Immunization Report, 2023-2024

SCHOOL IMMUNIZATION PROGRAM REPORT

September 2024
Department of Health

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List of Abbreviations:

Table 1: Abbreviations used in this report

Abbreviation	Meaning
RHAs	Regional Health Authorities
NB	New Brunswick
CSDS	Client Service Delivery System
PHIS	Public Health Information Solution
Men-C-C	Meningococcal Conjugate Group C
Men-C- ACYW-135	Meningococcal Conjugate Groups A, C, Y and W-135
MMR	Measles, Mumps, Rubella
IPV	Inactivated Polio
DTaP/ Tdap	Diphtheria, Tetanus, Acellular Pertussis
HPV	Human Papillomavirus

Introduction

The purpose of this report is to provide a summary of school entry and school immunization program statistics in New Brunswick (NB). This report describes immunization data for NB children entering schools for the first time and receiving vaccines in school year 2023/24 and compares trends of the two previous years (2021/22, and 2022/23). Coverage rates are important measures of the success of immunization programs, serving as indicators of the level of school population protection against vaccine-preventable diseases. This report does not provide provincial immunization coverage rates, but rather estimates of immunization uptake among children within NB public schools to help inform policy and program planning.

With the implementation of a province vaccination registry the Department of Health can more easily calculate immunization coverage rates for children registered in public schools. With the change in methodology and data source, rates published in this report should not be compared directly to previous childhood immunization reports.

The NB Department of Health funds immunization programs that provide protection against several vaccine-preventable diseases. See Appendix 1: NB immunization Schedule.

Publicly funded vaccines are delivered through a network of immunization providers including physicians, pharmacists, nurse practitioners, midwives, and nurses. Public Health in the Regional Health Authorities (RHAs) works collaboratively with the Department of Education and Early Childhood Development to ensure compliance with the legislation and provide school-based immunization clinics. NB's immunization partners work together to increase vaccine coverage levels and deliver a quality immunization program.

Data Source

The data summarized in this report was collected from PHIS, NB's first immunization data repository. Prior to PHIS this report included data collected from the RHAs through a provincial reporting tool that contained aggregate-level regional data including both the number of children up-to-date and number of students enrolled in school. For additional details on the data elements, procedures, or policies, please see the NB Immunization Program Guide1.

School Entry Immunization Requirements Data

- Data includes the total number of children enrolled in kindergarten (i.e. 4 or 5 years of age, but would be turning 5 by December 31, of a calendar year) and those meeting or not meeting requirements as per the Public Health Act.
- The main indicator is a one-time estimate of the percent of children entering kindergarten who met immunization requirements upon school entry. This is an indicator of compliance to the legislation on the day data was extracted from PHIS (i.e. July 1st of the corresponding school year).

School Immunization Data

- Data includes the total number of children in a grade in which there is a specified Public Health school immunization program, those immunized with the complete doses required, had incomplete immunization or no immunizations.
- The main indicator is the number of children in the specific grade who received a particular vaccine/vaccine series during the school year.

1
http://www2.gnb.ca/content/gnb/en/departments/ocmoh/for_healthprofessionals/cdc/NBImmunizationGuide.html

Limitations

Data for school entry immunization and school immunization programs represent children up-to-date by age based on vaccination records in PHIS. Incomplete records (i.e. records not up-to-date for age) do not necessarily indicate that a vaccine was not administered but could be due to not having the updated records in PHIS. In addition, the absence of a record is not evidence that a child is unvaccinated but may be due to non-submission by parents/guardian.

Children who are home-schooled, enrolled in a private school, or have no school information in PHIS are excluded from the analysis.

Furthermore, vaccination data in PHIS may not be complete for children who recently moved to NB. There is no current interprovincial notification system for immunizations. A parent/guardian must share documentation of vaccination outside of NB with regional public health for entry into PHIS as a historical immunization event.

Additionally, according to the active health card data, the cohort of children entering kindergarten in the 2023/24 school year has experienced an 8.9% increase in population since they were two years old. Since the majority of vaccinations are administered before the age of two-years, the absence of these records in the PHIS for new residents may result in incomplete vaccination histories. This population increase, coupled with the potential lack of corresponding vaccination records, may artificially lower the reported coverage rates. When measuring up-to-date vaccination status, which could require several vaccinations throughout childhood, the coverage rates may be more affected than those vaccinations administered closer to the age at which they are assessed.

Historical vaccination coverages comparing this report and previous school immunization reports will differ due to a limitation identified in PHIS in 2024. This limitation had prevented vaccinations from being properly migrated into PHIS. The issue has since been corrected, and vaccination uptake data have been retrospectively adjusted.

The data in this report summarize the most complete and accurate data available for public health immunization programs, including immunization requirements at school entry and school immunization programs.

Children Meeting Immunization Requirements for School Entry, 2023/24

BACKGROUND

Proof of immunization has been a requirement for children entering NB schools since 1982. Over the years, enhancements to the publicly funded immunization program and the Public Health Act have led to changes in the immunization requirements for school entry. (Please Refer to Appendix 2. History of School Entry Immunization Requirements.) The Reporting and Diseases Regulation 2009-136 under the Public Health Act, states that all children entering NB schools must demonstrate proof of immunization against the following diseases: diphtheria, tetanus, polio, pertussis, measles, rubella, mumps, varicella and meningococcal disease, in accordance with NB immunization schedule.

The Department of Education and Early Childhood Development works with the RHAs to ensure proof of immunization of all children entering NB schools for the first time. Although the proof of immunization is required for all children entering NB schools for the first time, this report focuses on children eligible for entry into kindergarten.

OVERALL FINDINGS

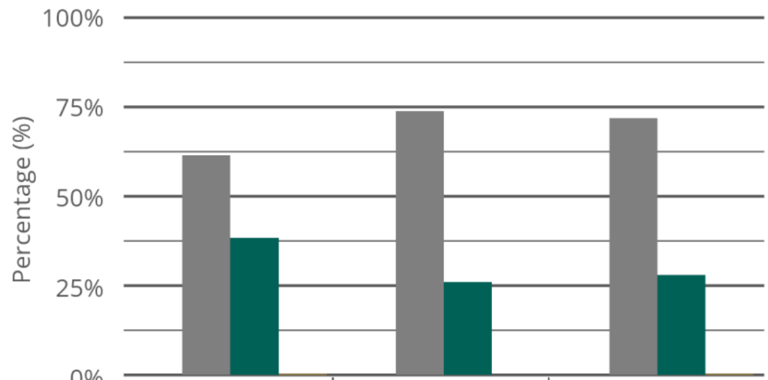
Provincially the percentage of students meeting immunization requirements for school entry decreased to 71.8% in 2023/24 from 73.9% in 2022/23 school year and increased from 61.4% in the 2021/22 school year.

In 2023/24, Region 2 reported an increase in the proportion of children meeting immunization requirements compared to the previous school year, while region(s) 1, 3, 4, 5, 6 and 7 saw a decrease. The overall parental objection increased in 2023/24 to 0.2%, from 0.1% in 2022/23.

FINDINGS BY INDIVIDUAL VACCINE

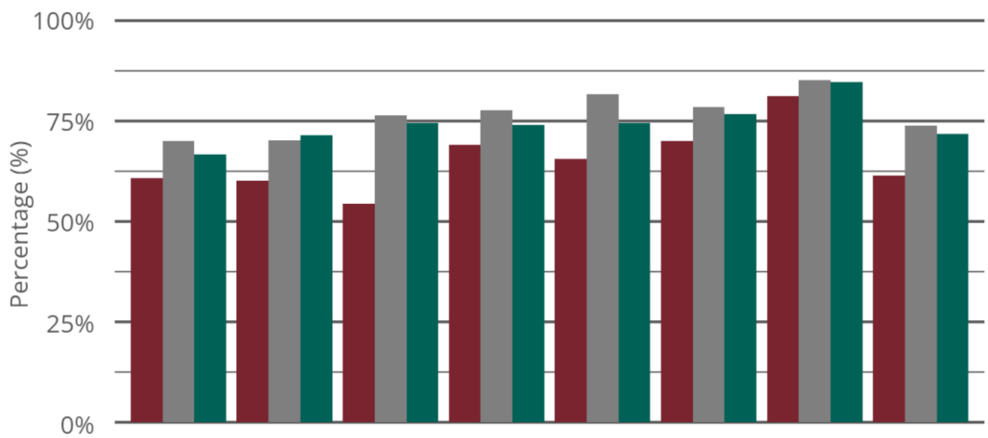
Among students with proof of immunization in 2023/24, the highest to lowest proportion of up-to-date immunizations (by individual vaccine) was: Men-C-C 95% (consistent with 2022/23, 95%), Varicella 91.5% (lower than 2022/23, 92%), MMR 91.2% (lower than 2022/23, 91.4%), DTaP 77.4% (lower than 2022/23, 78.5%), and IPV 73.3% (lower than 2022/23, 75.8%).

Among kindergarten students in 2023/24 with incomplete proof of immunization for DTaP, 78.8% of the children were missing only the 4-year-old booster dose. The IPV booster dose accounted for 95.8% of all children deemed not up-to-date for this vaccine. Additionally, 55% and 58.7% of children were missing the last dose of MMR, and Varicella, respectively.



	2021/22	2022/23	2023/24
Medical Exemption	0%	0%	0%
Meets Requirements	61.4%	73.9%	71.8%
Not Complete Record	38.3%	26%	28%
Parental Objection	0.2%	0.1%	0.2%

Figure 1: Percentage of students meeting requirements for school entry through immunization, or medical exemption, parental objection or with incomplete record, New Brunswick



	1	2	3	4	5	6	7	NB
2021/22	60.8%	60.2%	54.4%	69.1%	65.6%	70.1%	81.3%	61.4%
2022/23	70%	70.3%	76.4%	77.6%	81.7%	78.4%	85.2%	73.9%
2023/24	66.6%	71.5%	74.5%	74.1%	74.5%	76.8%	84.8%	71.8%

Figure 2: Percentage of students meeting immunization requirements for school entry, by Region

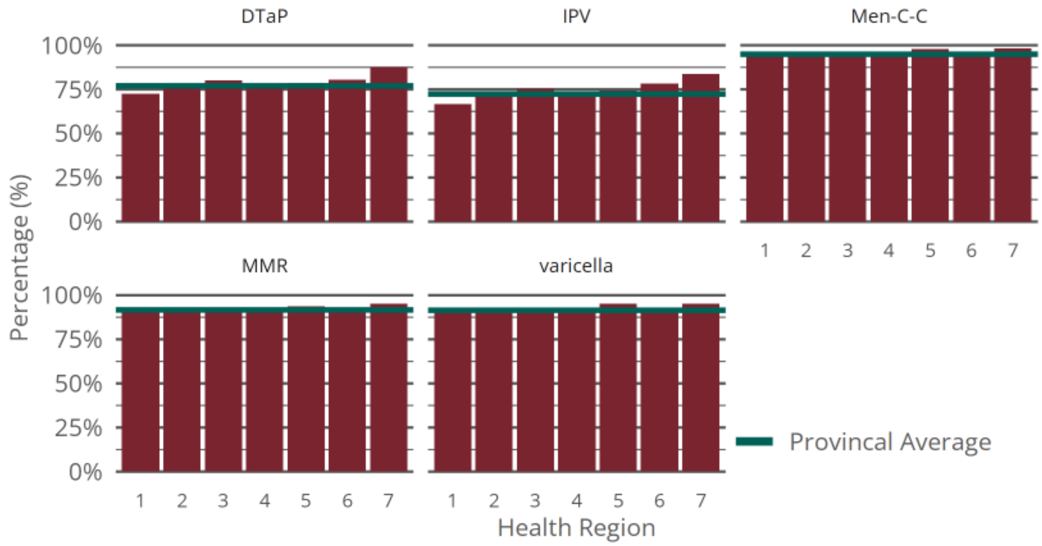


Figure 3: Percentage of students up-to-date with individual vaccine at school entry for school year 2023/24, by Region compared to provincial average

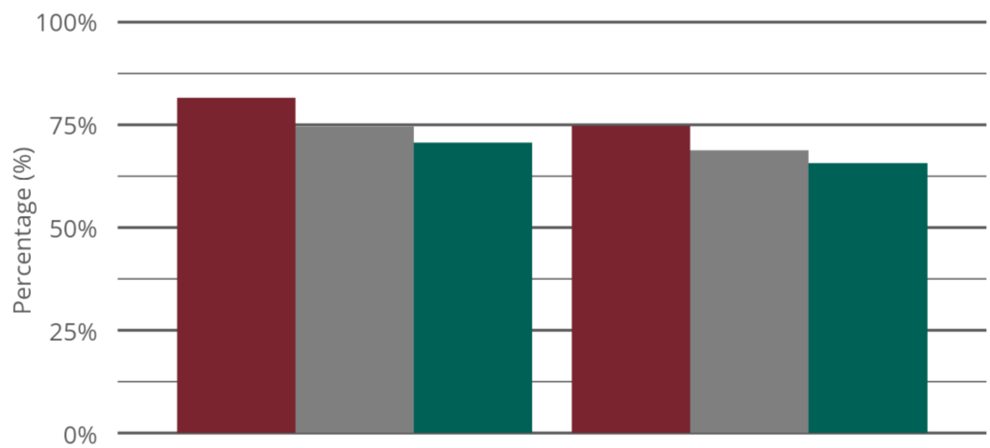
School Immunization Programs

BACKGROUND

School-based immunization programs are critical to improving the duration of protection against a number of childhood diseases, as well as initiating protection for other infections that can occur later in life (e.g. human papillomavirus). Immunization in the school setting can be more effective in obtaining higher coverage rates than would be achieved in other ways. Through collaboration with the Department of Education and Early Childhood Development, Public Health Nurses have successfully implemented many school-based immunization programs throughout the province. Catch-up immunization programs have also enabled additional age groups to be immunized during these campaigns. Please refer to Appendix 3 for more history on School Immunization Programs in NB.

DATA SUMMARY: HPV VACCINE

In 2015/16 and 2016/17, the HPV vaccine was offered to female students in grade 7. From 2017/18 onwards the HPV vaccine has been offered to both male and female students in grade 7. It's worth noting that many other provinces offer the HPV vaccine in grade 6. As a result, students who move to New Brunswick after receiving the vaccine in grade 6 elsewhere may not have their vaccination records entered into the PHIS system.



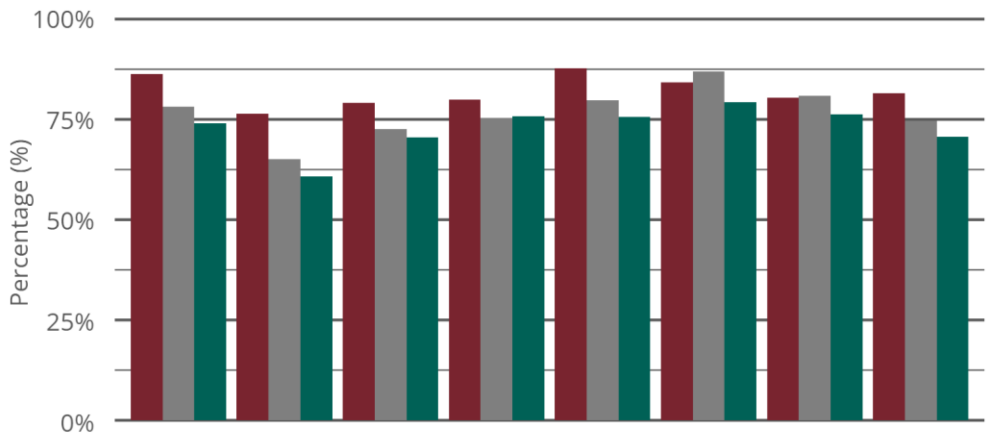
	Female	Male
2021/22	81.5%	74.8%
2022/23	74.6%	68.9%
2023/24	70.7%	65.8%

Figure 4: Percentage of New Brunswickers in grade 7 with complete HPV vaccine series by gender and school year

GRADE 7 FEMALE STUDENTS

In 2023/24, the proportion of female students who completed their HPV immunization series decreased to 70.7% compared to 74.6% in 2022/23.

The proportion of female students with incomplete series increased in 2023/24 compared to 2022/23 (8.1% versus 7% respectively). Most zones had lower proportions with complete series in 2023/24 compared to the previous school year. The zone with the lowest proportion was Zone 2, where the proportion has decreased by 4.2%.



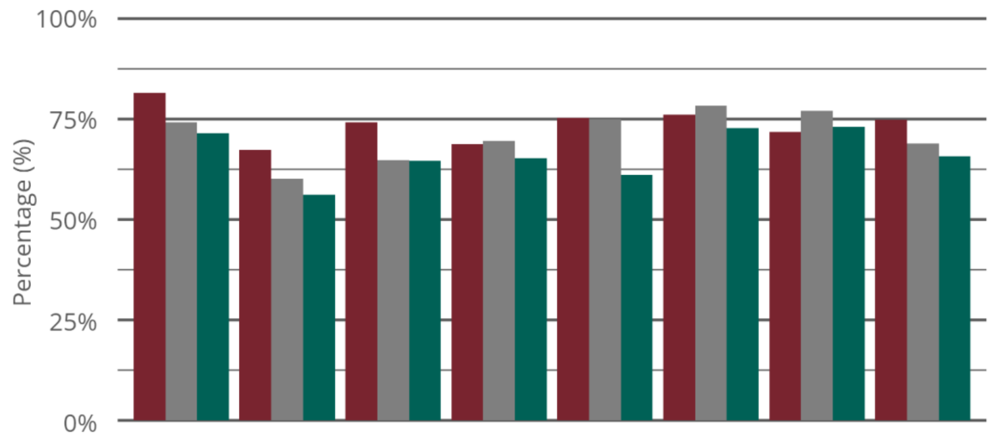
	1	2	3	4	5	6	7	NB
2021/22	86.2%	76.5%	79.2%	80%	87.7%	84.2%	80.4%	81.5%
2022/23	78.2%	65.1%	72.7%	75.4%	79.7%	87%	80.8%	74.6%
2023/24	74%	60.9%	70.4%	75.8%	75.6%	79.3%	76.2%	70.7%

Figure 5: Percentage of New Brunswickers in grade 7 females with complete HPV vaccine by school year and region

GRADE 7 MALE STUDENTS

In 2023/24, the proportion of male students who completed their HPV immunization series decreased to 65.8% compared to 68.9% in 2022/23. The proportion of male students with incomplete series increased in 2023/24 compared to 2022/23 (6.8% versus 6.7% respectively).

Most zones had lower proportions with complete series in 2023/24 compared to the previous school year. The region with the biggest change in proportion was region 5, where the proportion of complete series decreased from 75% in 2022/23 to 61% in 2023/24. Large fluctuations can be a result of small sample sizes and should be interpreted with caution.

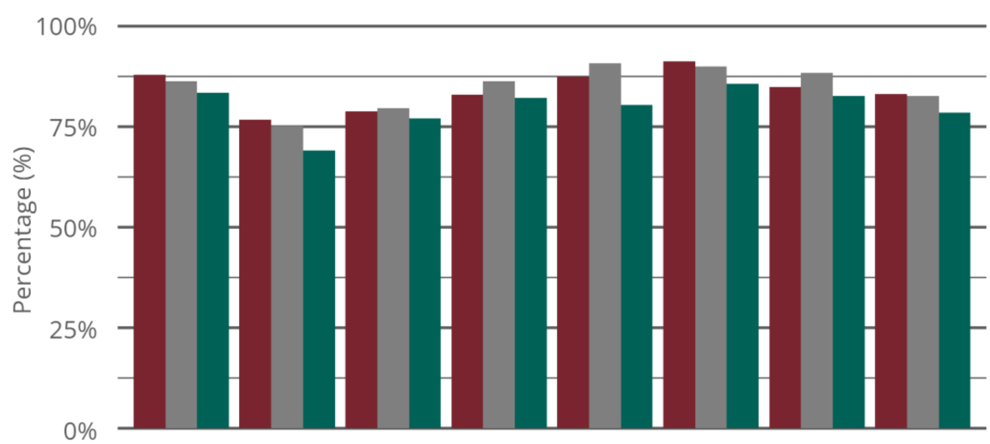


	1	2	3	4	5	6	7	NB
2021/22	81.6%	67.3%	74.2%	68.8%	75.3%	76.1%	71.7%	74.8%
2022/23	74.1%	60.2%	64.7%	69.6%	75%	78.3%	77.1%	68.9%
2023/24	71.5%	56.2%	64.6%	65.2%	61%	72.8%	73.1%	65.8%

Figure 6: Percentage of New Brunswickers in grade 7 males with complete HPV vaccine by school year and region

DATA SUMMARY: TDAP VACCINE

In 2023/24, the overall proportion of students immunized with Tdap decreased compared to the previous school year (78.4% and 82.6%, respectively). The proportion of immunized students decreased in all regions.

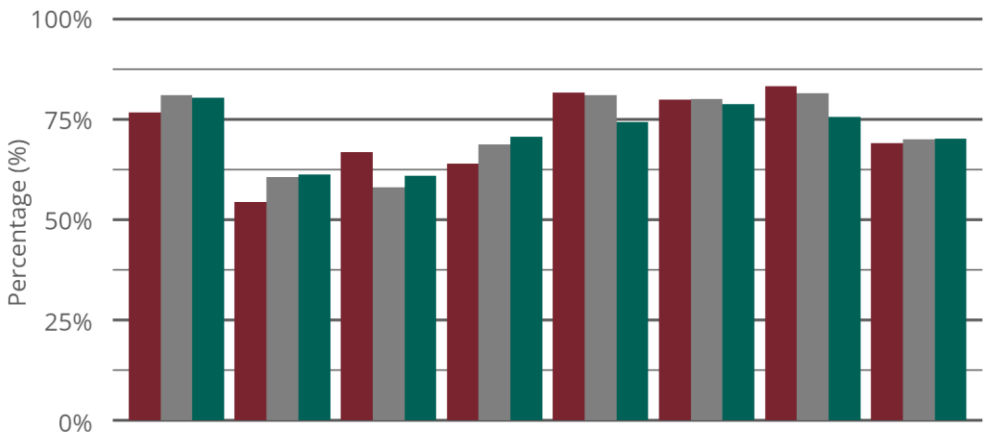


	1	2	3	4	5	6	7	NB
2021/22	88%	76.8%	78.9%	83%	87.4%	91.2%	84.9%	83%
2022/23	86.3%	75.2%	79.5%	86.3%	90.7%	90%	88.3%	82.6%
2023/24	83.4%	69.2%	77.1%	82.2%	80.4%	85.7%	82.6%	78.4%

Figure 7: Percentage of New Brunswickers in grade 7 immunized with TDaP vaccine by school year and region

DATA SUMMARY: MEN-C-ACYW-135 VACCINE

In 2023/24, the overall proportion of students immunized with Men-C-ACYW-135 increased in 2023/24 compared to the previous school year (70.2% in 2023/24 and 70% in 2022/23). The proportion of immunized students increased in regions: 2, 3, and 4. The proportion of immunized students decreased in regions: 1, 5, 6, and 7.



	1	2	3	4	5	6	7	NB
2021/22	76.8%	54.4%	66.8%	63.9%	81.7%	80%	83.3%	69%
2022/23	81.1%	60.6%	58.1%	68.7%	81.1%	80.1%	81.5%	70%
2023/24	80.3%	61.2%	61%	70.7%	74.4%	78.8%	75.7%	70.2%

Figure 8: Percentage of New Brunswickers in grade 9 immunized with Men-C-ACYW-135 vaccine by school year and region

Appendix

APPENDIX 1: NEW BRUNSWICK ROUTINE IMMUNIZATION SCHEDULE (AS OF 2024)

Routine Immunization Schedule

The New Brunswick Routine Immunization Schedule is set by the department of Health-Public Health. Vaccines recommended in the Routine Immunization Schedule are provided by Public Health and other health-care providers throughout New Brunswick. "On time" and "on schedule" immunization provide the best protection against vaccine preventable diseases.

Routine Childhood Immunization Schedule	
Age/Grade	**Vaccine**
Birth	Hepatitis B
2 months	Hepatitis B DTaP-IPV-Hib[1] Pneumococcal conjugate Rotavirus
4 months	DTaP-IPV-Hib Pneumococcal conjugate Rotavirus
6 months	Hepatitis B DTaP-IPV-Hib Rotavirus
12 months	MMRV[2] Meningococcal conjugate C Pneumococcal conjugate
18 months	DTaP-IPV-Hib MMRV
4 years	Tdap-IPV[3]
Yearly (starting at 6 months)	Influenza (yearly)
Routine Childhood Immunization Schedule	
Grade 7	HPV[4] + Tdap[5]
Grade 9	Meningococcal conjugate ACYW-135

Routine Adult Immunization Schedule	
Age	**Vaccine**
Adulthood 18 years of age and older	Influenza yearly. Td[6] should be given every 10 years. Tdap should replace one of the Td doses. The Tdap vaccine should be offered to pregnant individuals during every pregnancy.[7] MMR vaccine[8] (individuals born in 1970 or after)
Targeted Adult Immunization Schedule	
≥ 60 years	Respiratory Syncytial Virus vaccine[9] (RSV)
≥ 65 years	High-Dose Influenza vaccine[10] (yearly)

[1] DTaP-IPV-Hib: diphtheria, tetanus, acellular pertussis, inactivated polio, & Haemophilus influenzae type B
[2] MMRV: measles, mumps, rubella and varicella
[3] Tdap-IPV: tetanus, diphtheria, acellular pertussis, inactivated polio
[4] HPV: human papillomavirus
[5] Tdap: tetanus, diphtheria, acellular pertussis
[6] Td: tetanus and diphtheria
[7] Tdap pregnant individuals regardless of their age
[8] MMR: Adults born after 1970 should contact their health-care provider or Public Health office for information about measles, mumps, rubella (MMR) immunization.
[9] RSV: Individuals aged 60 and over either living in long-term care sector or hospitalized and awaiting placement in such a facility.
[10] Influenza high dose: Individuals aged 65 and over either living in long-term care sector or hospitalized and awaiting placement in such a facility

24-01386

New-Nouveau Brunswick

APPENDIX 2: IMMUNIZATION REQUIREMENT FOR KINDERGARTEN ENTRY IN NB

Children are considered up-to-date with immunizations for school entry (kindergarten) if they have received the full number of valid and required vaccine doses according to age and against the diseases cited in the Reporting and Diseases Regulation 2009-136, Public Health Act.

Valid dose: A dose is considered valid if administered at recommended age (or acceptable minimum age for dose), recommended time interval (or acceptable minimum interval from previous dose) and recommended spacing between blood products and live attenuated vaccines.

Full number of vaccine doses required per antigen (i.e. complete series):

- Before 2010/11: measles (1 dose), mumps, (1 dose), rubella (1 dose), diphtheria (3 doses), tetanus (3 doses) and poliomyelitis (3 doses);
- From 2010/11 to 2013/14: measles (2 doses), mumps, (2 doses), rubella (2 doses), diphtheria (5 doses), pertussis (5 doses), tetanus (5 doses), poliomyelitis (4 doses), varicella (1 dose) and meningococcal (1 dose);
- 2014/15 onwards: measles (2 doses), mumps, (2 doses), rubella (2 doses), diphtheria (5 doses), pertussis (5 doses), tetanus (5 doses); poliomyelitis (4 doses), varicella (2 doses) and meningococcal (1 dose).

Note: Children who did not start routine immunization during early infancy (i.e. late starters) follow an alternate schedule and may be considered up-to-date with less doses as per the Canadian Immunization Guide[2]. Example: If the 4th dose of DTaP is administered after the 4th birthday, the 5th dose in not necessary.

[2] https://www.canada.ca/en/public-health/services/canadian-immunization-guide.html

APPENDIX 3: HISTORY OF THE NEW BRUNSWICK SCHOOL IMMUNIZATION PROGRAM

Table 1. History of the New Brunswick school immunization program - Tdap vaccine, as of June 2020.

	School Year									
	2004/5	**2005/6**	**2006/7**	**2007/8**	**2008/9**	**2009/10**	**2010/11**	**2011/12**	**2012/13**	**2013/14 - 2019/20**
Grade 6										
Grade 7										
Grade 8										
Grade 9										
Grade10										
Grade11										
Grade12										

	Routine Immunization Schedule
	Targeted/Catch-up Campaign
	Outbreak Campaign

Summary

- **2003 and earlier:** A tetanus, diphtheria vaccine (Td) was offered to students in grade 11 as part of the school-based immunization program in NB.
- **2004/5**: A combined tetanus, diphtheria and acellular pertussis vaccine (Tdap) replaced the Td vaccine. The Tdap booster was moved from grade 11 to 9 with a catch-up program extended to students in grades 10 to 11.
- **2005/6:** Tdap vaccine was offered to students in grade 9.
- **2006/7, 2007/8 and 2008/9:** Tdap vaccine was offered to students in grade 6 as part of a three year catch-up program. This vaccine was also offered to students in grade 9.
- **2009/10, 2010/11 and 2011/12:** Tdap vaccine offered to students in grade 9 was on hold due to the completion of a three year catch-up program in grade 6.
- **Spring 2012:** From May to mid-June 2012, a school-based immunization campaign was implemented to prevent the continued rise of pertussis in school age children. Students in grades 6, 7 and 8 in the most affected areas (Health Zones 1 & 2) received Tdap vaccine.
- **2012/13:** Students in grades 7, 8, 9 in less affected areas (Health Zones 3,4,5,6, & 7) were offered immunization in the fall of 2012. The adolescent Tdap booster was re-introduced in grade 7 (instead of Grade 9) with a catch-up program extended to students in grades 8 and 9.
- **2013/14 onwards:** The adolescent Tdap booster was offered to grade 7 students only.

Table 2. History of the New Brunswick school immunization program - HPV vaccine, as of June 2020.

	School Year										
	2004/5	**2005/6**	**2006/7**	**2007/8**	**2008/9**	**2009/10**	**2010/11**	**2011/12**	**2012/13-2014/15**	**2015/16-2016/17**	**2017/18-2019/20**
Grade 5											
Grade 6											
Grade 7						*					**
Grade 8							*				
Grade 9											
Grade10											
Grade11											
Grade12											

	Routine Immunization Schedule
	Targeted/Catch-up Campaign
	Outbreak Campaign

Summary

- **2008/09, 2009/10, 2010/11, 2011/12, 2012/13:** A series of 3 doses of human papillomavirus quadrivalent vaccine (HPV4) was offered to female students in grade 7 as part of the school-based immunization program in NB. The vaccine was also offered to female students in grade 8 as part of a 1 year catch-up program.
- * **2009/10:** The HPV4 vaccine was delayed in some areas of the province because of the H1N1 mass immunization campaign.
- * **2010/11:** The HPV4 vaccine was offered to female students in grade 8 where delays occurred because of the H1N1 campaign (catch-up program).
- **2015/16- 2016/17:** A series of 2 doses of human papillomavirus quadrivalent vaccine (HPV4) was offered to female students in grade 7 as part of the school-based immunization program in NB.
- ****2017/18 onwards:** A series of 2 doses of human papillomavirus quadrivalent vaccine (HPV4) was offered to both male and female students in grade 7 as part of the school-based immunization program in NB.

Table 3. History of the New Brunswick school immunization program – meningococcal vaccine, as of June 2020.

	School Year									
	2004/5	2005/6	2006/7	2007/8	2008/9	2009/10	2010/11	2011/12	2012/13-2017/18	2018/19-2019/20
Grade 5	*									
Grade 6	*									
Grade 7	*									
Grade 8	*									
Grade 9										
Grade 10	*									
Grade 11	*									
Grade 12	*									
	Men C- C (2004/05 - 2005/06)			**Men C - ACYW-135 (2007/08 – 2019/20)**						

	Routine Immunization Schedule
	Targeted/Catch-up Campaign
	Outbreak Campaign

Summary

- **2004/05, 2005/06, 2006/07:** A meningococcal conjugate C vaccine (Men-C-C) was offered to students in grade 9 as part of the school-based immunization program in NB.
- * **2005:** A mass immunization campaign was implemented from May-June 2005 in Westmorland, Kent and Albert counties; 16,000 students in grades 5-12 and young adults up to 19 years of age were offered a meningococcal conjugate C vaccine (NeisVac C.)
- **2005/06:** The meningococcal conjugate C vaccine was offered to students in grades 10-12 in other areas of the province as part of a catch-up program.
- **2007/08 onwards:** The monovalent meningococcal conjugate vaccine (Men-C-C) was replaced by the quadrivalent meningococcal vaccine (Men-C-ACW135). Men-C-ACW135 vaccine was offered to students in grade 9 as part of the school-based immunization program in NB.