



Vaccine Coverage 2020

Vermont Immunization Registry Annual Report

September 2021

Introduction

The Vermont Immunization Registry (IMR) is a secure health information system that contains consolidated immunization records for persons living in Vermont. Consolidated records mean easy access to immunization histories – so medical providers know, for instance, whether you need a tetanus shot when you show up in the emergency room with a cut finger. It also helps the Immunization Program identify areas of need and evaluate the impact of strategies implemented to increase vaccination coverage.

Vermont law requires that all immunizations given in Vermont be reported to the IMR. As of January 1, 2021, the IMR contained immunization records for 879,028 individuals, and nearly 10 million immunizations. While most of the data in the system is for immunizations administered after 1995, it is a valued resource, not only for what it contains in terms of individual records, but for its use as a tool to assess vaccination needs across the state.

This report is based on the year 2020. Ages used in this report are calculated as of December 31, 2020. Rates are based on immunizations given through that date. The annual report demonstrates coverage improvements or drops from year to year and helps us to focus efforts to improve the health of all Vermonters.

For information about influenza, see the [Annual Influenza Vaccine Coverage Rates](#) for the most recent flu season. Published each Summer, the Influenza document includes rates for Vermonters across age groups including children and teens.

2020 IMR Basic Statistics

As of December 31, 2020

- Number of Patients with Immunization Records: 879,028
- Number of Immunizations in the IMR: 9,993,221
- Number of Immunizations added in 2020: 905,270
- Hospitals reporting to the IMR: All VT Hospitals. Dartmouth Hitchcock Medical Center in NH also reports.
- Percent of Pharmacies reporting: 87%
- Number of Provider Sites (all types) reporting: 403
- Percent of Public Elementary Schools using the IMR: 99%
- Percent of Public Middle and High Schools using the IMR: 100%
- Primary Care Sites receiving quarterly IMR assessments of child and teen coverage in 2020: 155

How to get more information about the IMR: 1-888-688-4667

Vaccine Coverage by the Age of Two

Traditionally, vaccine coverage is assessed in young children after the age of 18 months, by which time Centers for Disease Control and Prevention (CDC) recommends children should have received 4 doses of DTaP, 3 doses of Polio, 1 dose MMR, 4 doses of Hib, 3 doses of Hepatitis B, 1 dose Varicella, and 4 doses of Pneumococcal vaccine, otherwise termed “the Childhood Seven Series. In 2020, 75.6% of Vermont two-year olds were up to date for the seven vaccine series that are recommended “by the age of two.”

Vaccine Series	Coverage Children Born in 2017	Coverage Children Born in 2018	Percent Difference
DTaP	83.0%	81.9%	-1.1%
Polio	92.3%	91.7%	-0.6%
MMR	91.1%	92.1%	1.0%
Hib	92.7%	92.6%	-0.1%
HepB	91.3%	91.4%	0.1%
Varicella	88.1%	88.6%	0.5%
PCV	84.1%	83.6%	-0.5%
All Series Above	76.4%	75.6%	-0.8%

Table 1. Change in vaccine coverage between 2017 and 2018 by series.

Table 1 compares the rates for the two year olds in 2019 with the two year olds in 2020. Despite the Covid-19 pandemic, vaccine coverage among the youngest Vermonters was fairly steady.

With the Immunization Registry, we also have the ability to explore vaccine coverage rates at the county level. While the state coverage rate for the Childhood Seven Series is 75.6%, the county rates range from a low of 57.7% in Essex County to a high of 81.5% in Rutland County. (See *Figure 1 below*) We believe it is important to explore county differences to help identify and address obstacles and areas of need.

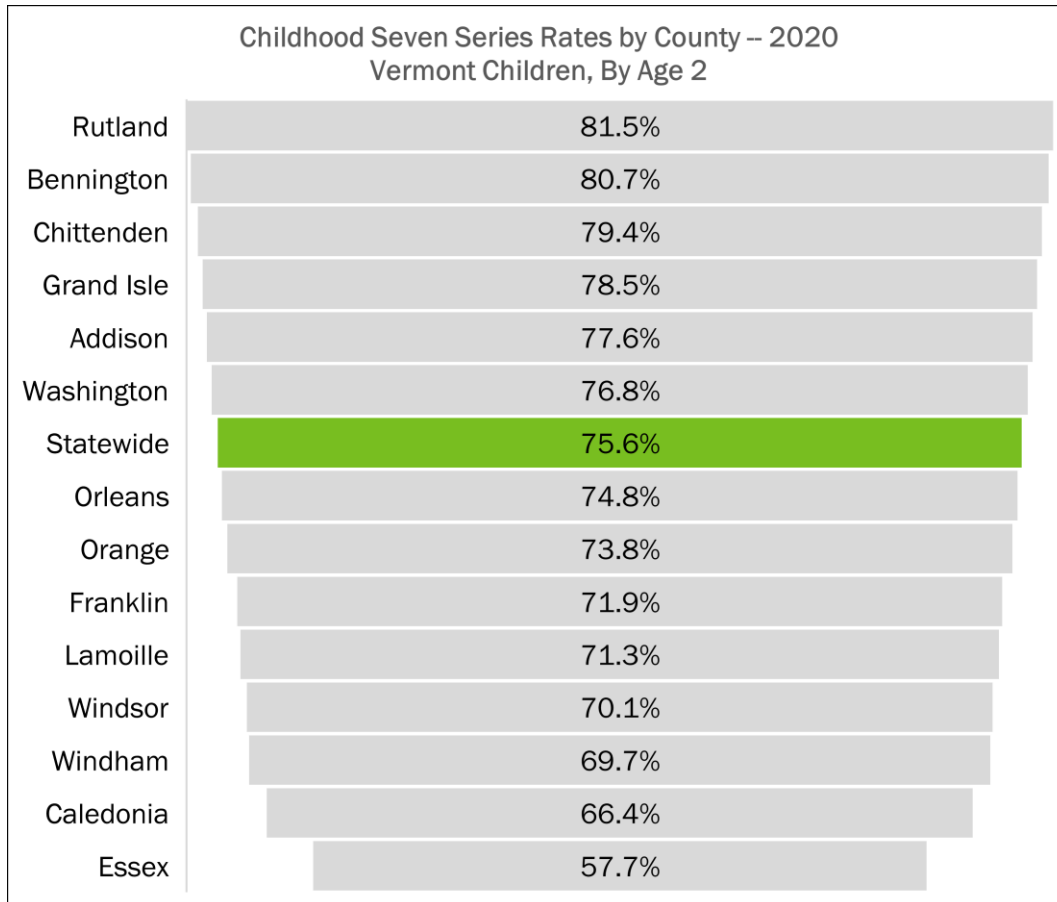


Figure 1. Statewide and county level coverage rates from highest to lowest.

By comparing county-level coverage rates for the children’s combined 7-vaccine series from 2019 with those of 2020, it is clear that while the state rates were fairly unchanged by the pandemic, some counties experienced something very different. (See *Table 2 below*) Grand Isle, Rutland and Bennington County rates increased by roughly 5 percent, while Caledonia, Franklin, and Orange dropped by over seven percent.

**Child Seven Series by County
2020-2019 Assessment Compare**

	2020 Full Series	2019 Full Series	% Difference
Addison	77.6%	79.6%	-2.0%
Bennington	80.7%	76.1%	4.6%
Caledonia	66.4%	74.0%	-7.6%
Chittenden	79.4%	80.3%	-0.9%
Essex	57.7%	59.6%	-1.9%
Franklin	71.9%	79.6%	-7.7%
Grand Isle	78.5%	70.7%	7.8%
Lamoille	71.3%	71.4%	-0.1%
Orange	73.8%	81.5%	-7.7%
Orleans	74.8%	76.3%	-1.5%
Rutland	81.5%	75.8%	5.7%
Statewide	75.6%	76.4%	-0.8%
Washington	76.8%	77.3%	-0.5%
Windham	69.7%	71.6%	-1.9%
Windsor	70.1%	65.6%	4.5%

*Table 2. Child seven series for the period Jan 1, 2019-Dec 31, 2019
and Jan 1, 2020-Dec 31, 2020.*

Coverage Among Vermont Teens by Age 15

Measuring vaccine coverage in teens is focused on vaccines administered during the teen years: Human Papilloma Virus (HPV), Meningococcal vaccine, and Tdap. Although nearly eight in ten teens have received a dose of Tdap by the time they are 15 years old, fewer have received the meningococcal vaccine (73.9%), and only 65% have received their first dose of HPV by that age. These rates are calculated for VT residents born in 2005 (see *Figure 2*).

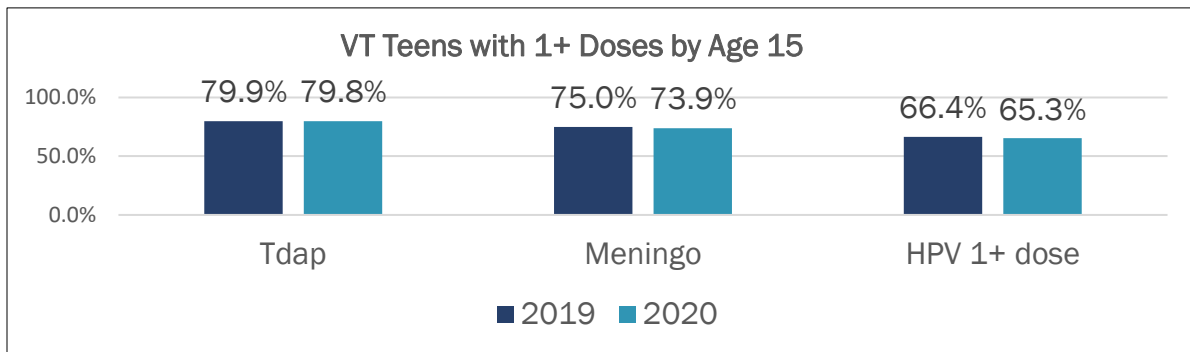


Figure 2. Vermont teens who have received one or more doses of Tdap, Meningococcal, or HPV vaccine by the age of 15.

Human Papilloma Virus Vaccine by age 15, by County

HPV vaccination is routinely recommended for teens at age 11-12. Teens who receive the first dose by the age of 15 need only one more dose to complete the series. Those who start after age 15 will need a third dose to be protected. See *Figure 3* for statewide and county level coverage rates.

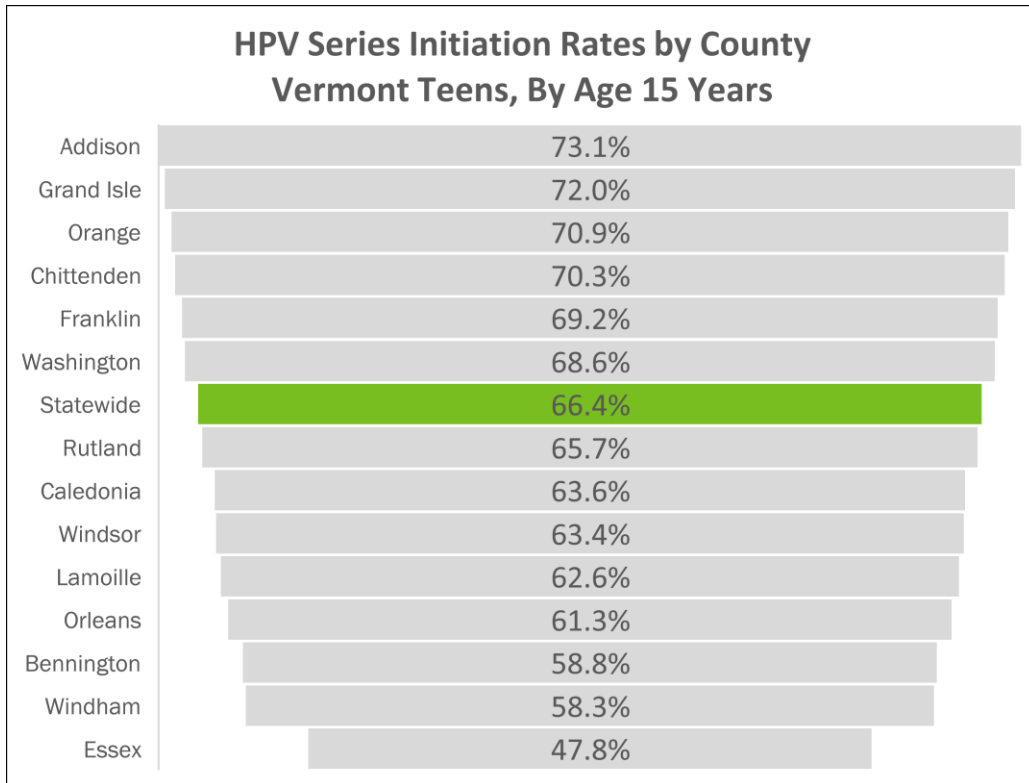


Figure 3. Statewide and county level HPV vaccination coverage rates.

Vermont Teens born in 2005 - HPV Series Completion, by County

Statewide, 53.3% of youth aged 15 have completed the Human Papilloma Virus (HPV) vaccine series, below Vermont's coverage goal of 80%. In five Vermont counties, more than 55% of 15-year-olds have completed the series. These teens are protected against cervical, oral, genital, and rectal cancers caused by this virus. In other areas of the state, vaccine coverage is lower: Essex, Windham, Grand isle, Caledonia, Bennington, and Windsor are all below 50% (see Figure 4).

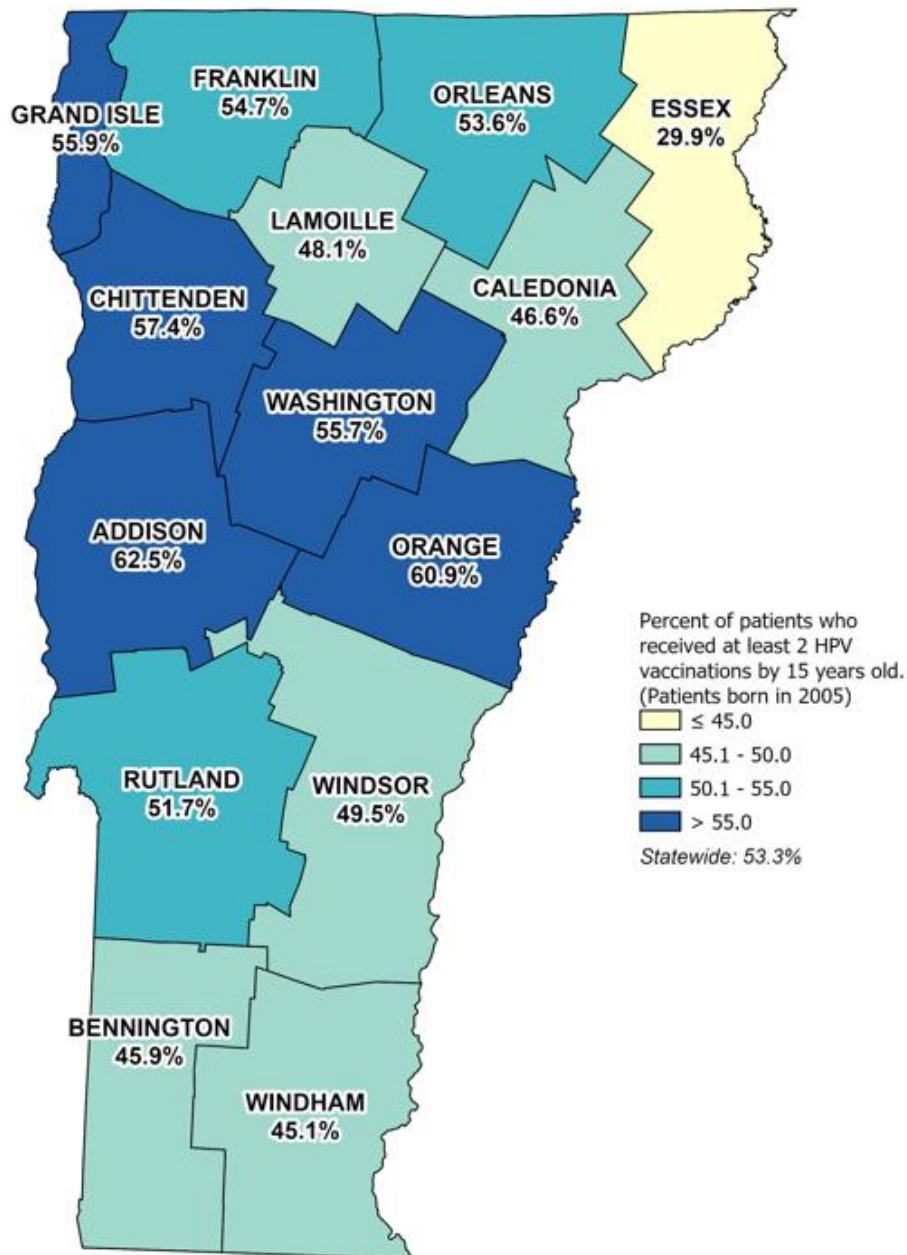


Figure 4. Percent of Vermont patients who received at least two HPV vaccinations by 15 years old by county.

Vermont Teens born in 2005 – 1 Dose of Meningococcal by Age 15, by County

Meningococcal vaccine coverage by age 15 is 75%. It also varies by county, but in a completely different pattern. Addison and Franklin counties have over 80% coverage. Windham and Essex counties are at less than 70% (see Figure 5).

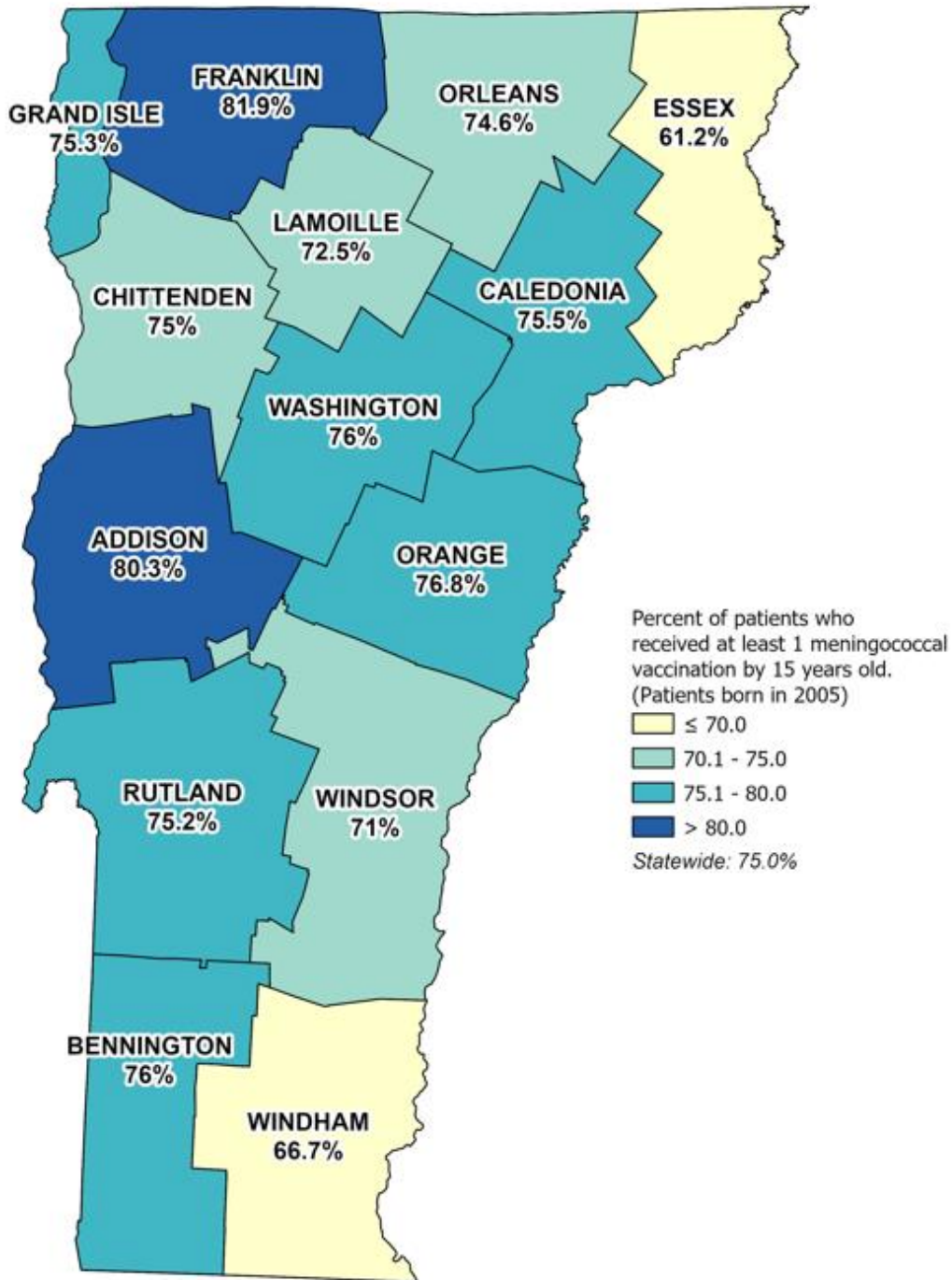


Figure 5. Percent of Vermont patients who received at least one meningococcal vaccination by 15 years old by county.

Vermont Teens born in 2005 – 1 Dose of Tdap by Age 15, by County

Tdap coverage by age 15 is nearly 80%, but Essex, Windsor, and Windham counties are more than five percentage points below the state rate (see Figure 6). Tdap, Meningococcal, and HPV vaccines are all recommended for teens in this age group by the Advisory Committee for Immunization Practices (ACIP).

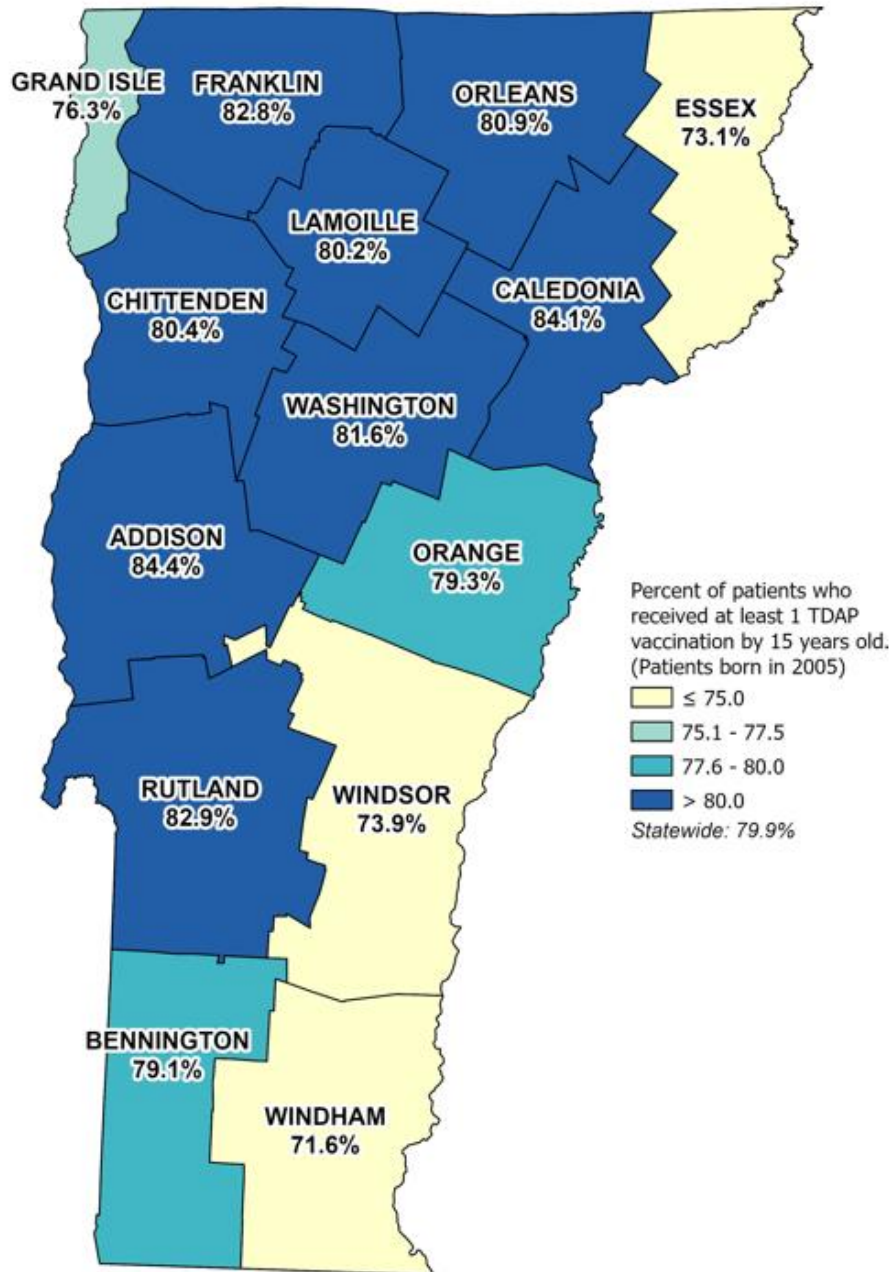


Figure 6. Percent of Vermont patients who received at least one TDAP vaccination by 15 years old by county.

Teen Rates by age 15 years, by County

Vaccine Series Rates by Age 15 for VT Teens Born in 2005

	Tdap 1+		Meningo. 1+		HPV 1+		HPV 2+		Total
	Count	Percent	Count	Percent	Count	Percent	Count	Percent	Count
Addison	389	84.4%	370	80.3%	337	73.1%	288	62.5%	461
Bennington	436	79.1%	419	76.0%	324	58.8%	253	45.9%	551
Caledonia	381	84.1%	342	75.5%	288	63.6%	211	46.6%	453
Chittenden	1,784	80.4%	1,666	75.0%	1,561	70.3%	1,274	57.4%	2,220
Essex	49	73.1%	41	61.2%	32	47.8%	20	29.9%	67
Franklin	577	82.8%	571	81.9%	482	69.2%	381	54.7%	697
Grand Isle	71	76.3%	70	75.3%	67	72.0%	52	55.9%	93
Lamoille	300	80.2%	271	72.5%	234	62.6%	180	48.1%	374
Orange	284	79.3%	275	76.8%	254	70.9%	218	60.9%	358
Orleans	293	80.9%	270	74.6%	222	61.3%	194	53.6%	362
Rutland	614	82.9%	557	75.2%	487	65.7%	383	51.7%	741
Washington	627	81.6%	584	76.0%	527	68.6%	428	55.7%	768
Windham	421	71.6%	392	66.7%	343	58.3%	265	45.1%	588
Windsor	563	73.9%	541	71.0%	483	63.4%	377	49.5%	762
Statewide	6,789	79.9%	6,369	75.0%	5,641	66.4%	4,524	53.3%	8,495

Table 3. Tdap, Meningococcal, and HPV vaccine series coverage rates for Vermont teens by 15 years old.

Hepatitis A Vaccine Coverage, Various Age Groups

The CDC recommends a catch-up vaccination for all children 2-18 years not previously immunized against Hepatitis A. The vaccine for Hepatitis A is a two-dose series beginning at age 12 months, with a second dose at least 6 months after the first. Unvaccinated persons through 18 years should complete the 2-dose series.

Despite the pandemic, Hepatitis A uptake improved in all age groups during 2020, with the largest increase among those 13 through 17 years (see *Figure 7*).

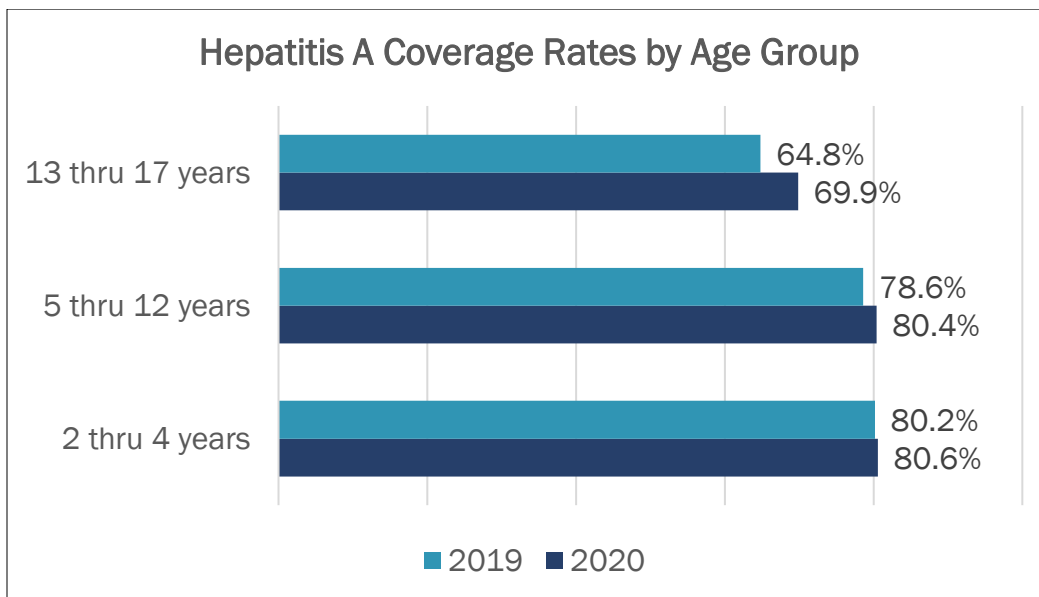


Figure 7. Hepatitis A Coverage Rates by Age Group in Vermont

Conclusion

While the public immunization conversation focuses on Covid-19, it is also important to measure the effect of the pandemic on routine immunization. This annual report, reflecting the situation at the close of 2020, shows that routine immunization in Vermont did continue and the state vaccination rates remained fairly steady among both children and adolescents. However, individual county rates were impacted and there are new areas of concern. The Vermont Immunization Registry and Immunization Program will work together to understand and address these issues, while maintaining our goal of keeping all Vermonters safe from all vaccine preventable diseases.

Limitations

We are reporting these data using an IMR based denominator. We believe this is the most accurate way to report, since our numbers are based on actual individuals and not annual census estimates. We acknowledge this can make our denominators too large (and our rates, subsequently somewhat lower), as it is difficult to identify and exclude individuals who did live in Vermont but have now moved out of state. To control for this in the teen reporting only, we used the Ogive hybrid method recommended in the American Immunization Registry Association Analytic Guide for Assessing Vaccination Coverage and excluded individuals who have not received any immunizations in 10+ years.

For More Information:

Contact the Vermont Immunization Registry manager at (802) 951-4094.

Registry Data Sources:

As of January 1, 2020, there were 879,028 individuals, and nearly 10 million immunizations in the Vermont Immunization Registry.

Sixty-two percent of the 905,270 immunizations added to the IMR in 2020 came directly from electronic health records in provider offices and hospitals. Another 33% were loaded as flat files – many of these came from health insurers and large chain pharmacies, and others were historical information that medical practices and health clinics were able to provide. It is also possible for immunizers to directly enter information into the IMR, and this accounted for 5% of our 2020 data.

Thanks to Vermont health care providers, hospitals, pharmacies, and health insurers for their invaluable contributions to this health information system.