



## INTRODUCTION

Nova Scotia’s publicly funded school-based immunization program is delivered to grade seven students and is comprised of four vaccines, administered according to the schedule in the table below:

	# of Doses	Fall Term	Spring Term
Meningococcal Quadrivalent (Men-C-ACYW)	1	✓	
Tetanus, Diphtheria, and Acellular Pertussis (Tdap)	1		✓
Human Papillomavirus (HPV-9)	2	✓	✓
Hepatitis B	2	✓	✓

Although typically received in grade seven as part of the school program, there are circumstances where some of these vaccines may be received outside of the school program. For example, Nova Scotia publicly funds Hepatitis B vaccine in infancy for those at higher risk, students may receive a Hepatitis A and B combination vaccine prior to travel, or a Tdap booster may be received as part of wound management.

This report presents the immunization coverage rates for the **2019-20** and **2020-21** grade seven cohorts, **as of December 31, of their grade eight year**. Both of these cohorts experienced school closures during the spring term due to the COVID-19 pandemic, that impacted the timing of the delivery of the spring term vaccine doses (Tdap, HPV, Hepatitis B). In the summer months of 2020 Public Health held clinics to immunize students who were missed during the the school closures earlier that year. However, students who were missed during the 2021 spring term school closures were targeted at clinics during the subsequent school year (2021-22).

## METHODS & DATA NOTES

**Data Source:** Panorama

**Coverage Rate Calculation:** Coverage rate (%) = # immunized (numerator)/ # eligible (denominator) x 100

**Numerator:** The number of public school students in grade seven in the school year of interest, who have received the specified number of valid doses (based on the vaccine product received), prior to January 1st of the subsequent school year.

**Agent specific details:**

**Men-C-ACYW-135** - Single dose required for full coverage. Doses prior to grade 7 are included if received at 8 years of age or older.

**Tdap** - Single dose required for full coverage. Doses prior to grade 7 are included if received within the previous 5 years.

**HPV** - 2 doses required for full coverage.

**Hepatitis B** - 2 or 3 doses (agent dependent) required for full coverage. Doses of monovalent Hepatitis B vaccine or Hepatitis A and B combination vaccine are included.

**Denominator:** The total number of public school students in grade seven in the school year of interest. For Nova Scotia public schools, current school year student information (e.g. grade, school) is uploaded monthly from the Department of Education and Early Childhood Development’s Student Information System into Panorama. In late August the current school year information is overwritten with the new school year information. Therefore, for this report the 2021-22 grades 8 and 9 students were pulled on May 9th, 2022 to represent the 2019-20 and 2020-21 grade seven cohorts.

**Coverage Timing:** The overall coverage rates presented in this report include students immunized in any of the categories below. In reporting cycles prior to 2018-19, only students covered within the grade seven school year were reported.

**Prior to Grade Seven:** Series completed prior to September 1 of the grade 7 school year.

**Grade Seven:** Series completed between September 1 and August 31 of the grade 7 school year.

**Grade Eight:** Series completed between September 1 and December 31 of the grade 8 school year.

**Geography:** Zone and community cluster were assigned based on the location of the student’s school.

**Private School & Home Schooled Students:** Based on how the data was pulled for the pandemic-affected cohorts, reliable numbers for private schools and home schooled students were not available and are not included.

**Maps:** The intention of the maps is to highlight areas of lower coverage, not to provide the specific coverage rate for each community cluster. Community clusters without colour on the map represent clusters where there are no schools with grade 7 students. Maps are depicted for the 2020-21 cohort only.



## DATA LIMITATIONS

December 31st of the grade 8 school year. However, due to pandemic related school closures during these years, coverage at this specific point in time was lower than in previous years. Ongoing efforts by local Public Health beyond December 31st of the grade 8 year have subsequently improved the coverage rates reported here.

Any vaccines received outside of the school program that are not in Panorama will not contribute to the coverage rates, resulting in a potential underestimation of coverage. Reasons for missing immunizations in Panorama include; Electronic Medical Record upload failures, immunizations administered in other provinces or countries, delays in data entry of immunization records provided to Public Health.

Denominator information relies on the education information that is available in Panorama. This information is automatically uploaded for students within the public health system, but for students outside of the public school system (e.g. private schools, home-school, Mi'kmaw Kina'matnewey school board) education information must be entered manually into Panorama. Incomplete education information in Panorama for the cohorts presented here resulted in this report being limited to public school students only.

Geography was assigned using the postal code of the school. In some areas of the province where school board boundaries and zone borders do not align, schools may have potentially been classified in a zone that is different than the zone administering the immunization program.



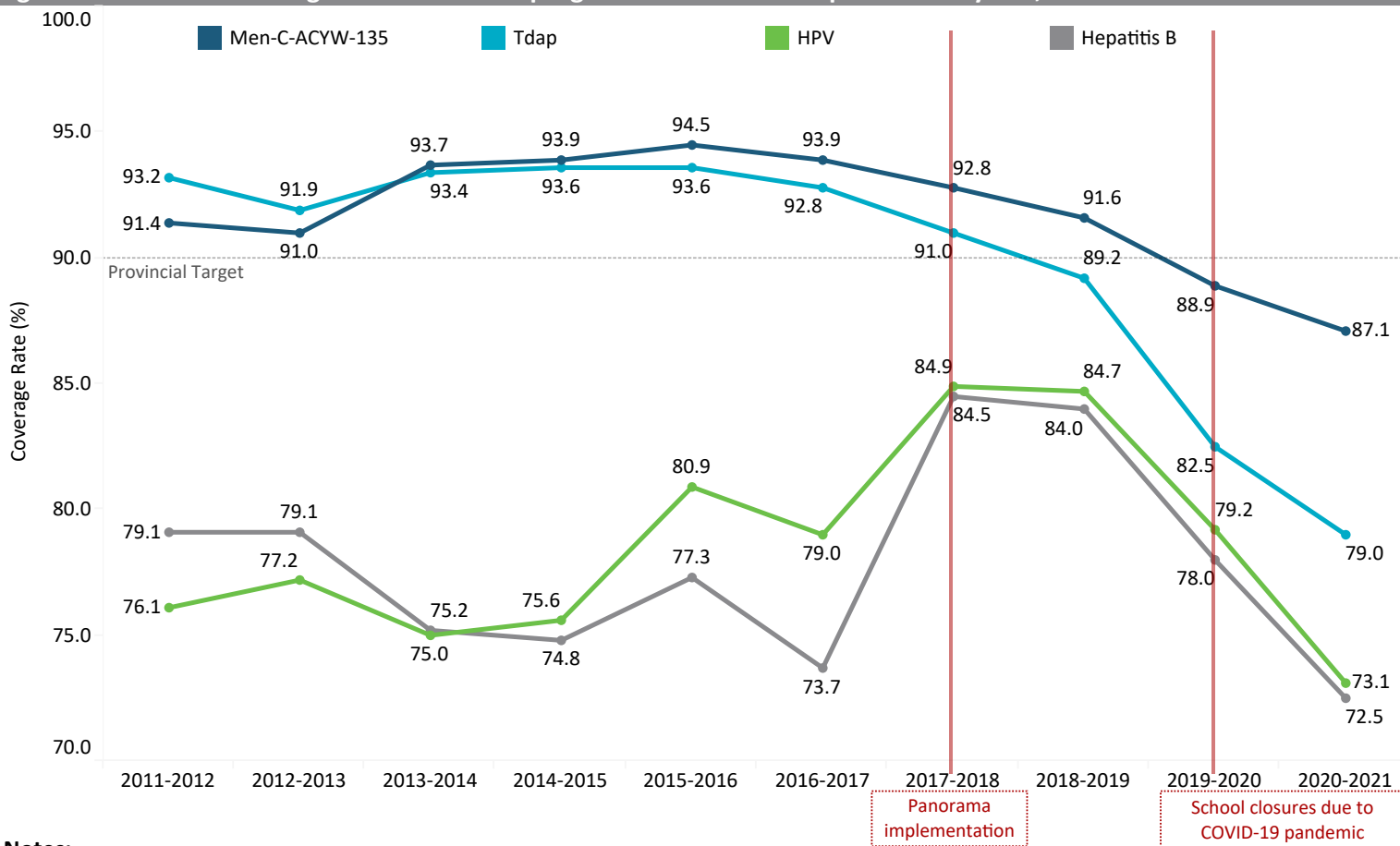
**Table 1: Full series coverage rates for school program vaccines, 2019-20 and 2020-21, Nova Scotia**

Cohort	Men-C-ACYW (1 Dose)	Tdap (1 Dose)	HPV (2 Doses)	Hepatitis B (2 Doses)
2019-2020	88.9%	82.5%	79.2%	78.0%
2020-2021	87.1%	79.0%	73.1%	72.5%

- The coverage rates for all four of the school program vaccines were lower than the provincial standard of 90 % for the 2019-20 and 2020-21 grade seven cohorts.

- The 2019-20 and 2020-21 school years both included school closures for extended periods of time during the spring term due to the COVID-19 pandemic.

**Figure 1: Full series coverage rates for school program vaccines for the previous 10 years, Nova Scotia**



**Notes:**

- The coverage rates over time should be interpreted in consideration of changes to the methods for defining the numerator and denominator prior to Panorama implementation.

- Prior to the 2017-18 school year, the number of grade 7 students immunized was estimated using an age range (numerator) and aggregate student counts were used to estimate the total grade 7 population (denominator). This may have overestimated coverage rates prior to 2017-2018, particularly for single dose vaccines.

- From 2017-18 onwards, immunizations administered up to December 31 of the subsequent school year are included in the coverage rates to allow for the capture of students who complete the school-based immunizations in the fall of grade 8. Prior to 2017-18, only immunizations administered up to August 31 were included. This likely explains the slight increase in the coverage rates for multi dose vaccines in the 2017-18 and 2018-19 school years.

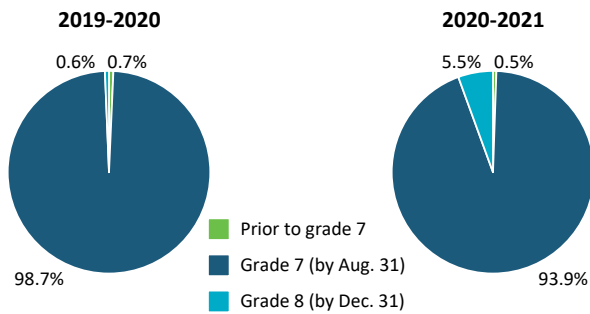


## Meningococcal Quadrivalent (Men-C-ACYW)

Table 2: Men-C-ACYW coverage rates by zone, school year

Zone	2019-2020	2020-2021
Western	87.8%	86.6%
Northern	89.9%	87.2%
Eastern	88.7%	85.2%
Central	89.2%	88.0%
Nova Scotia	<b>88.9%</b>	<b>87.1%</b>

Figure 2: Timing of Men-C-ACYW coverage



**Notes:**

Men-C-ACYW is a single dose vaccine that is administered during the fall term, therefore coverage timing for this vaccine was less impacted by the pandemic school closures that occurred during the spring term than the remaining school-program vaccines.

Figure 3: Men-C-ACYW coverage by sex

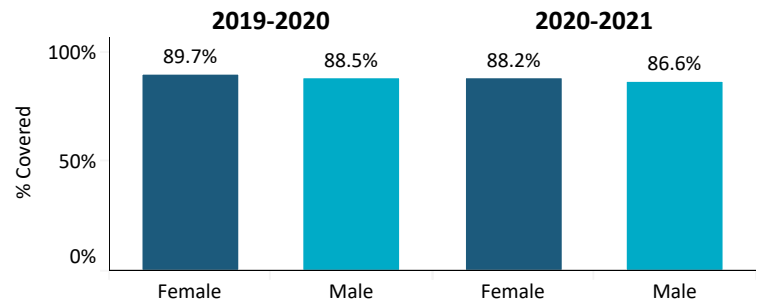
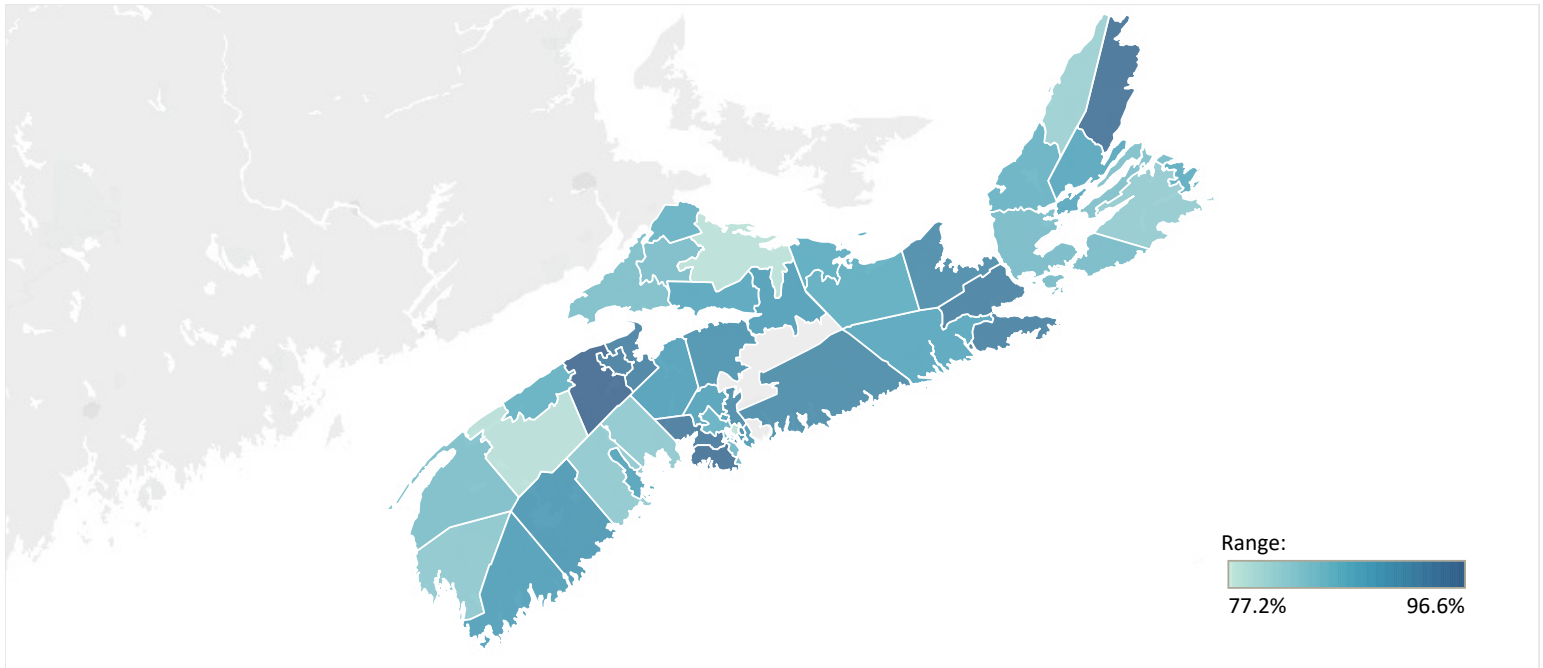


Figure 4: Men-C-ACYW coverage rates by community cluster, 2020-21



**Notes:**

- The intention of the map is to highlight areas of lower coverage, not to provide the specific coverage rate for each community cluster.
- Community clusters without colour on the map represent clusters where there are no schools with grade 7 students.
- There is only 1 small (<25 students) school with grade 7 students in the Dingwall cluster.



## Tetanus, Diphtheria, Acellular Pertussis (Tdap)

Table 3: Tdap coverage rates by zone and school year

Zone	2019-2020	2020-2021
Western	79.4%	78.5%
Northern	83.9%	82.4%
Eastern	83.8%	73.4%
Central	82.7%	80.0%
<b>Nova Scotia</b>	<b>82.5%</b>	<b>79.0%</b>

Figure 5: Timing of Tdap coverage

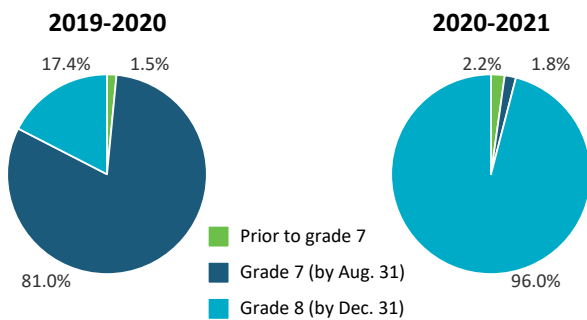
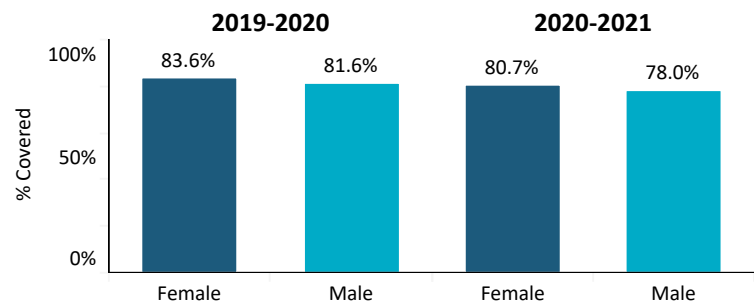


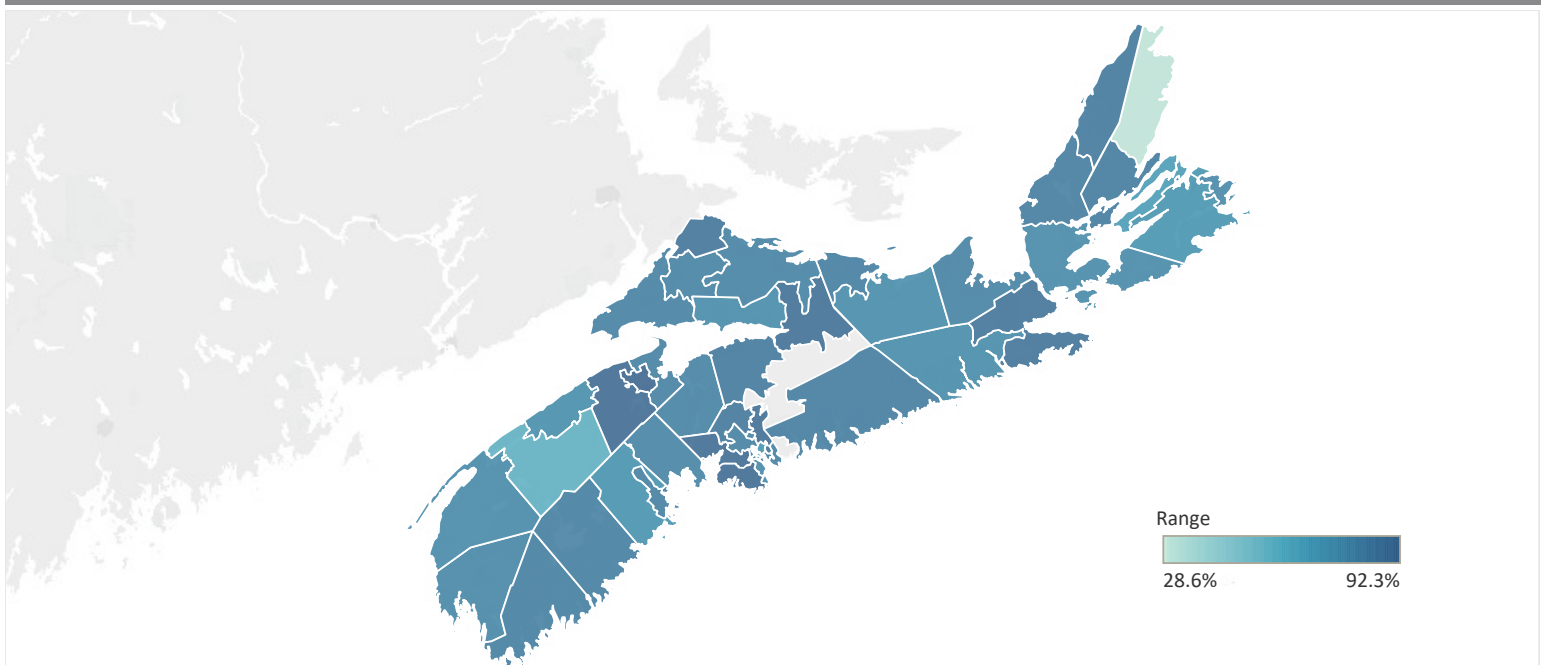
Figure 6: Tdap coverage by sex



**Notes:**

Tdap is a single dose vaccine that is administered during the spring term, therefore coverage timing was impacted by the spring term pandemic school closures. Differences in timing between the 2019-20 and 2020-21 school years is due to summer clinics being held in 2019-20, but not in 2020-21.

Figure 7: Tdap coverage rates by community cluster, 2020-21



**Notes:**

- The intention of the map is to highlight areas of lower coverage, not to provide the specific coverage rate for each community cluster.
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- There is only 1 small (<25 students) school with grade 7 students in the Dingwall cluster.

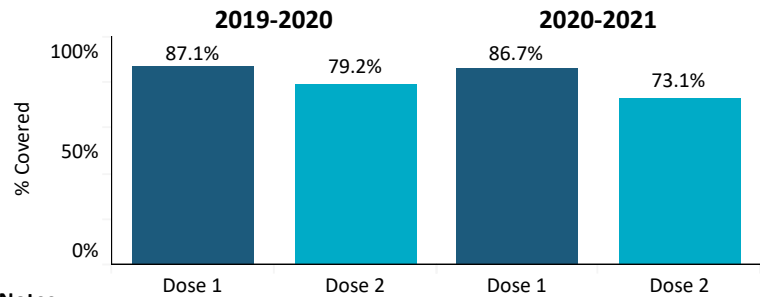


## Human Papillomavirus (HPV)

Table 4: HPV full series coverage rates by zone and school year

Zone	2019-2020	2020-2021
Western	76.3%	72.3%
Northern	80.2%	77.1%
Eastern	80.3%	71.2%
Central	79.7%	72.8%
<b>Nova Scotia</b>	<b>79.2%</b>	<b>73.1%</b>

Figure 8: HPV coverage by first and second dose

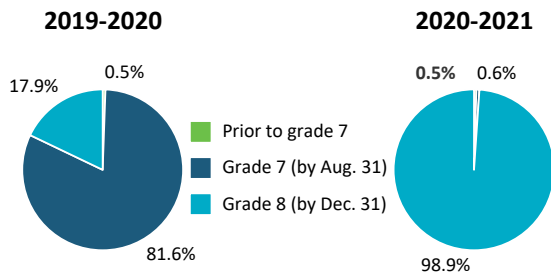


**Notes:**

Dose 1 = % of students who received the first dose

Dose 2 = % of students who received the second dose

Figure 9: Timing of HPV full series coverage



**Notes:**

Differences in timing between the 2019-20 and 2020-21 school years is due to summer clinics being held in 2019-20, but not in 2020-21.

Figure 10: HPV full series coverage by sex

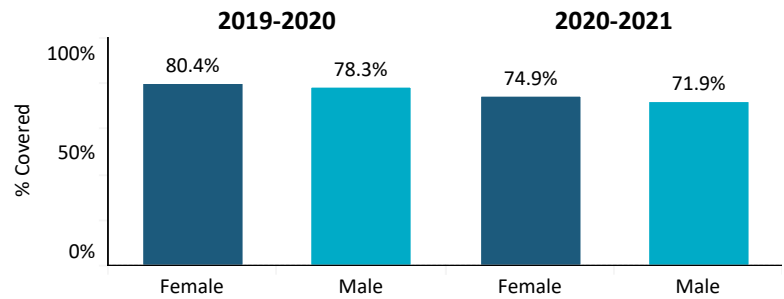
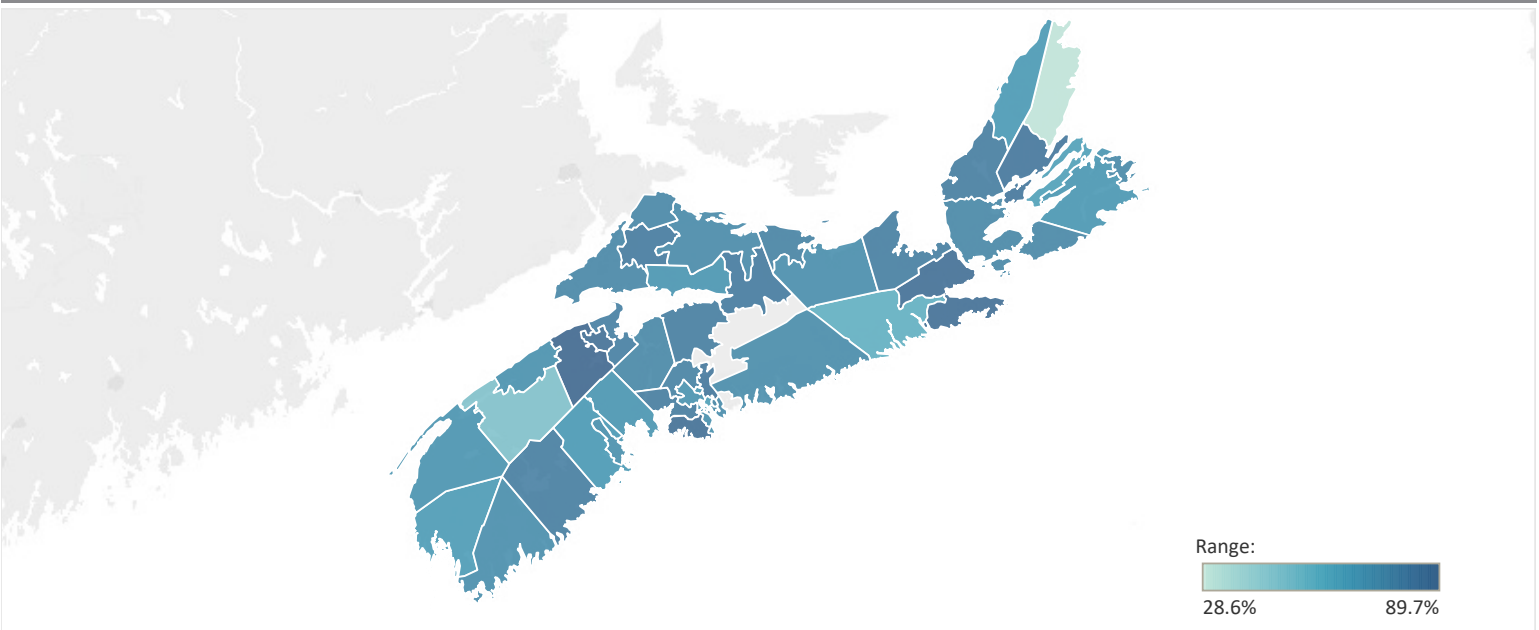


Figure 11: HPV full series coverage rates by community cluster, 2020-21



**Notes:**

- The intention of the map is to highlight areas of lower coverage, not to provide the specific coverage rate for each community cluster.
- Community clusters without colour on the map represent clusters where there are no schools with grade 7 students.
- There is only 1 small (<25 students) school with grade 7 students in the Dingwall cluster.

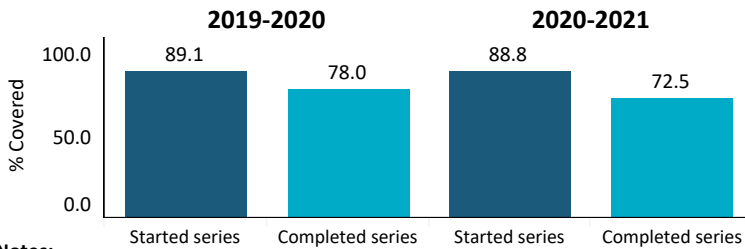


## Hepatitis B (HB)

Table 5: HB full series coverage rates by zone and school year

Zone	2019-2020	2020-2021
Western	73.2%	70.8%
Northern	79.2%	77.0%
Eastern	81.6%	71.4%
Central	78.2%	72.1%
Nova Scotia	<b>78.0%</b>	<b>72.5%</b>

Figure 12: HB coverage by start and completion of series



**Notes:**  
 Started series >=1 dose prior to Dec. 31 of grade 8 (includes those who completed the series)  
 Completed series = 2 or 3 doses (agent dependent) prior to Dec. 31 of grade 8

Figure 13: HB full series coverage by Sex

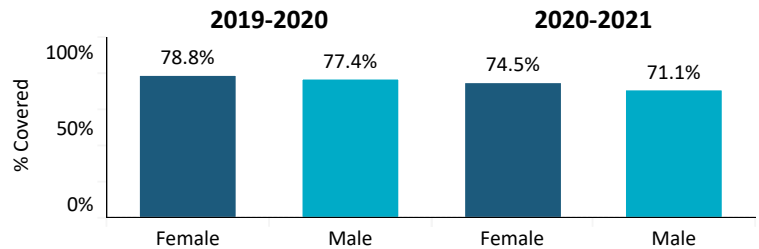
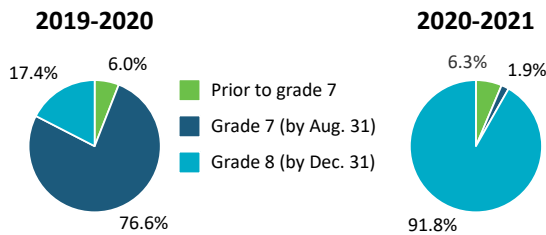
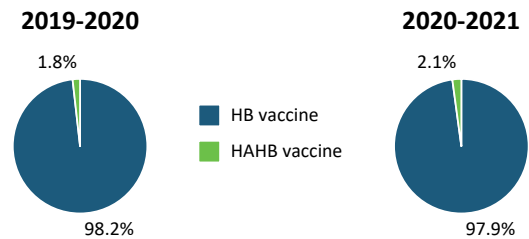


Figure 14: Timing of HB full series coverage



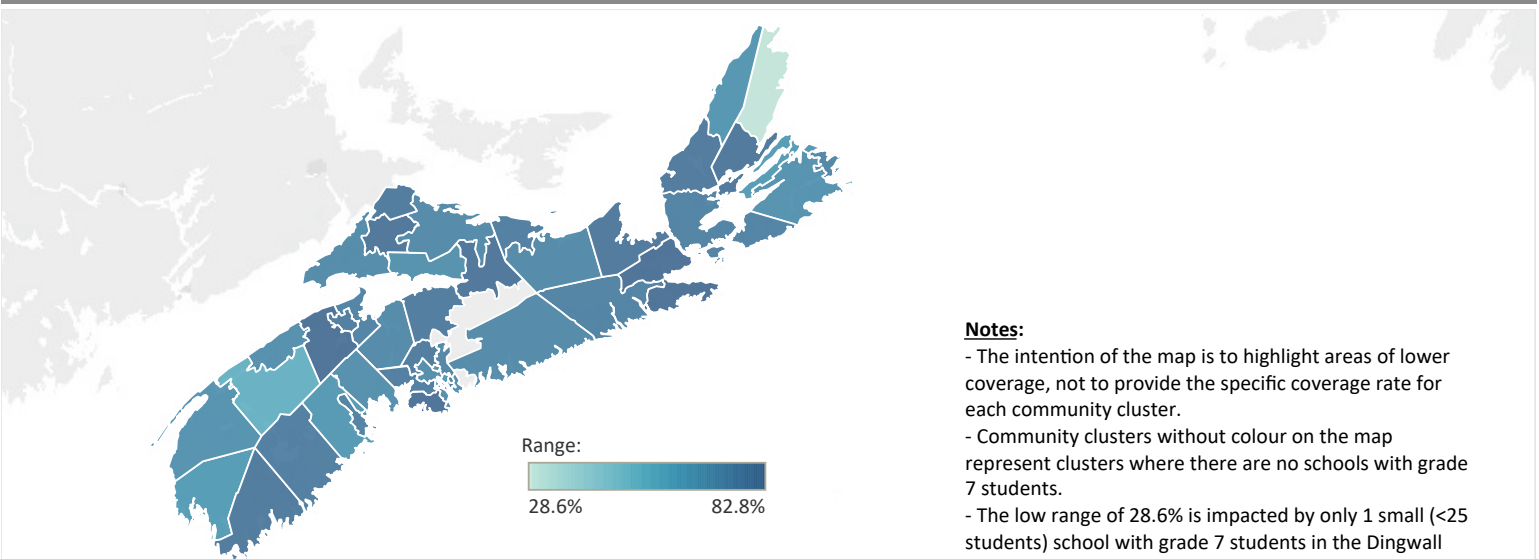
**Notes:**  
 Differences in timing between the 2019-20 and 2020-21 school years is due to summer clinics being held in 2019-20, but not in 2020-21.

Figure 15: Proportion covered with HB and HAHB vaccines



**Notes:**  
 Figure includes only students who are fully covered for Hepatitis B, and presents the proportions covered with monovalent HB or combined HAHB vaccine.

Figure 16: HB full series coverage rates by community cluster, 2020-21



**Notes:**  
 - The intention of the map is to highlight areas of lower coverage, not to provide the specific coverage rate for each community cluster.  
 - Community clusters without colour on the map represent clusters where there are no schools with grade 7 students.  
 - The low range of 28.6% is impacted by only 1 small (<25 students) school with grade 7 students in the Dingwall cluster.