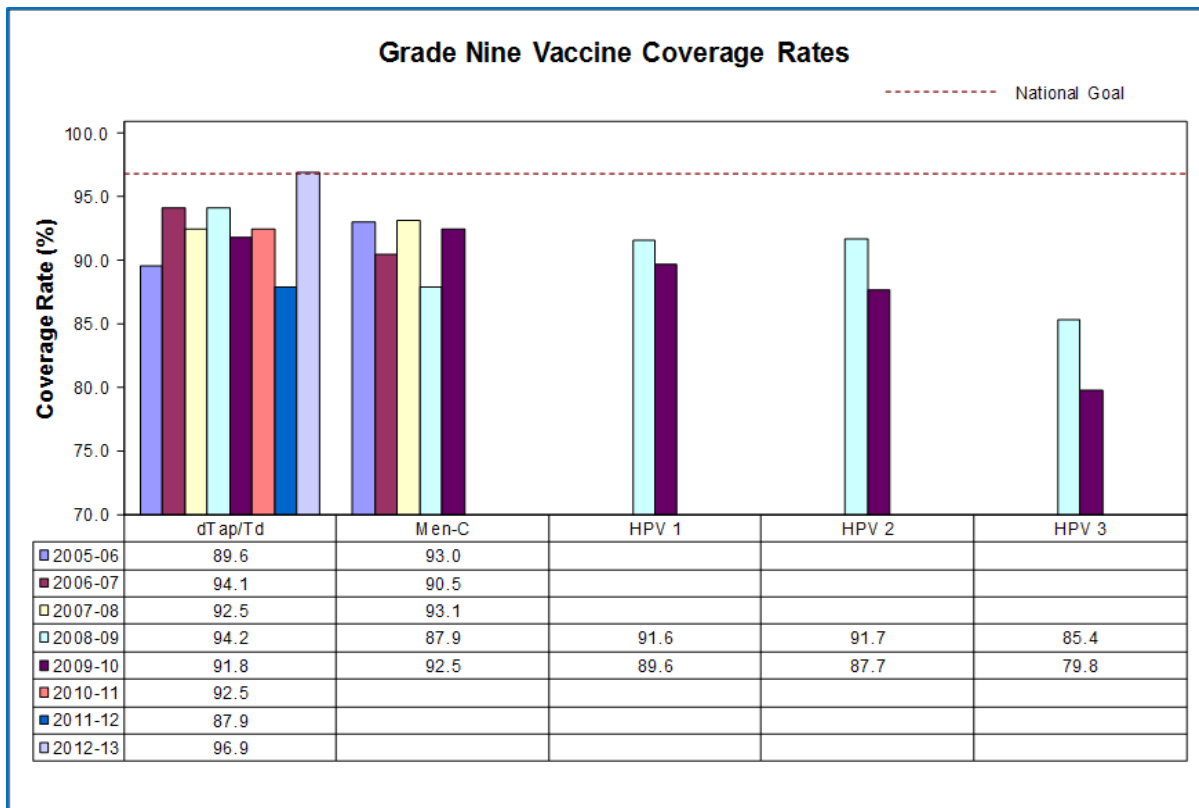


Figure 5: Grade 9 tetanus, diphtheria and pertussis

- HPV grade nine program was a catch up program offered for 2 years; 2008-2009 and 2009-2010 respectively.
- Men C-C catch up program was completed in 2010

Conclusion

Newfoundland and Labrador boasts immunization coverage rates that are meeting or are greater than the target of over 90 per cent for all childhood and school-based programs. The majority of immunizations are provided through the public health clinics by our dedicated public health nurses and they are to be commended for their efforts in providing the immunizations and in the collection of the coverage rates. This report was only possible due to their hard work.

Sources

Canadian Public Health Association. (2010) 12 Great Achievements
<http://www.cpha.ca/en/programs/history/achievements/12-v.aspx>

Public Health Agency of Canada. (2009). Immunization: The most successful public health measure. <http://www.phac-aspc.gc.ca/im/measure-intervention-eng.php>

Public Health Agency of Canada. (2006). Canadian Immunization Guide (Seventh Edition).
<http://www.phac-aspc.gc.ca/publicat/cig-gci/index-eng.php>

British Columbia Centre for Disease Control (2010) Communicable Disease Control
Immunization Programs. Section III-Immunization of Special Populations.

Vaccine Preventable Diseases

Chickenpox

There were 158 cases of chickenpox in NL in 2013 for a rate of 30.1 cases per 100,000 population. This is a considerable drop from 2012 where 372 cases were reported for a rate of 71.2 per 100,000.

Eastern RHA reported the greatest number of cases in 2013 with 82 cases, followed by Central, Western, and Labrador-Grenfell (60, 10, and 6 cases, respectively).

A drastic reduction in the national incidence rates was observed after publicly funded vaccine programs were introduced in Canada in 2004. The rates levelled off until a spike was recorded in 2011. A second dose of the vaccine has been recommended to prevent chickenpox due to a loss of immunity as children age. One must be cautious when comparing the provincial and national rates because the majority of cases in NL are based on clinical reports, whereas Canada relies on laboratory-confirmed data.

The rise in chickenpox incidence rates in NL from 2006 to 2013 is misleading in Figure 6. A publicly funded varicella vaccination program began in NL in 2005 for children 12 months of age, with a catch-up program offered at 4-6 years. It appears that chickenpox only appeared after the introduction of the vaccine; however, in actuality surveillance activities increased to monitor the effectiveness of the program. An outbreak in school-aged children occurred in St. John's in 2012, which contributed to the increase in cases (n=372).

The highest rates of chickenpox are recorded in the 5-9 age groups, followed by the 1-4 and 10-14 age groups. This is likely explained by children starting kindergarten and being in school, which is the ideal environment to spread common childhood diseases.

The distribution of cases by gender is fairly equal. Of the 158 cases reported in 2013, 85 (53.8%) were in males. Since 2000, 48.5% of all cases in the province were in males.

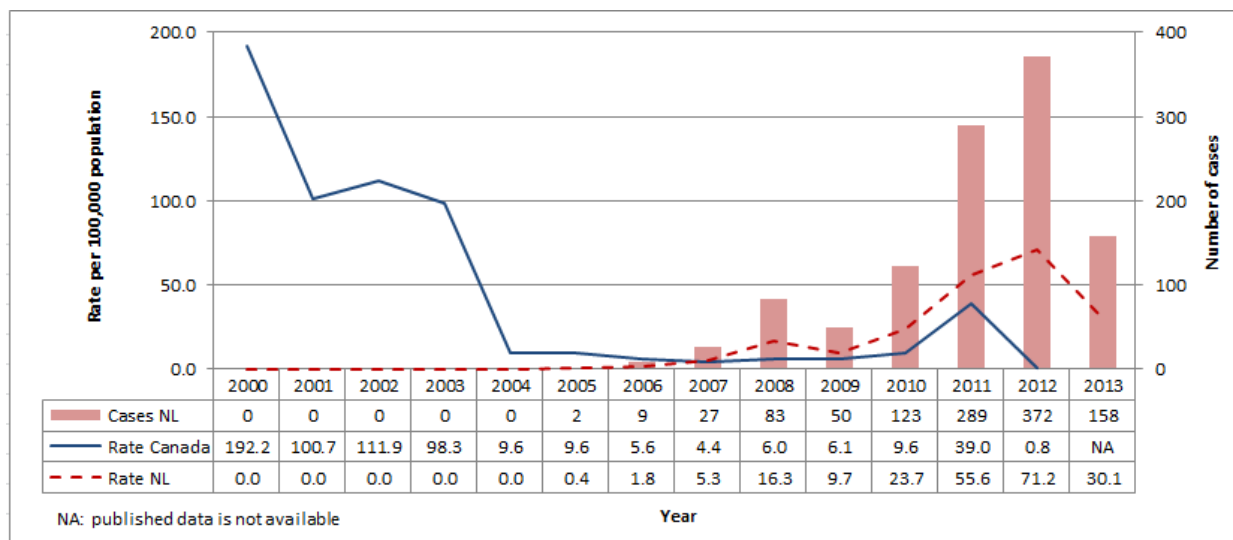


Figure 6: Chicken pox cases and incidence rates by year, NL and Canada, 2000- 2013.

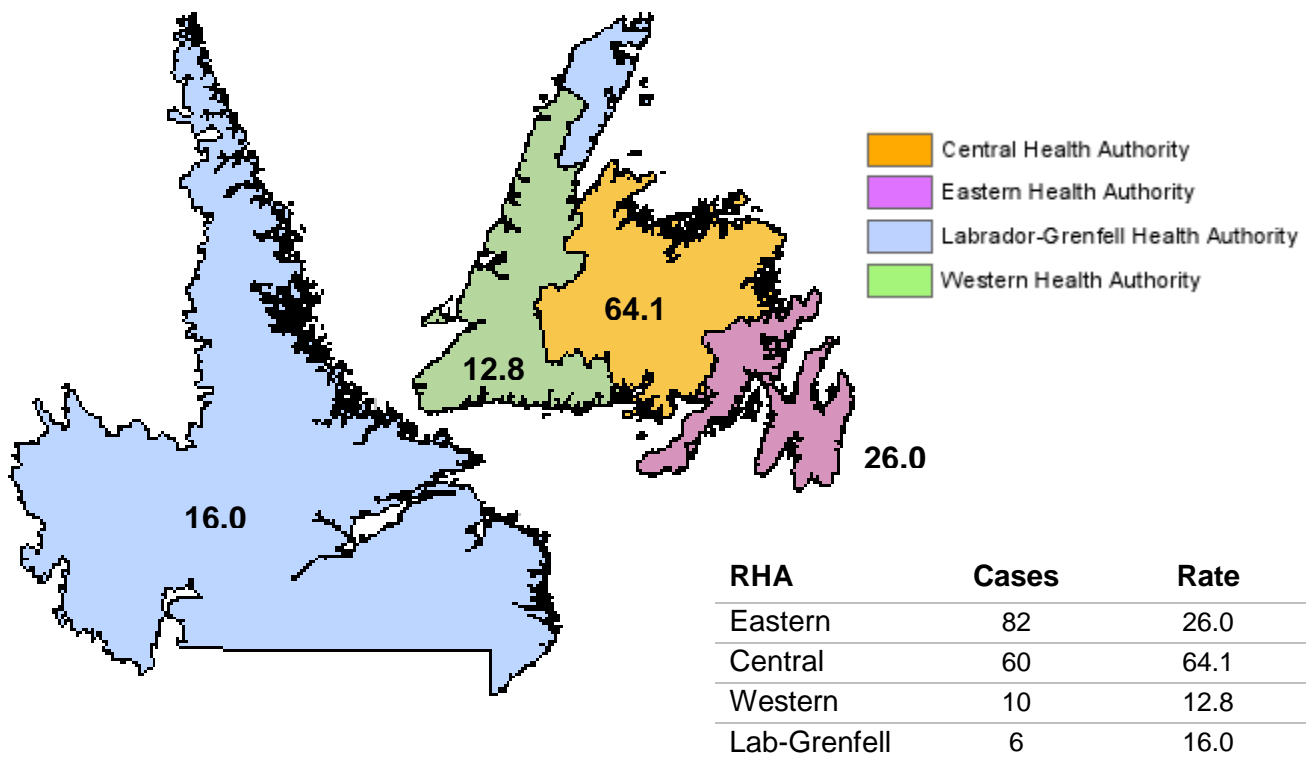


Figure 7: Chicken pox incidence rates by RHA, 2013, NL.

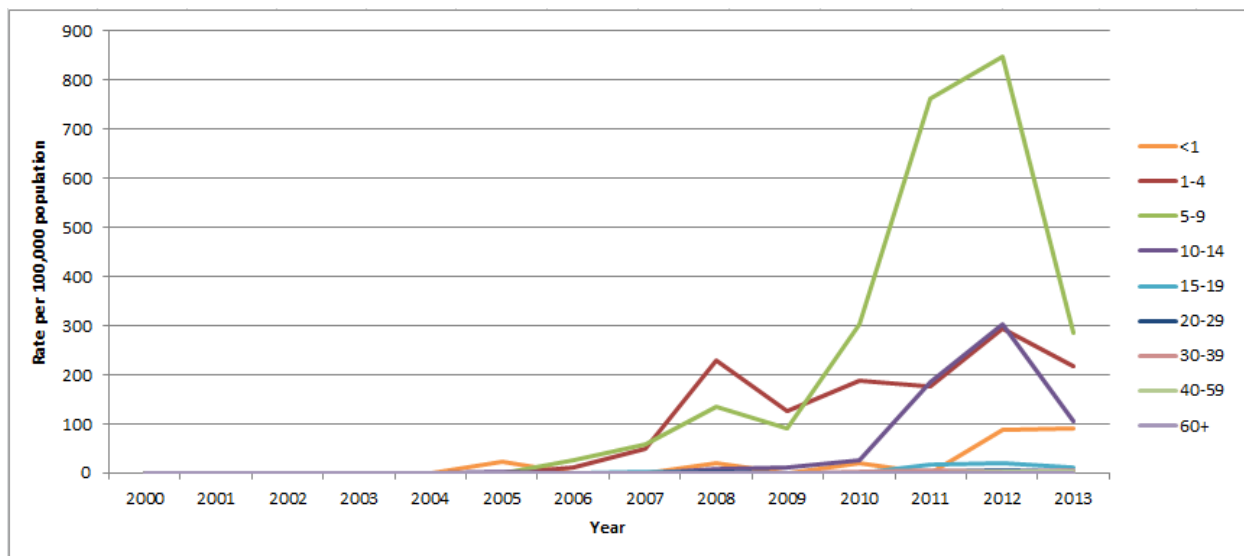


Figure 8: Chicken pox incidence rates by age group and year, NL, 2000-2013.

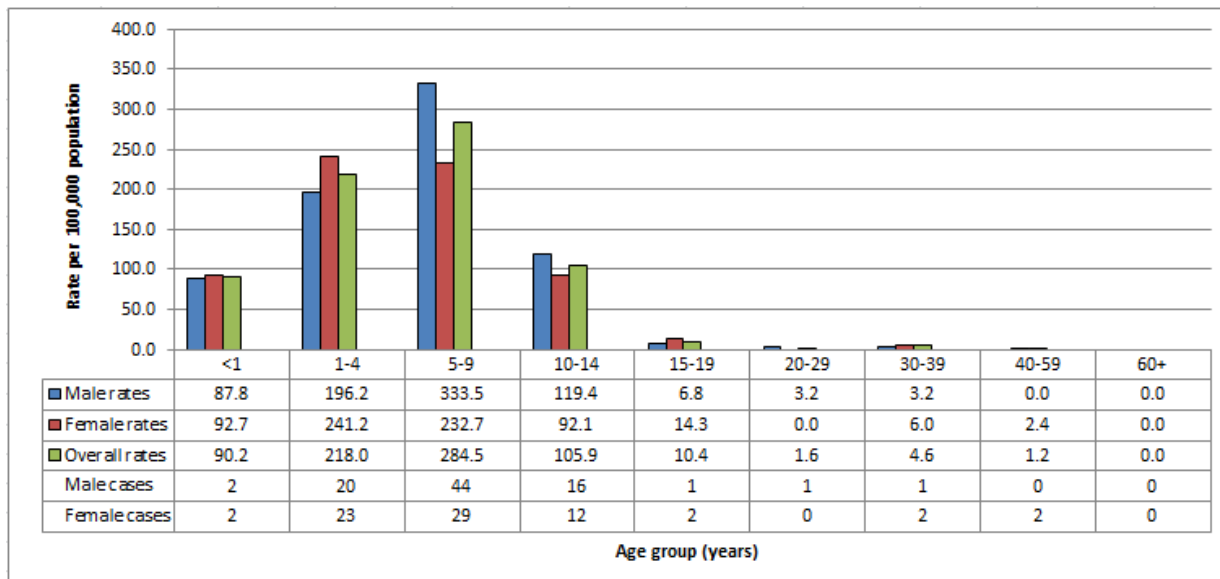


Figure 9: Incidence rates of chicken pox by age group* and sex, NL, 2013.

* age not specified for 1 case

Congenital Rubella Syndrome

There has never been a reported case of congenital rubella syndrome (CRS) in NL. Vaccination against rubella prevents cases of CRS from occurring.

The rates in Canada are very low, with a peak of three cases in 2004. Only twelve cases were reported in Canada between 2000 and 2012, with a range of zero to three cases per year.

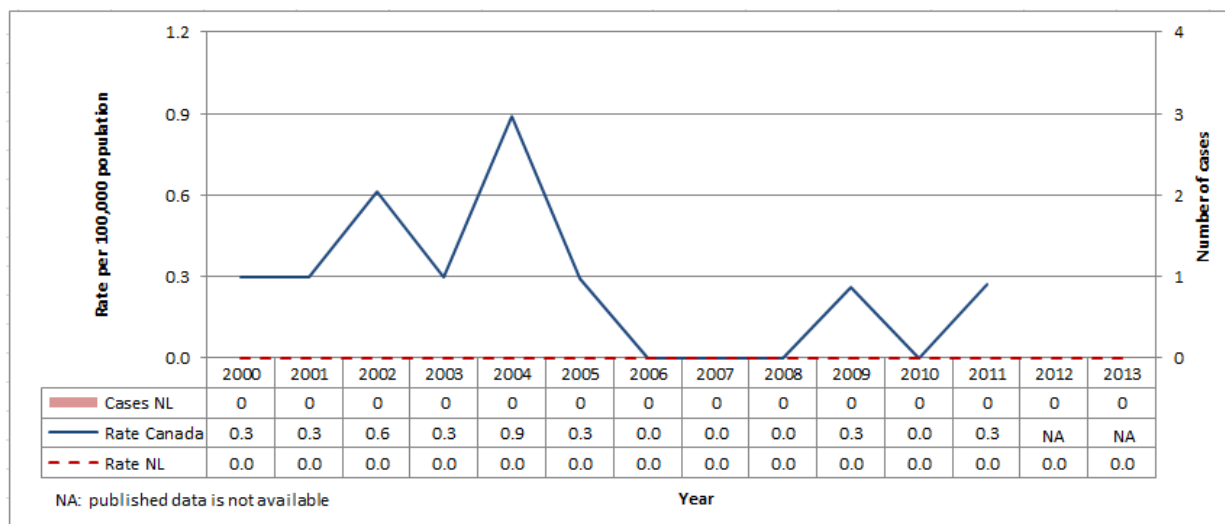


Figure 10: Congenital Rubella Syndrome cases and incidence rates by year, NL and Canada, 2000-2013.

Hepatitis B

There were 25 cases of hepatitis B (HB) reported in 2013 for a rate of 4.8 per 100,000. Although the incidence almost doubled from the previous year (2.5 per 100,000), the rate in 2013 is only slightly higher than the past 3-year average (4.1 per 100,000).

The largest number of cases were reported in Eastern RHA (n=11), followed by Labrador-Grenfell (n=8), Central, (n=5), and Western (n=1) RHAs. However, the highest incidence of infection was found in Labrador-Grenfell with a rate of 21.3 per 100,000.

Canada began the 21st century with relatively low rates of HB, they have risen over the past decade. Infection rates are substantially higher among injection drug users, immigrants from endemic HB countries, the homeless and Aboriginal populations. Fortunately, there is a decline in reported cases among people aged 0 to 24 years. In NL, the incidence has fluctuated with peaks in the number of cases occurring every few years.

In 1995, a universal HB vaccine program was implemented for all grade 4 students in NL. The program was recently changed in 2012 to target grade 6 students. Therefore, all children in the province born in 1986 or later have been offered the HB vaccine. Vaccine uptake is high, which contributes to a decrease in the number of reported cases among children and young adults.

In 2013, the highest incidence was reported among people aged 30-39 and 20-29 years of age (10.8 and 8.0 per 100,000, respectively). The vast majority of cases in the 20-29 age group were foreign-born individuals from endemic countries. There have also been several small outbreaks among older individuals who shared a personal medical device.

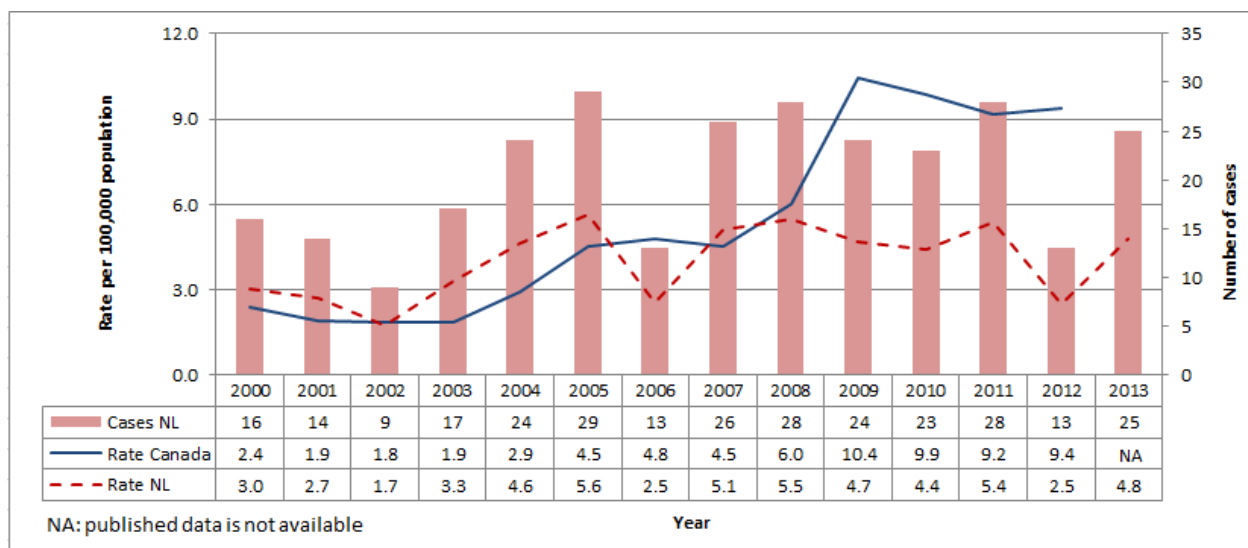


Figure 11: Hepatitis B cases and incidence rates by year, NL and Canada, 2000-2013.

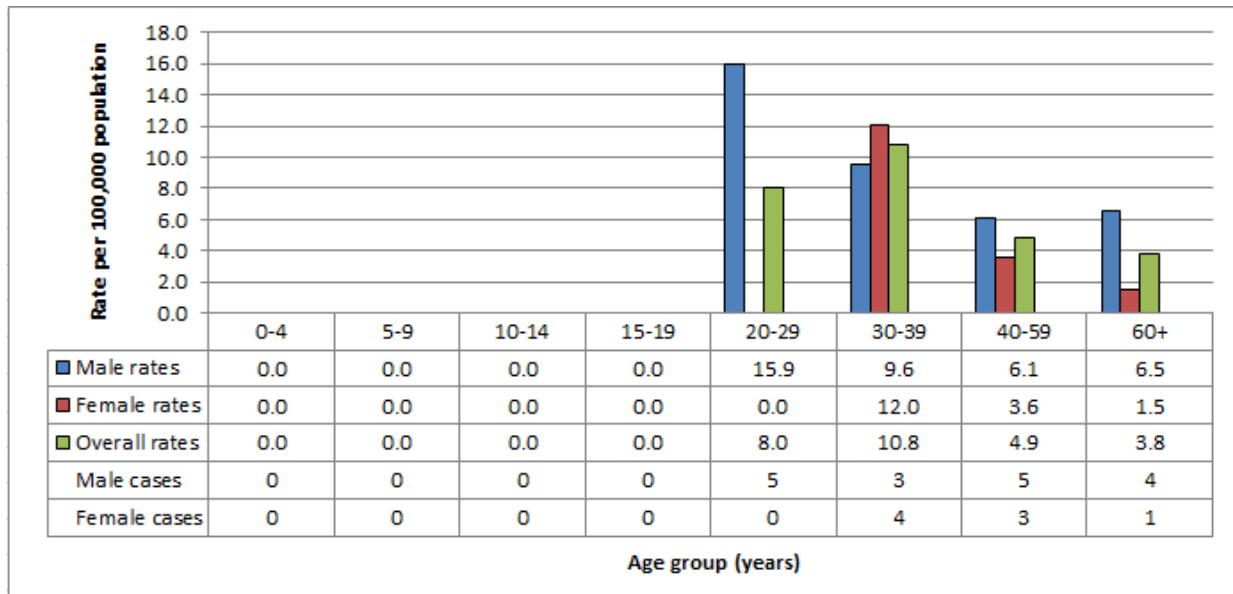


Figure 12: Incidence rates of hepatitis B by age group and sex, NL, 2013.

Measles

There were no cases of measles in 2013. The last reported case in NL was in 1997.

The rate of measles in Canada is typically low, with the exception of several outbreaks in recent years in under-vaccinated communities. The most prominent outbreak occurred in 2011, where the national incidence rate increased dramatically from 0.28 per 100,000 to 2.18 per 100,000. A total of 752 cases were confirmed in 2011, of which 678 (93.5%) were associated with a large outbreak in Quebec.¹ This was the largest number of cases reported in Canada since 1995.

¹ PHAC: Guidelines for the prevention and control of measles outbreaks in Canada. *CCDR* 2013; 39(ACS-3):1-52

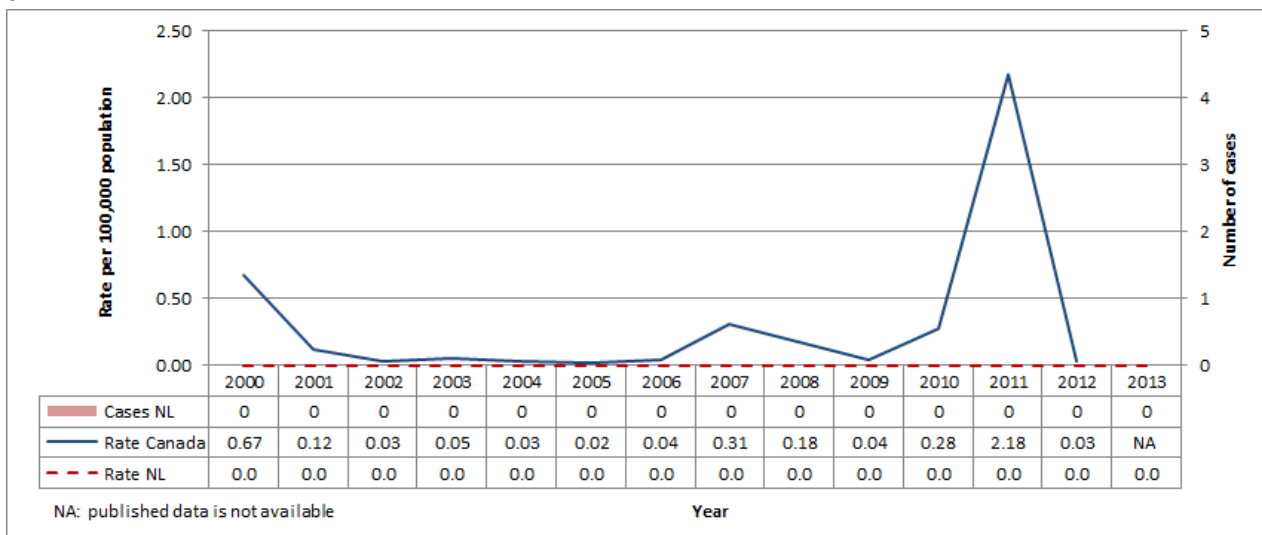


Figure 13: Measles cases and incidence rates by year, NL and Canada, 2000-2013.

Mumps

There were no reported cases of mumps in 2013.

Since 2000, only 11 cases were reported in the province. Of these, 10 were reported in 2007 for a rate of 2.0 per 100,000. This was associated with multiple outbreaks in Nova Scotia, New Brunswick, and Alberta. The majority of cases (58%) involved individuals between 20 and 29 years of age.¹ Among the cases with a known vaccination history (46%), 76% received only one dose of a mumps-containing vaccine and 19% did not receive any vaccine.

The National Advisory Committee on Immunizations (NACI) recommends that two doses of the vaccine be administered to provide the most protection.²

Due to the low number of cases, rates may not accurately depict the disease trend.

¹ PHAC: Mumps. <http://www.phac-aspc.gc.ca/im/vpd-mev/mumps-eng.php>

² PHAC: Guidelines for the prevention and control of mumps outbreaks in Canada. CCDR 2010; 36S1: 1-46.

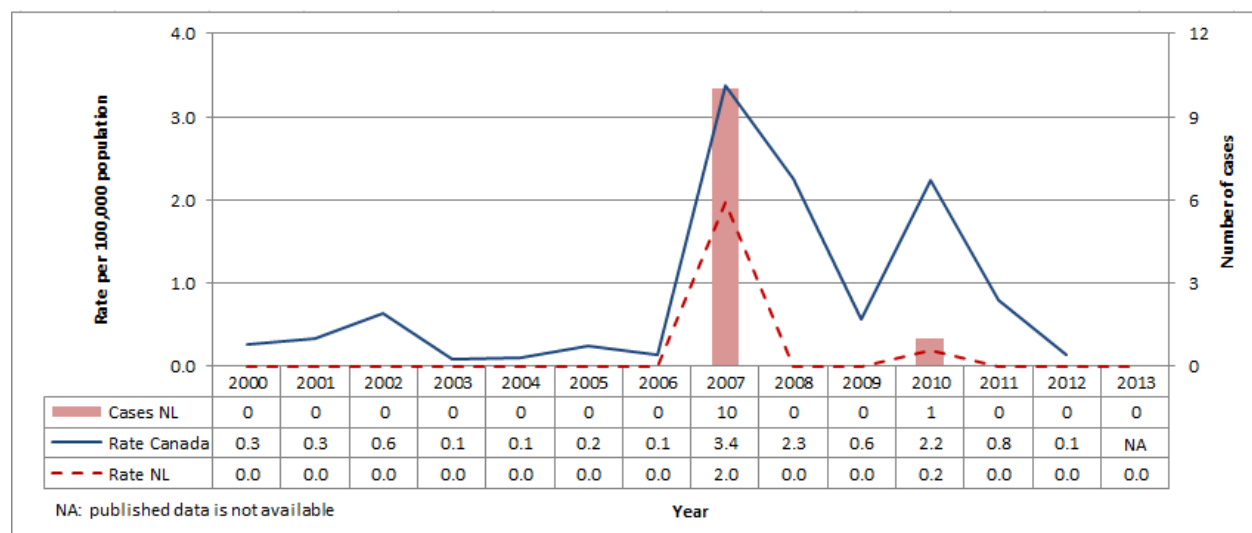


Figure 14: Mumps cases and incidence rates by year, NL and Canada, 2000-2013.

Pertussis

There were 20 cases of pertussis, otherwise known as whooping cough, reported in NL in 2013. This amounts to a rate of 3.8 per 100,000, which is a sharp increase from the previous year where no cases were reported. The incidence in 2013 was the highest recorded in the province since an outbreak in 2003. These were sporadic cases, some of which were related to outbreaks in other provinces (for example, New Brunswick).

Of the 20 cases, 14 occurred in Eastern RHA (4.4 per 100,000) and 6 occurred in Labrador-Grenfell RHA (16.0 per 100,000). There was no pertussis activity reported in either Central or Western RHAs.

In 2013, the majority of cases (55%) occurred in children under 15 years of age. The highest incidence of disease was reported in infants less than one year of age for a rate of 157.8 per 100,000. In this age group, the rate in male infants was almost 2.5 times higher than the rate in females (219.5 vs. 92.7 per 100,000). Overall, there was a fairly equal gender distribution of all pertussis cases in 2013; females comprised 55% of cases.

An outbreak occurred in NL in 2003 with a total of 62 cases and a rate of 12.0 per 100,000 population. This is the highest rate the province has seen since 2000. Over half of the cases (n=32; 52%) were reported in individuals between 10 and 14 years of age.¹ The influx of cases in this age group is likely due to waning immunity from the whole-cell pertussis vaccine.

There was a peak in the national incidence rate in 2012, which was due to increased pertussis activity in 9 of the 13 provinces and territories.² A total of 4,540 cases were reported across Canada and over one-third of these were attributed to a province-wide outbreak in New Brunswick.

As a whole, the incidence of pertussis has decreased considerably after the introduction of pertussis vaccination programs. However, there are reported outbreaks among unvaccinated children and among vaccinated individuals with a waning immunity. The National Advisory Committee on Immunization (NACI) recommends that adults receive a booster to ensure continued protection.³

¹ PHAC. Pertussis in Newfoundland and Labrador: 1991-2004. *CCDR* 2005; 31-22.

² PHAC. Pertussis surveillance in Canada: Trends to 2012. *CCDR* 2014; 40(ACS-3): 19-58.

³ National Advisory Committee on Immunization. *Prevention of pertussis in adolescents and adults*. *CCDR* 2003;29(ACS-5,6):1-9.

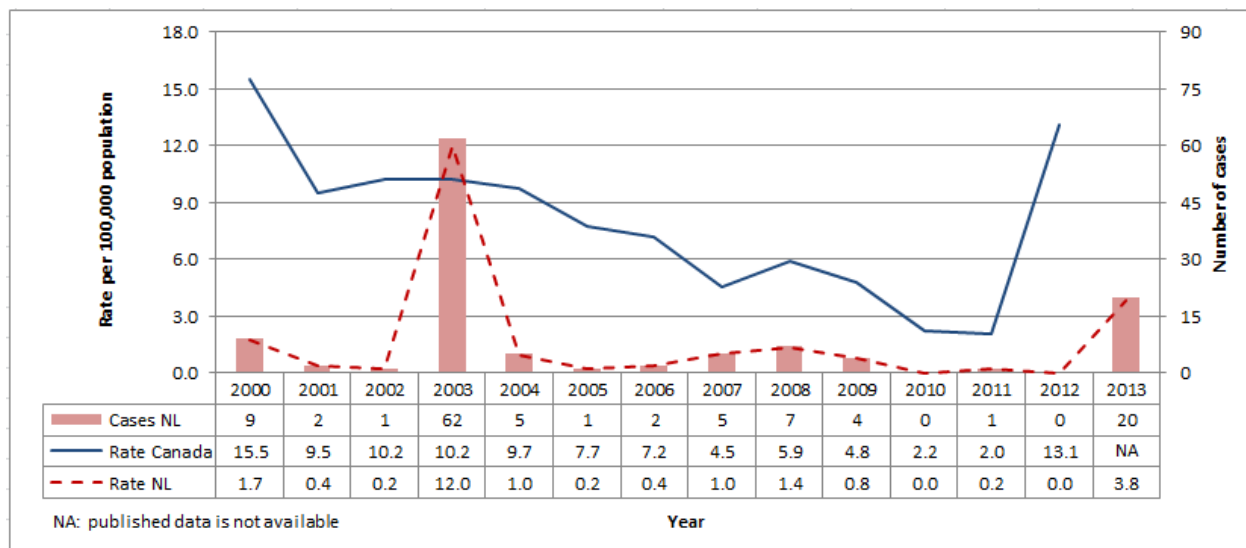


Figure 15: Pertussis cases and incidence rates by year, NL and Canada, 2000-2013.

Rubella

There were no cases of rubella reported in NL from 2000 to 2013. The most recent case occurred in 1998.

The Canadian rates remain low, with the exception of 2005. A large outbreak was reported in southwestern Ontario which resulted in over 300 cases.¹ The outbreak was attributed to an under-vaccinated community and over 60% of cases occurred in unimmunized children aged 5 to 14 years.

Due to the low number of cases, rates may not accurately depict the disease trend.

¹ PHAC. Rubella. <http://www.phac-aspc.gc.ca/im/vpd-mev/rubella-eng.php>

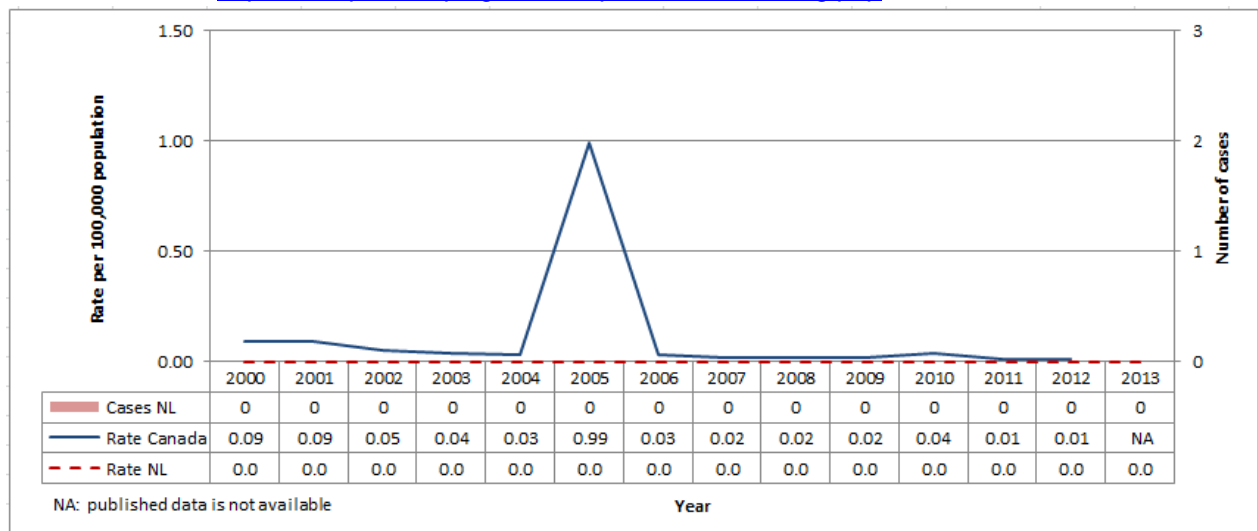


Figure 16: Rubella cases and incidence rates by year, NL and Canada, 2000-2013.

Tetanus

There were no reported cases of tetanus in 2013. Only one case has ever been reported in the province, which occurred in 2006.

The Canadian rate remains very low as well, with one to eight cases reported each year from 2000-2013.

**Newfoundland and Labrador Communicable Disease Surveillance
Monthly Disease Report: June 2014**



DISEASE CLASS	DISEASE NAME	TOTAL			EASTERN			CENTRAL			WESTERN			LABRADOR GRENFELL		
		June	YTD 14	YTD 13	June	YTD 14	YTD 13	June	YTD 14	YTD 13	June	YTD 14	YTD 13	June	YTD 14	YTD 13
Enteric, Food and Waterborne	Amoebiasis	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	Botulism	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	Campylobacteriosis	5	13	23	3	10	12	1	2	5	1	1	6	0	0	0
	Cryptosporidiosis	0	4	1	0	0	0	0	0	0	0	3	1	0	1	0
	Cyclosporiasis	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	Cytomegalovirus	1	16	12	0	8	10	0	4	1	1	3	0	0	1	1
	Giardiasis	2	7	13	0	0	2	0	2	1	1	3	9	1	2	1
	Hepatitis A	2	5	0	1	2	0	1	2	0	0	1	0	0	0	0
	Listeriosis	0	0	1	0	0	1	0	0	0	0	0	0	0	0	0
	Norovirus Infection	2	27	84	0	2	37	0	14	24	2	11	20	0	0	3
	Salmonellosis	2	43	33	0	15	21	1	14	5	1	14	4	0	0	3
	Shigellosis	1	2	1	0	1	1	0	0	0	0	0	0	1	1	0
	Typhoid/Paratyphoid Fever	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	Verotoxigenic Escherichia coli	0	4	1	0	4	1	0	0	0	0	0	0	0	0	0
Yersiniosis	1	1	1	0	0	0	0	0	0	1	1	1	0	0	0	
Diseases Transmitted by Direct Contact and Respiratory Route	Creutzfeldt-Jakob Disease (CJD)	0	0	1	0	0	1	0	0	0	0	0	0	0	0	0
	Group B Streptococcal Disease of Newborn	0	0	1	0	0	0	0	0	0	0	0	0	0	0	1
	Influenza Virus of a Novel Strain	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	Influenza A, Laboratory Confirmed	2	340	583	1	178	226	0	43	130	1	54	190	0	65	37
	Influenza B, Laboratory Confirmed	8	248	18	4	69	7	0	84	2	4	89	8	0	6	1
	Invasive Group A Streptococcal Disease	1	1	4	0	0	1	0	0	1	1	1	1	0	0	1
	Invasive Haemophilus Influenza non-type B	0	2	1	0	0	0	0	1	0	0	1	1	0	0	0
	Invasive Meningococcal Disease (IMD), Conf	0	1	0	0	0	0	0	0	0	0	0	0	0	1	0
	Invasive Meningococcal Disease (IMD), Prob	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	Invasive Pneumococcal Disease (IPD)	0	3	9	0	1	3	0	1	0	0	1	5	0	0	1
	Legionellosis	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	Meningitis, Bacterial (other than Hib, IMD or IPD)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	Meningitis, Viral	0	2	1	0	2	1	0	0	0	0	0	0	0	0	0
	Nontuberculosis Mycobacterial Disease	0	3	2	0	2	1	0	0	0	0	1	1	0	0	0
Severe Respiratory Illness, unknown origin	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
Tuberculosis, non-respiratory	0	0	2	0	0	0	0	0	0	0	0	1	0	0	1	
Tuberculosis, respiratory	0	1	7	0	0	1	0	0	0	0	1	0	0	0	6	
Sexually Transmitted and Bloodborne Pathogens	Chlamydia	73	418	406	51	252	241	4	33	25	9	48	66	9	85	74
	Gonorrhoea	7	33	10	7	31	10	0	0	0	0	2	0	0	0	0
	Hepatitis C	11	60	58	10	47	42	0	5	5	1	8	11	0	0	0
	HIV Infection	0	3	1	0	3	1	0	0	0	0	0	0	0	0	0
	Syphilis, infectious	1	11	6	1	10	4	0	0	0	0	1	2	0	0	0
	Syphilis, non-infectious	0	2	1	0	1	0	0	0	0	0	1	0	0	0	1
Vectorborne & Other Zoonotic Diseases	Lyme disease	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	Malaria	0	0	1	0	0	0	0	0	0	0	0	1	0	0	0
	Q Fever	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	Rabies	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	Toxoplasmosis	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	Trichinellosis	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	West Nile Virus Infection	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Vaccine Preventable	Chickenpox	9	84	94	2	55	50	1	22	36	3	3	5	3	4	3
	Congenital Rubella Syndrome	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	Hepatitis B	0	7	12	0	4	5	0	1	3	0	0	1	0	2	3
	Invasive Haemophilus Influenza type B (Hib)	1	1	0	1	1	0	0	0	0	0	0	0	0	0	0
	Measles	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	Mumps	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	Pertussis	0	6	12	0	6	6	0	0	0	0	0	0	0	0	6
	Rubella	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	Tetanus	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

Source: Communicable Disease Control System, Department of Health and Community Services, Government of Newfoundland and Labrador

Date verified: 11-Jul-2014

Disclaimer: Data are subject to continuous updates; small variations in numbers may occur.

Note: Prior to January 2011, "Invasive Meningococcal Disease, Probable" was included under the heading "Invasive Meningococcal Disease"

The majority of chickenpox cases meet the probable case 'definition'