
Immunization Report, 2020-2023

SCHOOL IMMUNIZATION PROGRAM REPORT

September 2023

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 System
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. This report describes immunization data for New Brunswick children entering schools for the first time and receiving vaccines throughout the academic year for the 2020/21, 2021/22 and 2022/23 school years. Coverage rates are important measures of the success of immunization programs, serving as indicators of the level of population-wide 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 access immunization data 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 New Brunswick 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. New Brunswick'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, New Brunswick'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 New Brunswick 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 and the reasons why requirements are not met (where available).
- The main indicator is the number of children in the specific grade that 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 record 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 New Brunswick. There is no current interprovincial notification system for immunizations. A parent/guardian must share documentation of vaccination outside of New Brunswick with regional public health for entry into PHIS as an historical immunization event.

The data in this report summarizes 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, 2020-2023

BACKGROUND

Proof of immunization has been a requirement for children entering New Brunswick 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 New Brunswick immunization schedule.

The Department of Education and Early Childhood Development works with the RHAs to ensure proof of immunization of all children entering New Brunswick schools for the first time. Although the proof of immunization is required for all children entering New Brunswick 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 increased in 2022/23 to 70.4% from 61.4% in 2021/22 school year and 60% in the 2020/21 school year.
- All regions reported higher proportion of children meeting immunization requirements compared to previous school year.
- The overall parental objection remained stable at 0.1%, compared to 0.2% in 2021/22.

FINDINGS BY INDIVIDUAL VACCINE

- Among students with proof of immunization in 2022/23, the highest to lowest proportion of up-to-date immunizations (by individual vaccine) was: Men-C-C (95.16%), Varicella (92.1%), MMR (91.7%), DTaP (78.9%) and IPV (71.7%). These proportions were all higher than the previous school year.
- Among kindergarten students in 2022/23 with incomplete proof of immunization for DTaP, 78.1% of the children were missing only the 4-year old booster dose. The IPV booster dose accounted for 81.7% of all children deemed not up-to-date for this vaccine, while 58.6% and 59.7% of children were missing the last dose of MMR and Varicella, respectively.

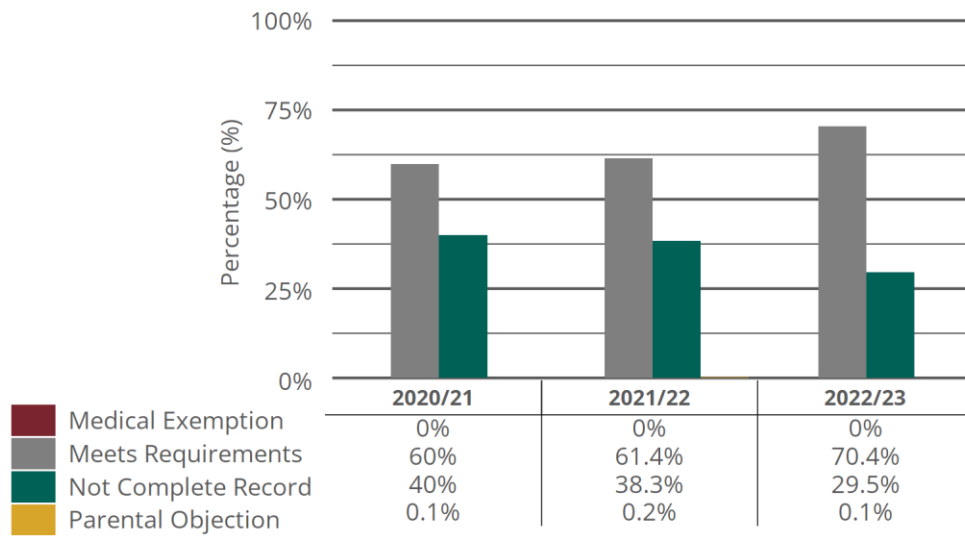


Figure 1: Percentage of students meeting requirements for school entry through immunization, or medical exemption, parental objection or with incomplete record, New Brunswick

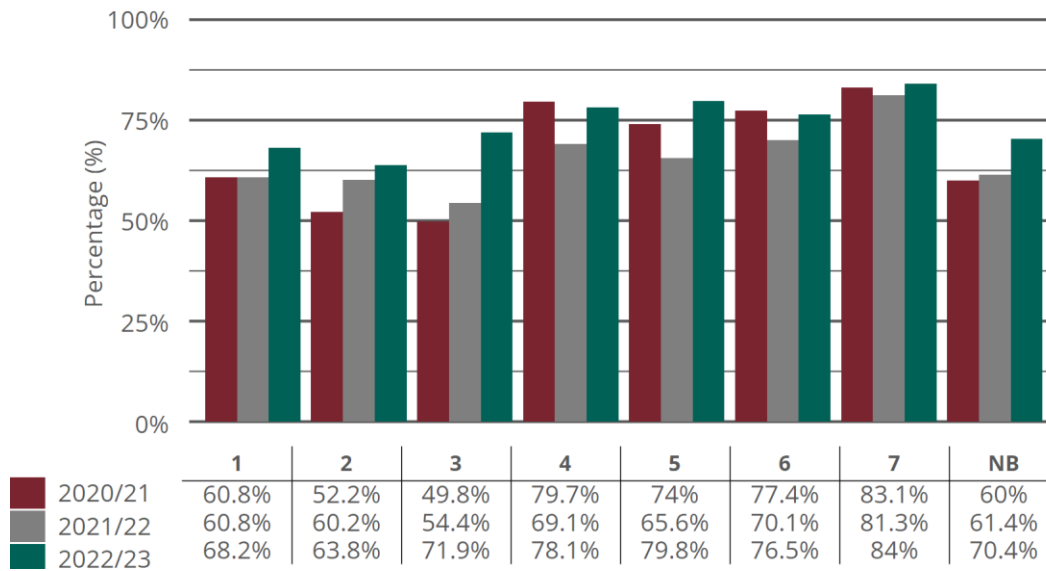


Figure 2: Percentage of students meeting immunization requirements for school entry, by Region

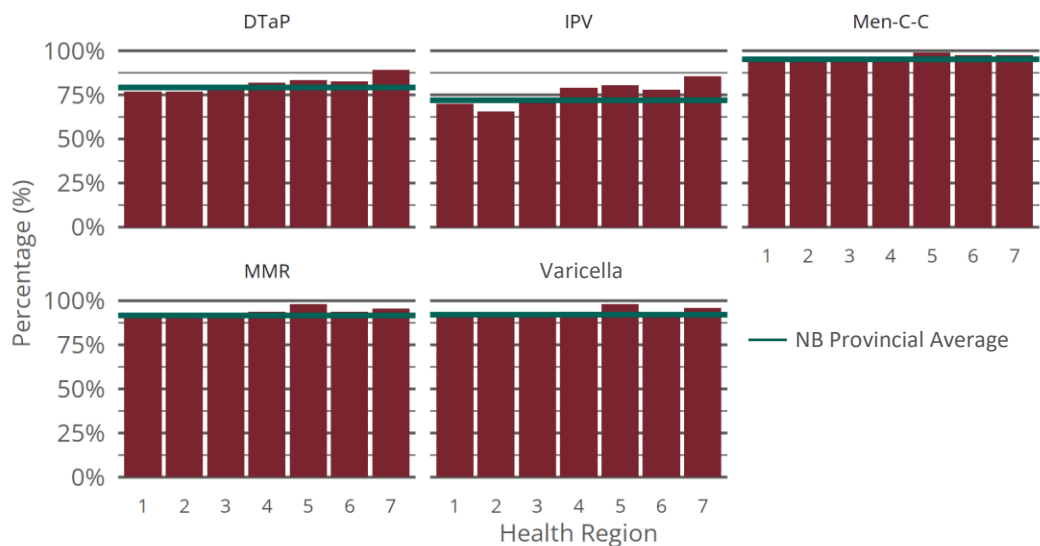


Figure 3: Percentage of students up-to-date with individual vaccine at school entry, by Region compared to provincial average

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 4 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.
- Fewer HPV vaccines were administered in the 2020/21 school year, resulting in a large proportion of grade 7 students not receiving their second dose of the HPV vaccine.
- Approximately 1604 HPV vaccines were administered from January 2021 to August 2021, compared to 5650 in the previous year. However, public health teams made up for this discrepancy the following school year and administered over 10,000 HPV vaccines.
- Only 17.1% of all grade 7 students (both females and males) in the 2020/21 school year completed their HPV immunization series; however, 74.1% of students of this cohort had completed their series by July 2023.
- The immunization uptake for female and male students is described below in more details.
- For estimates of up-to-date coverage by gender and region for the 2020/21 cohort please refer to the appendix.

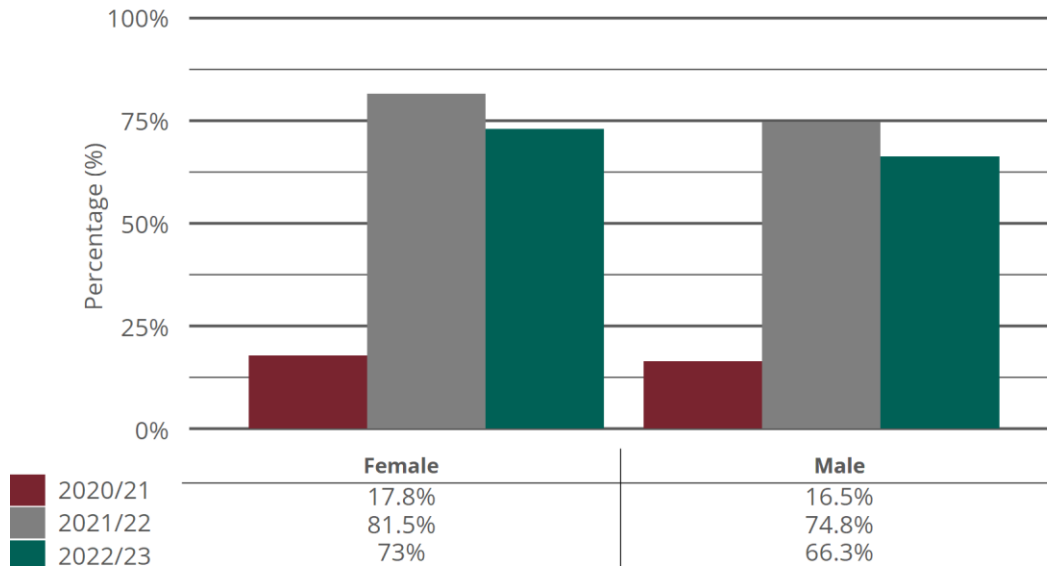


Figure 4: Percentage of New Brunswickers in grade 7 with complete HPV vaccine series by gender and school year

GRADE 7 FEMALE STUDENTS

- Among grade 7 female students 17.8% completed their HPV series in the 2020/21 school year (75.5% by July 2023), compared to 81.5% and 73% of grade 7 females in 2021/22 and 2022/23, respectively. The proportion of female students with incomplete series increased in 2022/23 compared to 2021/22 (6.8% versus 1.5%, respectively).
- Most zones had lower proportions with complete series in 2022/23 compared to the previous school year except for Zone 6 where the proportion has increased by 2.2%.
- All regions that had fewer than 20% of female students with complete HPV immunization series in 2020/21 were able to increase coverage for this cohort to more than 69% by July 2023.

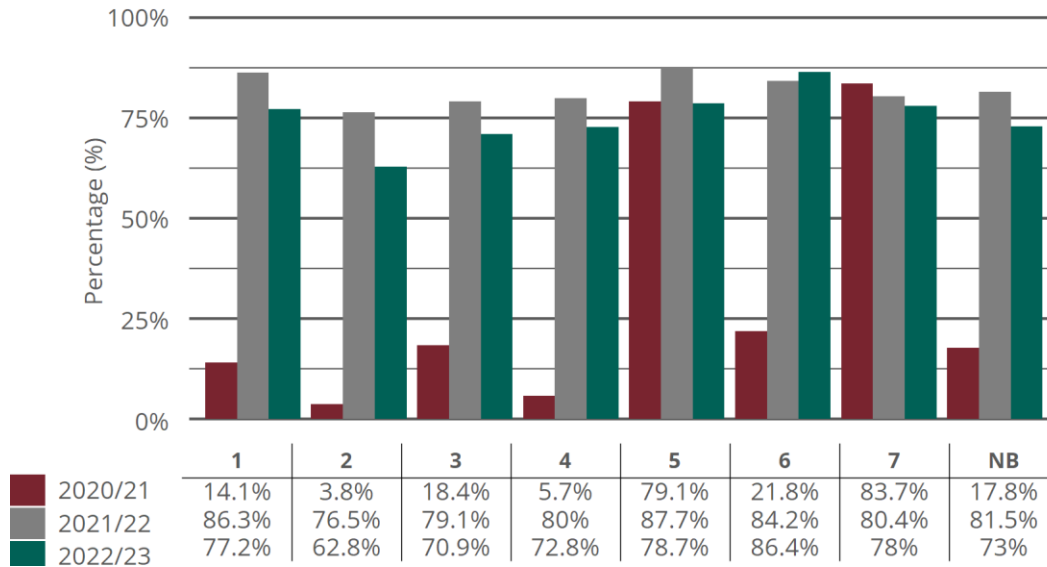


Figure 5: Percentage of New Brunswickers in grade 7 females with complete HPV vaccine by school year and region

GRADE 7 MALE STUDENTS

- Among grade 7 male students 16.5% completed their HPV series in the 2020/21 school year (72.7% by July 2023), compared to 74.8% and 66.3% of grade 7 males in 2021/22 and 2022/23, respectively.
- The proportion of male students with incomplete series increased in 2022/23 compared to 2021/22 (6.4% versus 1.5%, respectively).
- Most zones had lower proportions with complete series in 2022/23 compared to the previous school year except for Zone 6 and 7 where the proportion has increased by less than one percent.
- All regions that had fewer than 26% of male students with complete HPV immunization series in 2020/21 were able to increase coverage for this cohort to more than 63% by July 2023.

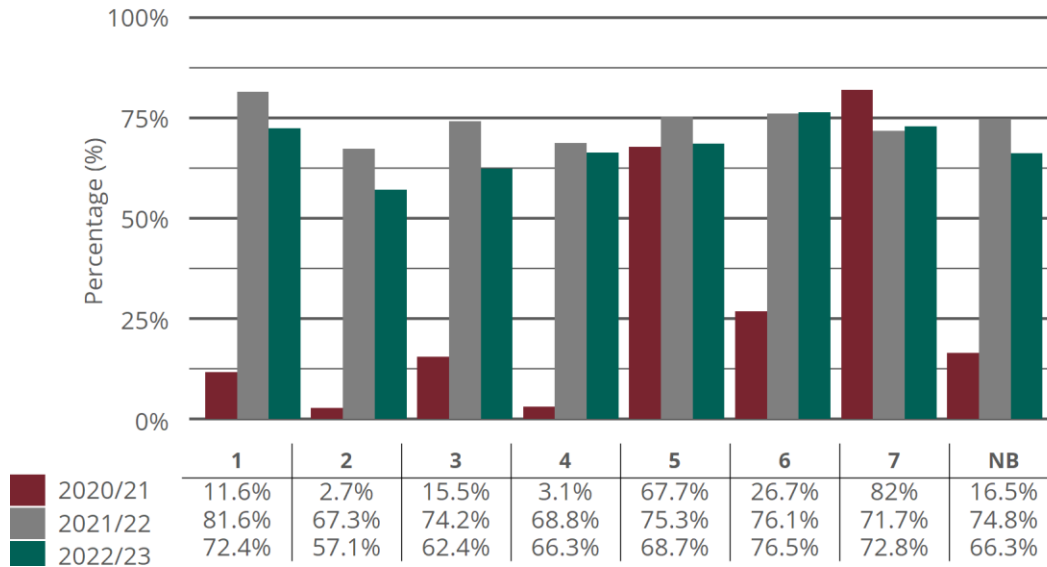


Figure 6: Percentage of New Brunswickers in grade 7 males with complete HPV vaccine by school year and region

DATA SUMMARY: TDAP VACCINE

- In 2022/23, the proportion of students immunized with Tdap was slightly lower to that of the previous school year (80.2% and 83%, respectively).
- The proportion immunized decreased in Zone 1, Zone 2, Zone 3 and Zone 6 while the proportion immunized remained relatively stable in the remaining regions.

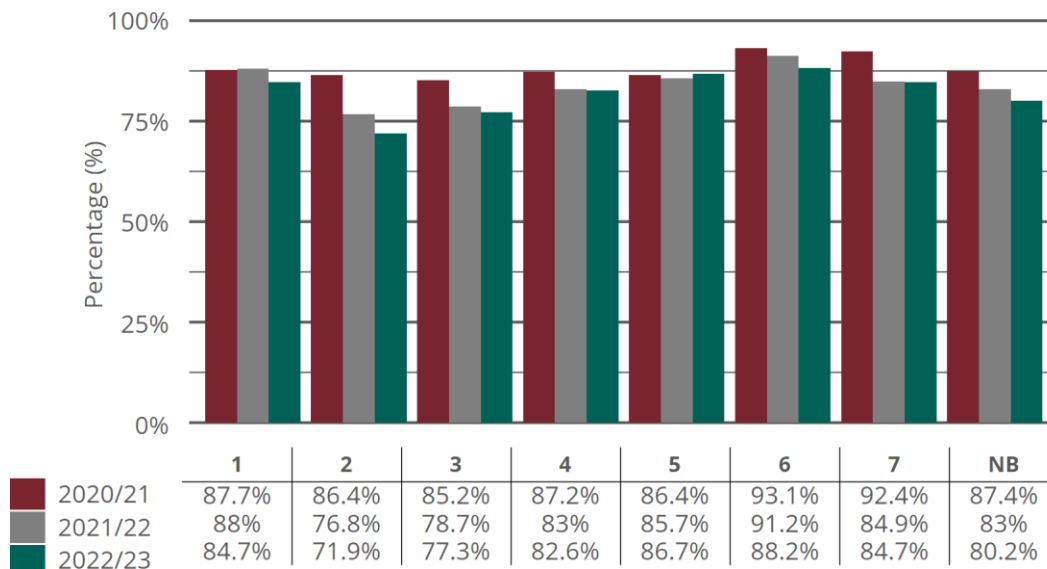


Figure 7: Percentage of New Brunswickers in grade 7 immunized with Tdap vaccine by school year and region

DATA SUMMARY: MEN-C-ACYW-135 VACCINE

- In 2022/23, the proportion of students immunized with Men-C-ACYW-135 was slightly lower to that of the previous school year (67.4% and 69%, respectively).

- In 2022/23 school year the proportion immunized decreased in Zone 3, Zone 5 and Zone 7, while the proportion immunized remained relatively stable in the remaining regions.
- As of July 2023, 60.6% of 2020/21 grade 9 students in region 2 were immunized with Men-C-ACYW-135.

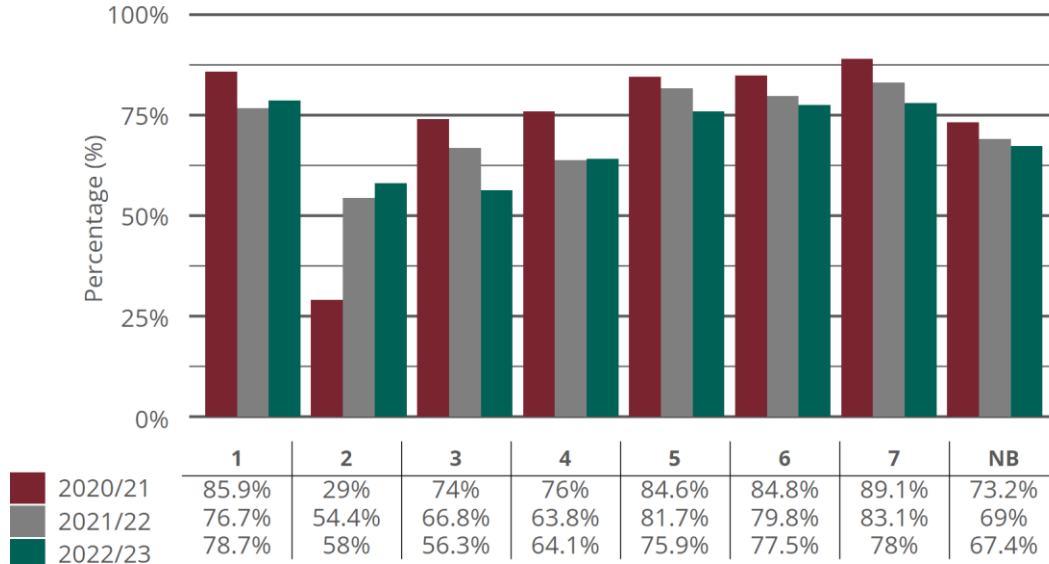


Figure 8: Percentage of New Brunswickers in grade 9 immunized with Men-C-ACYW-135 vaccine by school year and region

DATA SUMMARY: VARICELLA VACCINE

- In 2022/23, the proportion of students immunized with Varicella was slightly lower to that of the previous school year (62% and 64.1%, respectively).
- The proportion immunized decreased except for in Zone 1 and Zone 2.

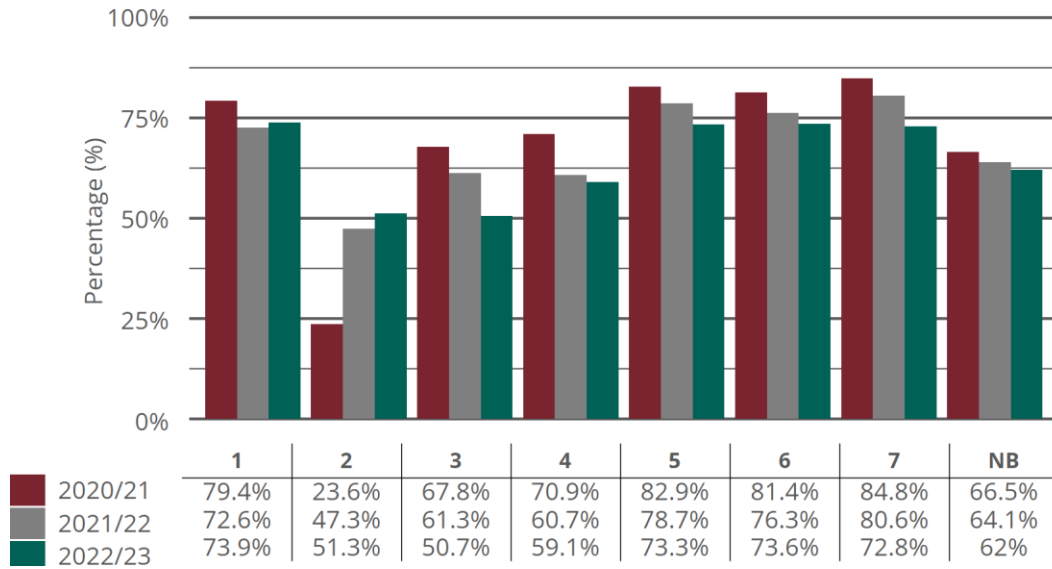



Figure 9: Percentage of New Brunswickers in grade 9 with complete Varicella vaccine series or received a dose through the catch-up program by school year and region

Appendix

APPENDIX 1: NEW BRUNSWICK ROUTINE IMMUNIZATION SCHEDULE (AS OF 2023)



Routine Immunization Schedule

The New Brunswick Routine Immunization Schedule is set by the Chief Medical Officer of 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
6 months to 18 years	Influenza (yearly)
4 years	Tdap-IPV ³
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 Td ⁶ should be given every 10 years. Tdap should replace one of the Td doses. The Tdap vaccine should be offered to women during every pregnancy. ⁷
≥65 years	Pneumococcal polysaccharide
65 years and older	High Dose Influenza (yearly)
Adults born after 1970 should contact their health-care provider or Public Health office for information about MMR immunization.	
Influenza quadrivalent vaccine is recommended for all residents of New Brunswick six months of age and older. Fluzone® High-Dose vaccine is a targeted program for all those 65 years and over. These vaccines are provided free of charge.	

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 women regardless of their age

2023

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 Guide². Example: If the 4th dose of DTaP is administered after the 4th birthday, the 5th dose is 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.

Table 4. History of the New Brunswick school immunization program - MMR vaccine, as of June 2020.

	School Year							
	2004/5*	2005/6	2006/7	2007/8	2008/9	2009/10	2010/11	2011/12
Grade 5								
Grade 6								
Grade 7								
Grade 8								
Grade 9								
Grade 10								
Grade 11								
Grade 12								
Routine Immunization Schedule								
Targeted/Catch-up Campaign								
Outbreak Campaign								

Summary

- **2007/08:** A MMR vaccine was offered to students in grade 12 as part of an outbreak response to mumps cases in New Brunswick. Students who had not previously received 2 doses of MMR vaccine were offered 1 dose of MMR vaccine.
- **2008/09- 2011/12:** Students in grade 12 were offered a second dose of MMR vaccine as part of a six year catch-up campaign. In the school year 2011/12, students in Grade 11-12 were offered MMR vaccine. The catch-up campaign was completed 1 year sooner than planned because of a measles outbreak in Quebec and the increasing number of cases occurring throughout Canada, United States and Europe.

***NOTE :** The MMR vaccine was also offered to young adults 24 years or younger and post-secondary students born in 1970 or later who had not previously received 2 doses of MMR vaccine.

Table 5. History of the New Brunswick school immunization program - varicella vaccine catch-up campaign plan, as of June 2020.

	School Year							
	2015/16	2017/18	2017/18	2018/19	2019/20	2020/21	2021/22	2022/23
Grade 5								
Grade 6								
Grade 7								
Grade 8								
Grade 9								
Grade 10								
Grade 11								
Grade 12								
	Routine Immunization Schedule							
	Targeted/Catch-up Campaign							
	Outbreak Campaign							

Summary

- A catch-up program for the second dose of varicella vaccine was introduced in the 2015/16 school year for grade 9 and 10 students.
- The vaccine will continue to be offered to grade 9 students in the 2017/18 school year through to 2022/23.

APPENDIX 4: UP-TO-DATE IMMUNIZATION STATISTICS AS OF JULY 2023

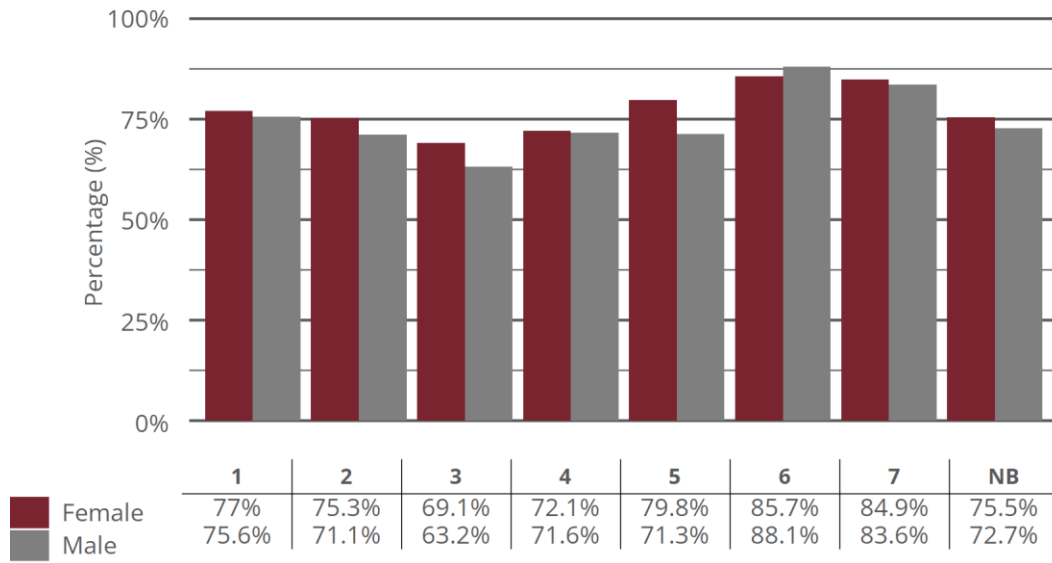


Figure 10: Percentage of New Brunswick grade 7 students in the 2020/21 cohort with complete HPV vaccine series as of July 2023, by gender and region