

2021 Report on Effectiveness of School Required Immunizations Program

Prepared by the Virginia Department of Health

with collaboration from the Virginia Department of Education

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Introduction

Chapter 1223 of the 2020 General Assembly Session required the Virginia Department of Health (VDH) and the Virginia Department of Education (VDOE) to jointly review §§22.1-271.2 and 32.1-46 of the Code of Virginia (“the Code”) and report on the effectiveness of the required vaccination program in promoting public health.

Background

Immunizations (vaccines) are one of the foremost public health achievements of the 20th century and are responsible for a dramatic decrease in the incidence of vaccine preventable diseases in the United States such as polio, rubella, measles, and mumps. Comprehensive global immunization campaigns have resulted in the successful eradication of smallpox worldwide and the elimination of endemic polio transmission from all but two countries. Immunizations provide a safe, effective, economical, and highly impactful method to reduce the burden of infectious disease, and sustained levels of immunization across populations are required for effective disease control.

Effectiveness of School Immunization Requirements

School vaccine requirements ensure protection of children from vaccine preventable diseases, particularly in settings such as schools and childcare facilities where vaccine preventable diseases are likely to spread.

All states require children to be vaccinated against certain communicable diseases as a condition for school attendance.¹ Many school vaccine requirements in the United States, including Virginia’s earliest school vaccine requirements, were instituted in the 1950’s during a period of high incidence of many vaccine preventable diseases. Evidence showed that states with early school immunization laws had rates of measles 40-51% lower than states without such laws.² More recently, a 2019 meta-analysis of 20 well-designed and peer-reviewed studies found that new or tightened requirements for vaccination of school children were usually associated with increased coverage of the affected populations.³

¹ CDC Fact Sheet, [Vaccination Laws](#), Center for State, Tribal, Local, and Territorial Support, Public Health Law Program, February 28, 2018.

² Flanagan-Klygis, Rein, MD, “School Vaccination Laws,” *AMA Journal of Ethics Virtual Mentor*. 2003;5(11):386-388. doi: 10.1001/virtualmentor.2003.5.11.pfor1-0311, and Centers for Disease Control and Prevention. Measles and school immunization requirements—United States. *Morbidity Mortal Weekly Report* 1978; 27:303-4.

³ Greyson D, Vriesema-Magnuson C, Bettinger JA. Impact of school vaccination mandates on pediatric vaccination coverage: a systematic review. *CMAJ Open*. 2019;7(3):E524-E536. Published 2019 Aug 20. Available at [Impact of school vaccination mandates on pediatric vaccination coverage: a systematic review \(nih.gov\)](#)

Virginia's original vaccine requirements for school and childcare attendance have been updated several times to maintain consistency with updates to national recommendations. The most recent update, [HB1090](#), passed with bipartisan support in the 2020 legislative session.

In addition to preventing disease, hospitalization, and death, vaccination is cost effective. For every \$1 spent on vaccines, the United States saves \$10.90.⁴ The Centers for Disease Control and Prevention (CDC) estimates that the vaccination of children born between 1994 and 2018 has saved the U.S. nearly \$406 billion in direct medical costs and \$1.88 trillion in total societal costs. Vaccinating just a single birth cohort (children born in 2009) will prevent an estimated 42,000 early deaths, 20 million cases of disease, save \$13.5 billion in direct costs, and \$68.8 billion in total societal costs.⁵

While vaccine requirements help reduce the incidence of vaccine preventable diseases and reduce overall costs, they also help to ensure equity in the ability of all Virginia children to obtain vaccines regardless of economic status. A large majority of Virginia children have access to some form of healthcare that covers the cost of vaccinations, but designated funding is used to guarantee that all children in Virginia have access to required vaccines at no cost. Vaccines are provided free of charge at local health departments and at participating Vaccine for Children (VFC) providers using a combination of state and federal funds. The [VFC](#) vaccine locator assists school and health personnel and families to find vaccination clinics in their locality. As a result, school vaccination requirements not only help ensure the continued reduction in incidence of vaccine preventable diseases, they also help provide equitable access to a critical element of preventive medicine.

Collaboration between VDH and VDOE

The robust, well-established relationship between VDH and DOE has fostered the timely flow of information and communication between agencies. School Health Specialists at both agencies have historically maintained strong communication with local schools, school nurses, and local health departments. Further, strong relationships with the Virginia Chapter of the American Academy of Pediatrics and other community partners have been forged to promote school required vaccine efforts.

VDH and DOE staff work together to listen to concerns, address vaccine hesitancy, provide evidence-based information about vaccines, and communicate with families. Local

⁴ The Economic Value of Vaccination: Why Prevention is Wealth. J Mark Access Health Policy. 2015;3:10.3402/jmahp.v3.29414. Published 2015 Aug 12. doi:10.3402/jmahp.v3.29414

⁵ Zhou F. Updated economic evaluation of the routine childhood immunization schedule in the United States. Presented at the 45th National Immunization Conference. Washington, DC; March 28--31, 2011.

school and health department partnerships leverage resources to reduce barriers to school-required vaccines.

In 2021, VDH and DOE established a [Back to School website](#) to communicate with parents and provide information on how to access vaccine records, a list of upcoming vaccination clinics, and information about free or reduced cost services such as medical care, food, job training, and more. Vaccination opportunities have been provided across the state at a variety of traditional and non-traditional locations. Some schools partner with local health departments and area pharmacies to provide school required vaccines in school buildings as educational facilities provide a convenient and trusted location for vaccination efforts during school hours, as well as after school and on weekends.

Challenges

The impact of COVID-19 on vaccination efforts in general cannot be overestimated. Shortly after the first cases of COVID-19 were identified in the spring of 2020, routine visits for preventive medical care declined drastically. During the early months of the pandemic, many providers limited visits for annual check-ups or routine care; this resulted in numerous missed opportunities for routine vaccination of children. Table 1 shows the drop from school reported coverage rates from the 2019-2020 to 2020-2021 school years. The data demonstrate that vaccination rates were consistent to within a percentage point year after year until the COVID-19 pandemic, when rates dropped almost eight percent.

Table 1: Student Immunization Survey Status - Vaccination Coverage Among Kindergarteners	
School Year	State All School Coverage Rate
Fall 2016	96.3%
Fall 2017	95.9%
Fall 2018	96.1%
Fall 2019	96.3%
Fall 2020	88.4%

Source: <https://www.vdh.virginia.gov/immunization/datamanagement/sisreports/>

To increase opportunities for children to catch up on their vaccinations, local health departments collaborated with schools to provide school required vaccine clinics. School nurse coordinators from each school division have worked tirelessly throughout the pandemic to

determine local vaccination needs and develop strategies to implement additional opportunities for children to receive required vaccines.

Enforcement of Virginia’s Vaccine Requirements

Schools are required by law to review the immunization records of all students. Students who do not have the required vaccines and do not qualify for a religious or medical exemption may be conditionally enrolled. According to the Code, § [22.1-271.2 \(B\)](#) “Any student whose immunizations are incomplete may be admitted conditionally if that student provides documentary proof at the time of enrollment of having received at least one dose of the required immunizations accompanied by a schedule for completion of the required doses within 90 calendar days.” The Code allows for school divisions to exclude under-vaccinated students from school until they receive the required vaccinations.

Many school divisions rely on parents/guardians to provide updated immunization records for their child. This practice can make it difficult for school staff to determine if a student is adequately immunized, conditionally enrolled, or excluded. Effective January 2022, [HB2061](#) requires any health care provider who administers vaccinations to participate in the Virginia Immunization Information System (VIIS) and report an individual’s immunization history and information to VIIS. This mandate will allow for bidirectional data exchange between the VIIS system and a school division electronic health record. This data exchange will provide schools with the most up-to-date immunization records for students and encourages collaboration between schools, families, healthcare providers and local health departments.

The State Board of Health, Regulations for the Immunization of School Children (12 VAC 5-110-90.F) require that “each admitting official shall, within 30 days of the beginning of each school year or entrance of a student, or by October 15 of each school year, file with the State Health Department through the health department for his locality, a report summarizing the immunization status of the students in his school as of the first day of school.”

Schools are notified of this reporting mechanism via an annual Superintendent's Memo to school superintendents (“Memo”). The Memos from [2021](#) and [2020](#) may be located on the DOE Superintendent's [Memo](#) webpage. Schools submit current immunization data from grades kindergarten, 7th and 12th grade (beginning 2021 school year) via the Student Immunization Status (SIS) Survey. This information is collected annually from all public and private schools and informs VDH of student vaccination status at the beginning of the school year.

Virginia Immunization Data

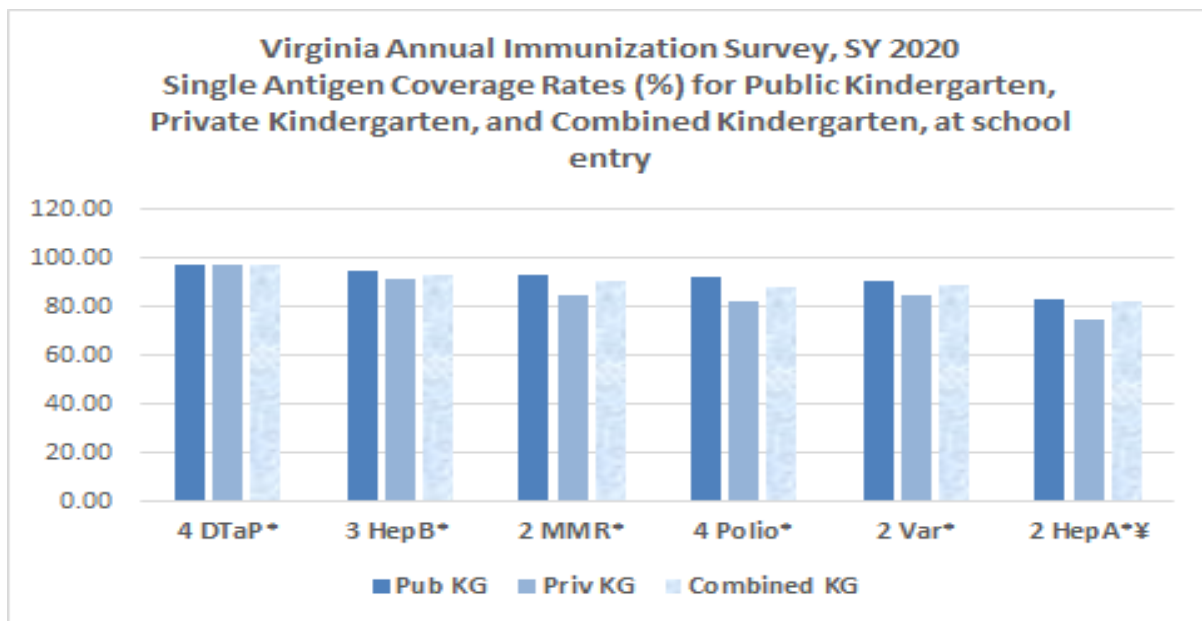
Virginia uses a variety of data sources and reports to assess vaccination rates among children, including the Virginia Annual Immunization Survey (VAIS) and the SIS.

[VAIS](#) is a retrospective randomized survey conducted annually by VDH that assesses the vaccination status of children enrolled in daycare facilities, Head Start programs, kindergarten, and 7th grade. This survey is also used to measure compliance with school required vaccinations.

Graphs 1 and 2 show VAIS data from 2019-2020 that reflects single-antigen coverage rates for various school required vaccines, by type of school. Hepatitis B, MMR, Varicella, TDaP, and HPV for females have been school requirements since at least 2008.

For entry into kindergarten, Graph 1 shows that coverage rates tend to be relatively high across various types of vaccine. Hepatitis A rates are slightly lower as Hepatitis A was added as a requirement effective July 1, 2021, as a result of HB1090 of the 2020 General Assembly Session.

Graph 1 - Single Antigen Coverage Rates (%) for Public Kindergarten, Private Kindergarten, and Combined Kindergarten at School Entry

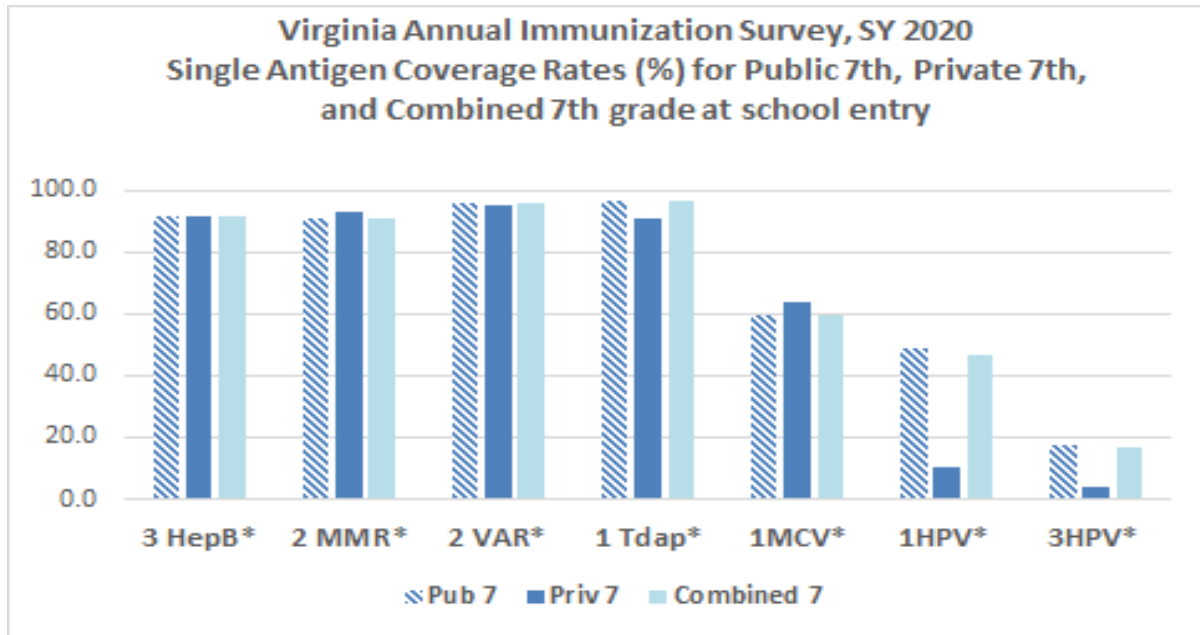


**weighted percentages based on sample of surveys*

¥ HepA antigen coverage rate was assessed at the time of assessment rather than the start of the school year

Vaccination requirements for Meningococcal and HPV for males and females for 7th grade entry were also added as a result of HB1090 and went into effect July 1, 2021. The data in Graph 1 shows that coverage rates for those new vaccines are at least 20% less than other mandated vaccines in Virginia.

Graph 2 - Single Antigen Coverage Rates (%) for Public 7th, Private 7th, and Combined 7th Grade at School Entry



**weighted percentages based on sample*

The [SIS](#), a school self-reported survey conducted annually by VDH’s Division of Immunization, assesses the vaccination status of children enrolled in kindergarten, seventh grade, and a newly added category of 12th grade, within Virginia’s public and private schools. This survey is used to measure compliance with school required vaccinations.

Table 2 shows medical and religious exemption rates by Kindergarten and 6th/7th grade, for schools who reported through SIS from the 2011-2012 to 2020-2021 school years. Rates have continued to be relatively consistent with a slight increase in non-medical exemptions overtime.

School Year	Kindergarten		6th/7th Grade	
	Non-Medical	Medical	Non-Medical	Medical
2011-12	0.8	0.3	0.4	0.3
2012-13	0.4	0.1	0.5	0.3
2013-14	0.4	0.2	0.7	0.6
2014-15	0.8	0.3	0.8	0.8

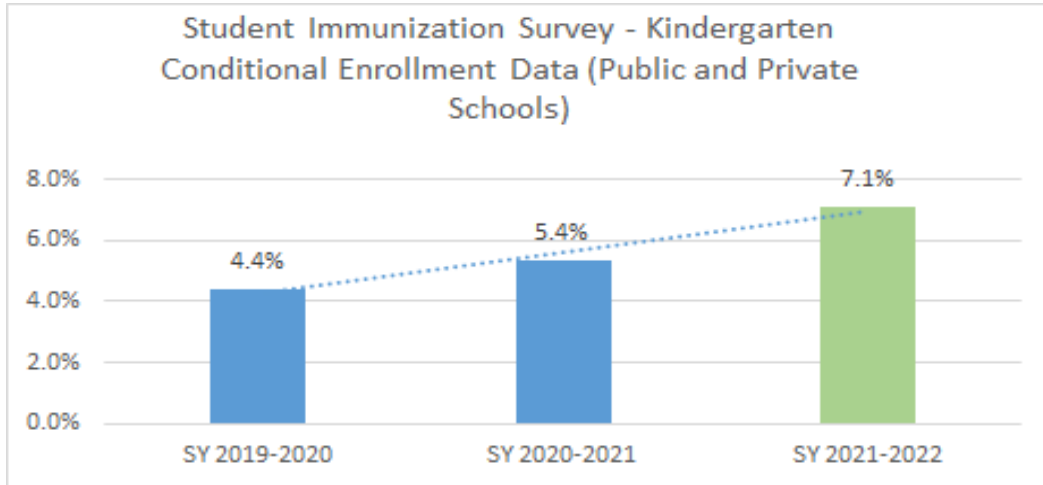
Table 2: Medical and Religious Exemption Data (Public and Private Schools) for Kindergarten and 6th/7th Grade				
	Kindergarten		6th/7th Grade	
School Year	Non-Medical	Medical	Non-Medical	Medical
2015-16	0.9	0.3	0.8	0.4
2016-17	1.0	0.2	1.0	0.5
2017-18	1.1	0.4	1.3	0.6
2018-19	1.4	0.3	1.2	0.6
2019-2020	1.4	0.3	1.3*	0.7*
2020-2021	1.2	0.2	1.2*	0.6*

**Beginning the 2019-2020 school year, the point in time at which verification of immunization requirements is conducted changed from 6th grade to 7th grade.*

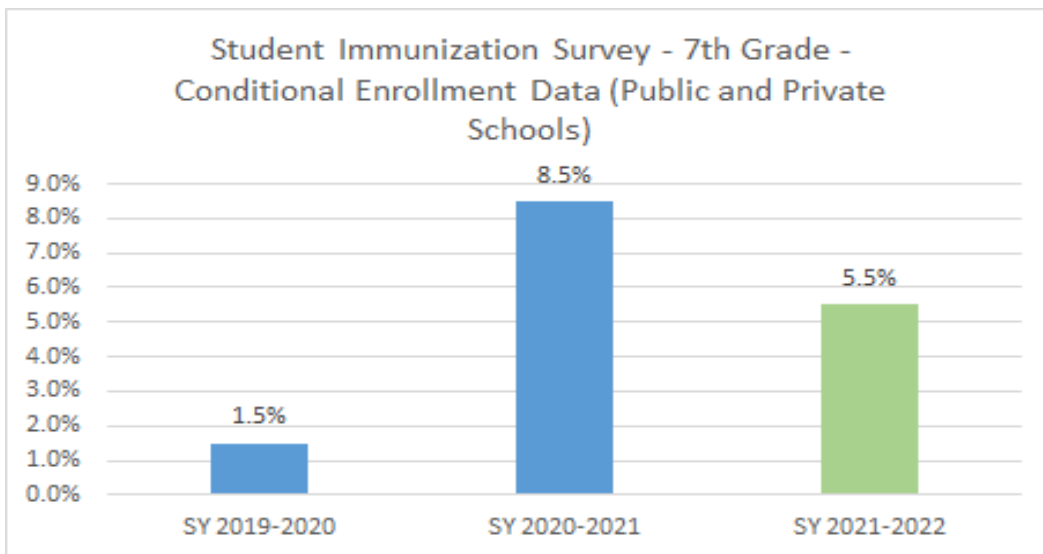
For students entering kindergarten, the percentage of conditional enrollments increased by 1.1% between the 2019-2020 and 2020-2021 school years, and 1.7% between the 2020-21 and 2021-22 school years (Graph 3). For students entering the 7th grade, conditional enrollments increased by 7% between 2019-2020 and 2020-2021 school years and decreased by 3% between 2020-2021 and 2021-2022 school years (Graph 4). It is important to note that the data for the 2021-2022 school year (data in green) is still preliminary and subject to change. Total school enrollment for kindergarten students increased from school year 2020-21 (80,856) to school year 2021-22 (87,057), while enrollment for 7th grade decreased from school year 2020-21 (98,957) to school year 2021-22 (95,094).

A number of factors have likely contributed to the rise in conditional enrollments for kindergarten students including the pandemic, which reduced routine clinical visits for immunizations in an effort to mitigate the spread of COVID-19. Further, HB1090 added Hepatitis A as a new vaccination requirement for entry to kindergarten, which went into effect July 1, 2021. Hepatitis A is a two-dose series and has a minimum interval of 6 months between the two doses. As a result, students who did not receive their first dose until after July 1 would not be eligible for their second dose until after the start of the school year and would be conditionally enrolled until the completion of the series.

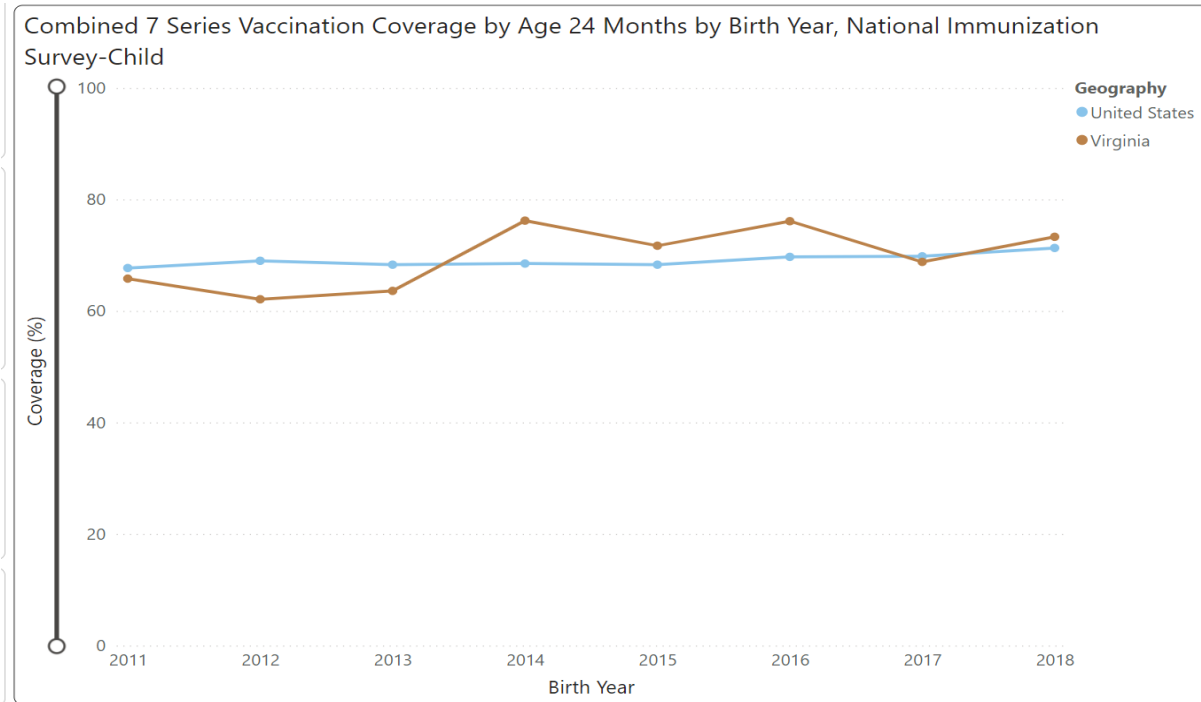
Graph 3: Kindergarten Conditional Enrollment Data (Public and Private Schools)



Graph 4: 7th Grade Conditional Enrollment Data (Public and Private Schools)



Graph 5: Combined 7 Series Vaccination Coverage by Age 24 Months by Birth Year



Source: [ChildVaxView CDC Vaccination Coverage among Young Children](#)

Conclusions

Despite challenges brought with the COVID-19 pandemic, the effectiveness of Virginia’s required vaccination program is illustrated by consistently strong immunization coverage rates for required vaccines in Virginia’s children. For the combined-7 childhood vaccination series ((4:3:1:3*:3:1): 4 or more doses of DTaP, 3 or more doses of Polio, 1 or more doses of MMR, Hib full series (3 or 4 doses, depending on product type received), 3 or more doses of HepB, 1 or more doses of Varicella, and 4 or more doses of PCV), Virginia has remained at or above the national average coverage rate since 2014 (Graph 5). When looking more specifically at immunizations required for school in Virginia, the rate of students who were “adequately vaccinated” in Virginia, defined as having received all of the required doses of the vaccines required under state law, was 88% in 2020 (down from just over 96% in 2019) according to the [SIS](#).

Similar trends occurred nationwide as indicated by a recent article on immunization coverage rates published in . Due to the timing of this report, data are limited that provide definitive results on the impacts to vaccination rates following the passage of HB1090. It is important to note that HB1090 was originally scheduled to become effective July 1, 2020 but was delayed until July 1, 2021.