School-Aged Immunization Program Coverage 2025

NOVA SCOTIA

Summary

Background

Nova Scotia's school-aged immunization program offers four vaccines to adolescents beginning in grade 7, protecting against human papillomavirus (HPV); Hepatitis B virus (HB); four strains of *Neisseria meningitidis* (Men-C-ACYW); and tetanus, diphtheria, and pertussis (Tdap). Immunizations are delivered primarily through school-based clinics at age 12–13, with catch-up available through Public Health or primary care up to age 19.

This report describes coverage among 13- and 17-year-olds in Nova Scotia in 2025, showing progress toward the national target of 90% coverage by age 17.

Highlights

- In 2025, immunization coverage was higher among 17-year-olds than among 13-year-olds for all four school-aged vaccines, reflecting additional time and opportunities for catch-up immunization for the older age group.
- Among 13-year-olds, 2025 coverage remained below pre-2020 levels, following COVID-19 pandemic-related disruptions to the school-based immunization program. Coverage has since stabilized, with HB and Tdap coverage consistently lower than HPV and Men-C-ACYW.
- Among 17-year-olds, coverage declined after 2020 and had not fully recovered by 2025 for HB, Men-C-ACYW, and Tdap; HPV coverage had returned to 2020 levels. This cohort of 17-year-olds first became eligible for school-based immunization during pandemic–related disruptions in 2020-2021. Overall coverage in 2025 for this age group remained at 80–85% across all four vaccines.
- HB requires multiple doses, and incomplete series were less common among older adolescents: among those who had started the series, 13.6% of 13-year-olds and 6.5% of 17-year-olds had not completed it by 2025.
- Zone-level coverage differences were more pronounced among 13-year-olds (9–13 percentage points) than among 17-year-olds (3-7 percentage points).
- Gender differences were minimal among 13-year-olds and larger among 17-year-olds, with females having higher coverage for all four vaccines – most notably HPV (4 percentage points).
- Most immunizations occurred during the school-based program (age 11-13) with an additional 4–8% of 17-year-olds completing doses later, through catch-up immunization.

Immunization Coverage Trend, 2018-2025

Adolescent immunization coverage declined during the COVID-19 pandemic (2020 to 2023) and has levelled off or gradually improved since then.

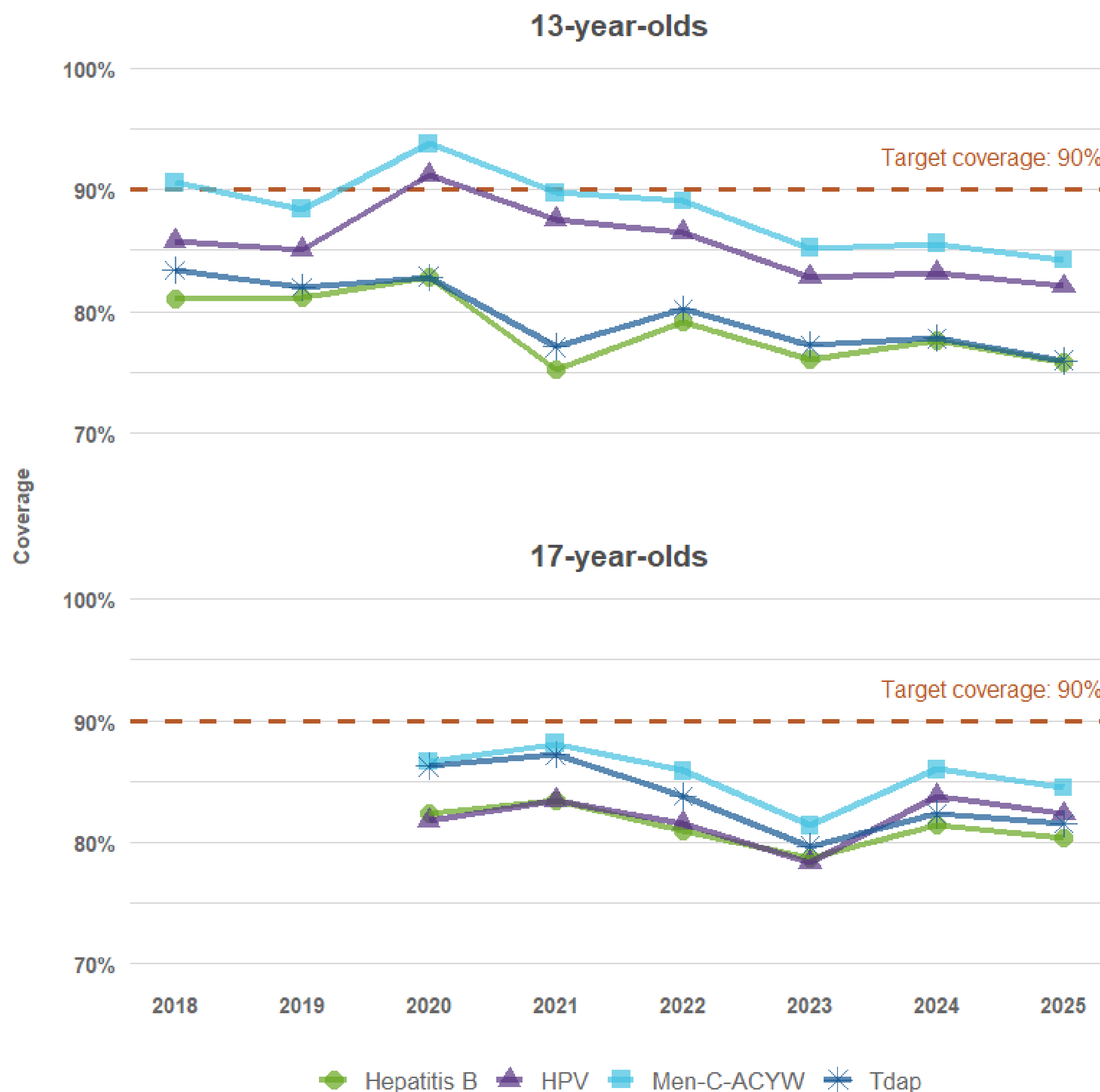
13-year-olds:

- Coverage for all 4 vaccines has been relatively stable since 2023, at a level below the coverage achieved in 2020.
- HB and Tdap have had consistently lower coverage – below 80% in recent years.

17-year-olds:

- Following pandemic-related declines, all 4 vaccines show partial recovery.
- HPV coverage had the strongest rebound, returning to earlier levels by 2025.
- Tdap had the largest decline, remaining below the coverage achieved in 2021.

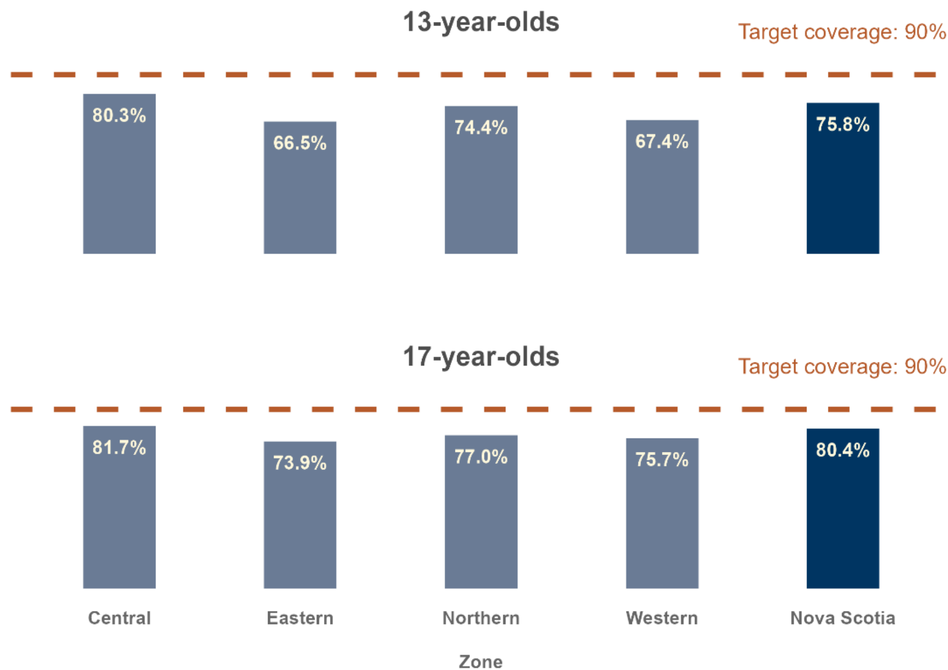
In 2025, coverage for all 4 vaccines was below the target of 90% in both age groups.



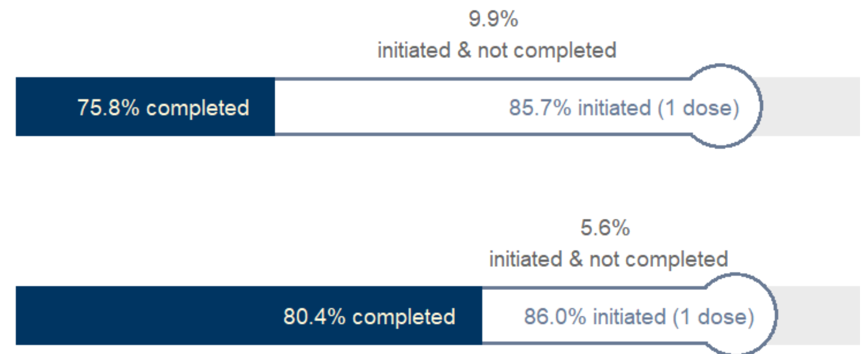
Hepatitis B Vaccine (HB) Coverage

75.8% of 13-year-olds | **80.4%** of 17-year-olds (full series)

Health management zone: HB had the lowest overall coverage of all four vaccines, and the most zone-level variation. This may be partly because HB is the only school-aged vaccine requiring multiple doses. Among 13-year-olds, coverage ranged from 66.5% in Eastern Zone to 80.3% in Central Zone – a 13-point difference.



In 2025, **86%** of 13- and 17-year-olds had at least 1 dose of HB. **4 out of 5** 17-year-olds had completed the series.



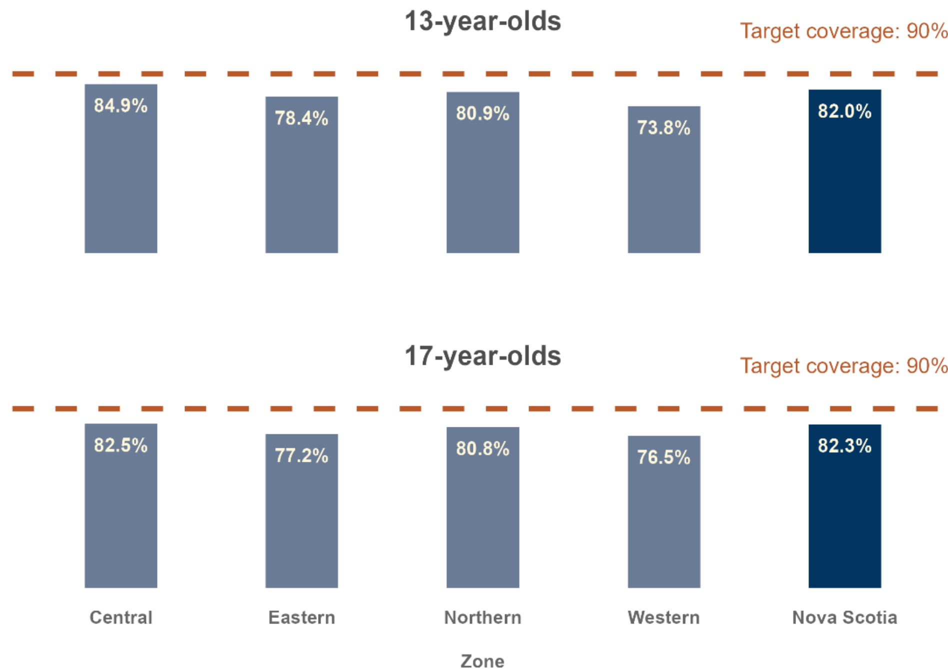
Gender: Coverage was similar for males and females at age 13. Differences were larger among 17-year-olds, with 3.9% higher coverage among females.

	Females	Males
13-year-olds	76.8%	74.7%
17-year-olds	82.4%	78.5%

HPV Coverage

82.0% of 13-year-olds | **82.3%** of 17-year-olds

Health management zone: HPV was one of the highest coverage vaccines among 13-year-olds across all zones. Coverage in Central and Northern Zones was similar to the provincial level, while Eastern and Western Zones had lower coverage among both age groups.



Gender: Coverage was similar for males and females at age 13. The difference was larger among 17-year-olds, with 4.2% higher coverage among females – the largest gender gap observed among the four vaccines. Coverage among 17-year-old males was lower than among 13-year-old males. While these are different age groups assessed in the same year, the atypical age pattern may also reflect disruption to school-based immunization when this 17-year-old cohort was first eligible, in 2021.

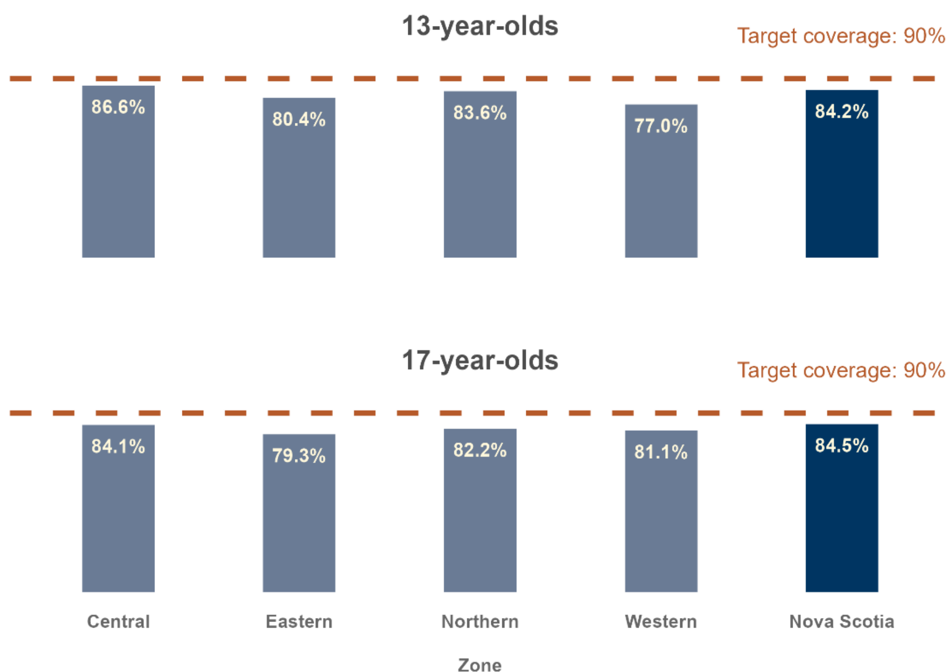
	Females	Males
13-year-olds	82.8%	81.3%
17-year-olds	84.5%	80.3%

Men-C-ACYW Coverage

84.2% of 13-year-olds | 84.5% of 17-year-olds

Health management zone: Men-C-ACYW had the highest coverage of all four vaccines across zones and age groups. Coverage among 13-year-olds in Eastern and Western Zone was lower than the provincial level, while coverage in Central Zone approached the national target. Overall, Men-C-ACYW had the least variation between zones, with all zones close to or exceeding 80% among 17-year-olds.

Men-C-ACYW Vaccine Coverage by Health Management Zone, 2025



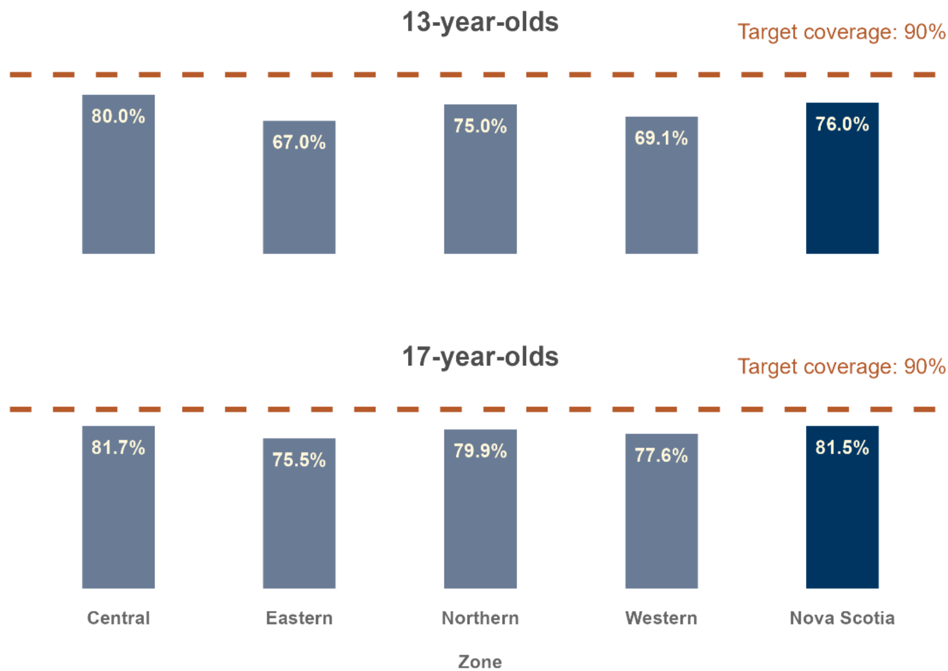
Gender: This was the vaccine with highest coverage among females and males in both age groups. Coverage was similar for males and females at age 13. Among 17-year-olds, coverage for females (86.5%) approached the national target and was 3.9% higher than males. Coverage among 17-year-old males was lower than among 13-year-old males. While these are different age groups assessed in the same year, the atypical age pattern may also reflect disruption to school-based immunization when this 17-year-old cohort was first eligible, in 2021.

	Females	Males
13-year-olds	84.6%	83.9%
17-year-olds	86.5%	82.6%

Tdap Coverage

76.0% of 13-year-olds | **81.5%** of 17-year-olds

Health management zone: Tdap had lower coverage than other single-dose vaccines, with greater variation between zones for both 13- and 17-year-olds. Eastern and Western Zones had lower coverage than the provincial level for both age groups, while Central Zone had higher coverage.



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	Females	Males
13-year-olds	77.2%	74.8%
17-year-olds	83.2%	80.0%

Timing of Series Completion

School-aged delivery (age 11-14)

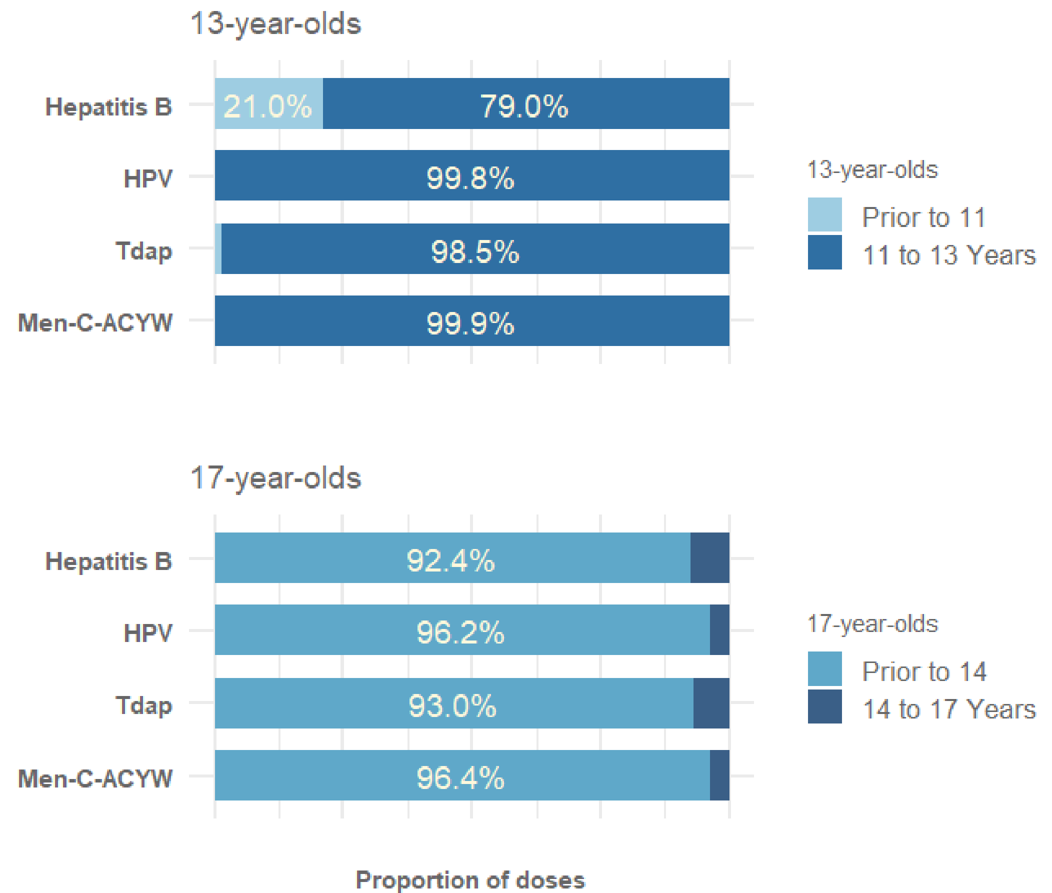
- Most doses of HPV, Tdap, or Men-C-ACYW were received within the age range of the school-based program.

Early immunization: HB

- **1 in 5** fully immunized 13-year-olds completed their series before the school program, reflecting early immunization in other jurisdictions or because of clinical recommendation.

Catch-up immunization

- 4-8% of 17-year-olds received HB, HPV, Tdap, or Men-C-ACYW as part of a catch-up program.



Methods

This section describes the data sources, analytic approach, and criteria used to estimate immunization coverage for adolescents in Nova Scotia.

Population

Individuals who turned 13 and 17 years old by December 31st of each reporting year were included in this report, if they had a valid Nova Scotia health card number and did not have a date of decease before December 31 of the reporting year.

These age groups were chosen to align with how the school-aged immunization program is administered in Nova Scotia and with national benchmarking, which sets coverage targets for 14- and 17-year-olds.

Data Sources

Immunization records
Immunization data were drawn from two sources:

- **Panorama**, Nova Scotia's public health information system, which includes doses recorded by Public Health, pharmacies (via CANImmunize and the Drug Information System, or DIS), and primary care provider electronic medical records (EMR).
- **MSI billing data**, which includes doses billed by physicians for Nova Scotia health card holders. These data supplement Panorama, for doses given in primary care settings.

Records from both systems with immunization dates up to December 31 of each reporting year were included. Because primary care doses may appear in both sources, records were de-duplicated, with doses of the same vaccine given to the same person within 28 days considered duplicates. The 28-day window for deduplication was chosen because it is slightly shorter than the shortest recommended minimum interval between doses and reflects the MSI billing cycle.

Population estimates
Population estimates, used as denominators for calculating coverage, were based on Statistics Canada mid-year population estimates for Nova Scotians aged 13- and 17-years old in each reporting year.

Assignment to Age Cohorts

For each person, doses were assigned to the age-13 and age-17 cohorts based on birth year. A dose contributed to the cohort if it occurred on or before December 31 of that cohort's reporting year.

Geographic Assignment

Health management zone was assigned using residential postal code, or, if unavailable, the postal code of the service delivery location. Individuals without sufficient geographic information were excluded from health management zone reporting but included in the Nova Scotia totals.

Gender

Gender was reported based on the client's gender as recorded in Panorama. This field is intended to reflect legal gender and may include both sex and gender concepts. Clients whose gender in Panorama was not "Female" or "Male" were excluded from the estimation of coverage by gender, because denominators for this group were not available. This represented a very small number of individuals and did not influence gender-based coverage estimates.

Valid Dose Criteria

Vaccines offered as part of the school-based program and products that conferred equivalent protection at the time of immunization were counted toward coverage. Vaccine-specific criteria were used to determine whether a dose was valid and the definition of full series coverage, consistent with national recommendations and Nova Scotia's immunization schedule:

Vaccine agent	Inclusion criteria	Full series coverage
Men-C-ACYW	Age ≥9 years	1 dose
Tdap	Age ≥7 years	1 dose
HPV (HPV-9, HPV-2, HPV-4)	Age ≥9 years	1 dose
HB	All doses administered up to the reporting age, including doses given prior to age 7	Monovalent HB, Hepatitis A+B: ○ Initiated before age 11: 3 doses ○ Initiated in or after age 11: 2 doses* DTaP-HB-IPV-Hib or DTaP IPV-HB: 3 doses

* The 2-dose schedule for individuals >11years is consistent with the school-based program. While other valid HB schedules exist for 11-19-year-olds, detailed formulation information was not available in the data.

Doses that didn't meet the valid criteria were excluded. Valid doses administered out-of-province were included.

Coverage Estimation

Coverage estimates reflect the percent of individuals who met series initiation or completion criteria by each year's end:

$$Coverage\ estimate = \frac{Number\ of\ individuals\ who\ initited\ or\ completed\ a\ series}{Estimated\ eligible\ population} * 100$$

Series initiation (for HB, which has a multi-dose schedule): Received at least 1 valid dose for that vaccine by December 31.

Series completion: Received total number of valid doses required for the vaccine series by December 31st (see Valid Dose Criteria, above).

Coverage Trends

Coverage trends are presented for 2018–2025 for 13-year-olds, and from 2020-2025 for 17-year-olds. Earlier cohorts of 17-year-olds were not included because they may have received doses before Panorama implementation, many of which may not be captured in Panorama as a result.

Timing of Series Completion

To examine the timing of vaccine uptake relative to the school-based program, 13- and 17-year-olds in 2025 were grouped according to their age at series completion:

13-year-olds:
- Before 11 years (before grade 7 program)
- 11–13 years (during program)

17-year-olds:
- Before 14 years (during or before school-based program).
- 14–17 years (after program)

Limitations

The findings of this report are subject to several limitations related to data completeness, methods used to estimate immunization coverage, and changes in methodology over time, which should be considered when interpreting and comparing results.

- Data completeness
  - **Incomplete historical records:** Doses given before Panorama implementation in 2018 may not be captured. This may result in underestimated coverage for 13-year-old cohorts prior to 2020, and for 17-year-old cohorts prior to 2024, as individuals in these cohorts may have started their series as early as 2016.
  - **Setting-related limitations:** This report includes only vaccines integrated into Panorama and doses recorded in MSI billing. Although integration of doses from other sources has improved over time, vaccines administered in pharmacies (DIS/CANImmunize) and primary care (EMR), and historical school-based doses administered prior to CANImmunize adoption, may be undercounted due to failed or delayed data integration. As a result, coverage may be underestimated.

- **Out-of-province immunizations:** Doses administered outside Nova Scotia are not systematically captured and may lead to underestimation of coverage. The effect of this is expected to be greater for more recent years, since Nova Scotia has experienced population growth and increased inter-provincial migration since 2020.
- **Deduplication:** A small number of true second doses within 28 days may be removed, and rare duplicates outside the 28-day window may remain.
- **Population denominators:** Mid-year population estimates do not fully reflect residential movement or migration patterns within the year.
- **Comparison to previous reports:** comparison with previous School-Aged Immunization Reports should take into consideration differences in methodology:
    - The HPV schedule has changed over time, from 3- to 2- to 1-dose. Previous reports defined full HPV coverage based on the schedule in effect at the time of the first dose, while the 2025 Report defines full series coverage based on the current, 1-dose schedule. This increased coverage estimates for previous years (2018-2024), compared to previous reports.
    - The 2024 report included Panorama doses but not MSI billing doses. These records were added in order to improve the accuracy of coverage estimates, but they are unlikely to have greatly impacted the coverage estimates, as primary care doses account for a very small proportion of school-aged immunizations.