Maine Center for Disease Control and Prevention
An Office of the Department of Health and Human Services
Paul R. LePage, Governor Mary C. Mayhew, Commissioner

Department of Health and Human Services
Maine Center for Disease Control and Prevention
286 Water Street
11 State House Station
Augusta, Maine 04333-0011
Tel.: (207) 287-8016; Fax: (207) 287-9058
TTY Users: Dial 711 (Maine Relay)

Maine Immunization Program
Tel. (207) 287-3746
Fax (207) 287-8127

2015 National Immunization Survey Childhood Report

The National Immunization Surveys (NIS) are a group of phone surveys used to monitor vaccination coverage among children 19-35 months, teens 13-17 years, and flu vaccinations for children 6 months-17 years. The surveys are sponsored and conducted by the National Center for Immunization and Respiratory Diseases (NCIRD) of the Centers for Disease Control and Prevention (CDC). The National Immunization Surveys provide household, population-based, state and local area estimates of vaccination coverage among children and teens using a standard survey methodology. The surveys collect data through telephone interviews with parents or guardians in all 50 states, the District of Columbia, and some U.S. territories. With permission, a questionnaire is mailed to each child's vaccination provider(s) to collect the information on the types of vaccinations, number of doses and dates of administration. Estimates of vaccination coverage are determined for child and teen vaccinations recommended by the Advisory Committee on Immunization Practices (ACIP), and children and teens are classified as being up-to-date based on the ACIP recommended numbers of doses for each vaccine.

The NIS was first launched in 1994. The target population for the NIS is children who are or will be 19-35 months within a few weeks of being selected to participate in the survey and living in the United States. Data are used to monitor vaccination coverage among 2-year-old children for the following recommended vaccinations:

- Diphtheria and tetanus toxoids and acellular pertussis vaccine (DTaP/DT/DTP)
- Poliovirus vaccine (Polio)
- Measles or Measles-Mumps-Rubella vaccine (MMR)
- Haemophilus influenza type b vaccine (Hib)
- Hepatitis B vaccine (HepB)
- Varicella zoster (chickenpox) vaccine (VAR)
- Pneumococcal conjugate vaccine (PCV)
- Hepatitis A vaccine (HepA)
- Rotavirus vaccine (ROT)
- Vaccine Series – 4DTap:3Polio:1MMR:3Hib:3HepB:1VAR:4PCV (4:3:1:3:3:1:4)

For 2015, national vaccination coverage estimates were based on a sample of 15,167 children with completed household interviews and adequate provider data. The NIS is best suited for estimating immunization coverage at a national level, where the standard for error for most estimates is less than 0.5 per cent. However, the NIS also provides coverage estimates on a sub-national basis, including individual states, at a much higher margin for error.

When state-level estimates are published, three potential errors can arise. A state's newest point estimate is often compared with last year's. Such comparisons must be made with awareness of sampling uncertainty. Maine's 2015 estimated coverage for the 4:3:1:3:3:1:4 vaccine series was 71.8±7.9% compared to 2014's 84.7±5.0%. Factoring in the margins of error, Maine could have had as little as a 0.0% difference in coverage levels or as high as a 25.5% decrease in immunization rates. Additionally, NIS results are often used to compare coverage levels between states. In the NIS, coverage differences between states are often smaller than the survey's margin of error for these states. It is impossible to compare a state like Maine whose margin of error is ±7.9 (the highest of all states and territories surveyed) to a more populated state such as Texas whose margin of error is only ±4.2%. Finally, the third potential problem arises when lists of point estimates are translated into ranks. Ranking states from point estimates coverage introduces even more uncertainty than tracking a state's performance over time or comparing states' coverage.

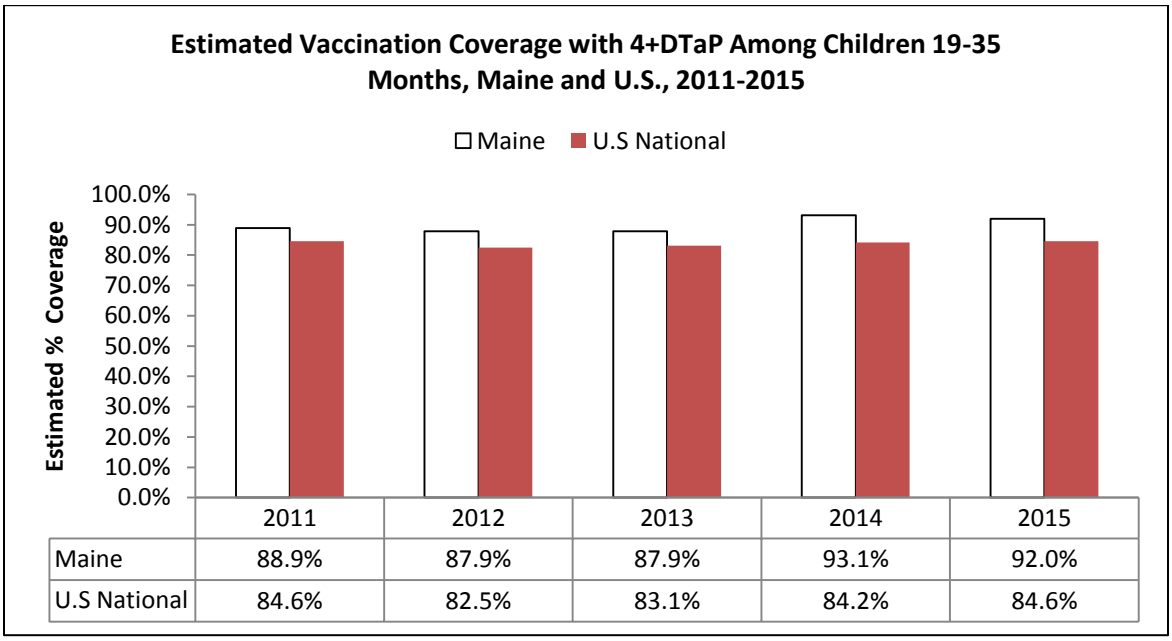
While the NIS continues to provide valuable national and state level data, the Maine Immunization Program (MIP) recognizes that the sampling size used for the survey is too small to accurately depict Maine's true vaccination coverage levels. MIP calculates immunization rates for children 19-35 months of age for the 4:3:1:3:3:1:4 antigen series using data directly from our immunization registry, ImmPact. Not only does the data give us a larger sample size with almost 10,000 Maine children of this age included (the NIS surveyed 15,000 children nationwide), but the data is also up-to-date. It allows us to view what is happening in real time as opposed to relying on data from the previous year. MIP publishes the Maine Immunization Rate Assessment Reports on our website quarterly and these reports include both state and county level rates. The immunization coverage rate for the 2016 Second Quarter is 76.0%, a difference of over 4% from the NIS estimate. The assessment reports can be found here: http://www.maine.gov/dhhs/mecdc/infectious-disease/immunization/publications/index.shtml

Vaccination is the most effective and efficient way to ensure these children, their family members and the community, particularly those who are immunocompromised, are protected against these vaccine preventable diseases. This is perhaps one of the most important reasons why MIP will continue to encourage parents and physicians to vaccinate their children and to help reach the goal of the Maine Immunization Program to bring the State vaccine coverage rate for each of these vaccines to 100%.

The NIS vaccination data reported was analyzed and graphical representations for each vaccine surveyed show immunization rates for the past 5 year for trending comparisons (Figures 1-11). Additionally, summary tables were generated (Tables 1 & 2) to show Maine's coverage ranking both nationally and in HHS Region 1 (the New England states).

As always, thank you for your commitment to keeping Maine's children free of vaccine preventable disease.

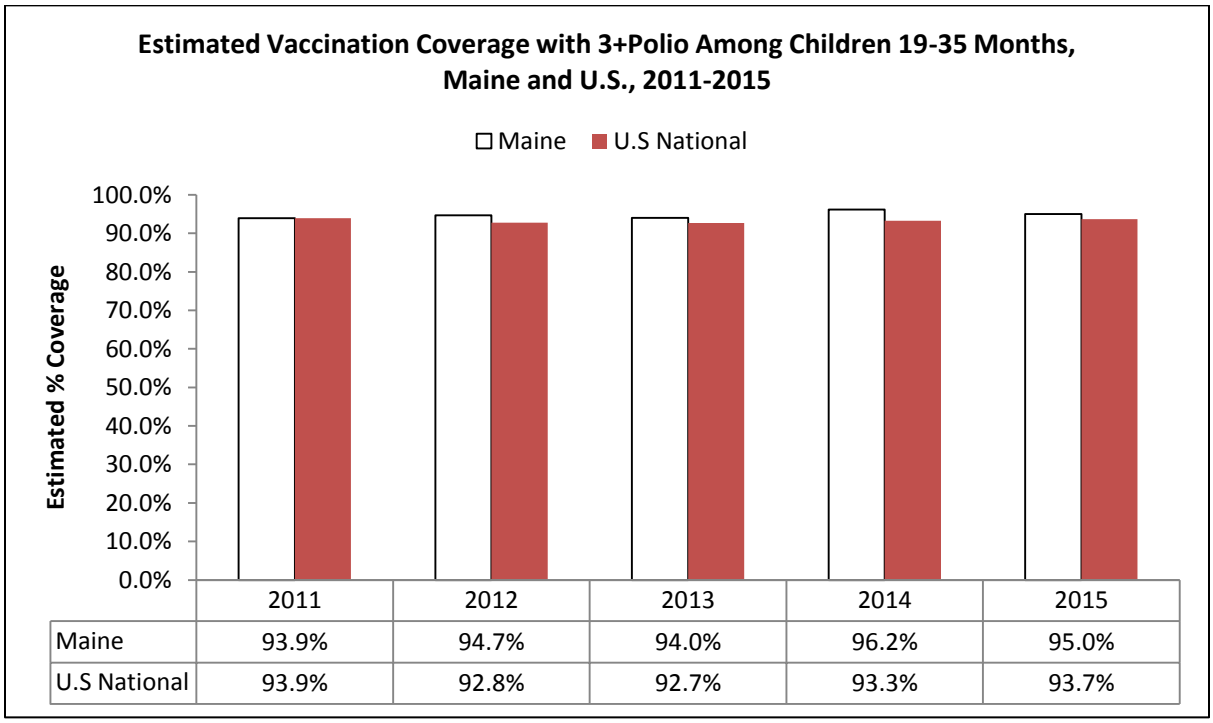
Figure 1: Children 19-35 Months 4+DTaP Vaccine Coverage Estimate, Maine and U.S., 2011-2015



	2011	2012	2013	2014	2015
Maine	88.9%	87.9%	87.9%	93.1%	92.0%
U.S National	84.6%	82.5%	83.1%	84.2%	84.6%

4+ DTaP ~ ≥4 doses of diphtheria and tetanus toxoids and acellular pertussis (DTaP) vaccine.
Trend: Overall, DTaP coverage in Maine has remained relatively stable (above 85%) with a statistically significant increase in 2014.

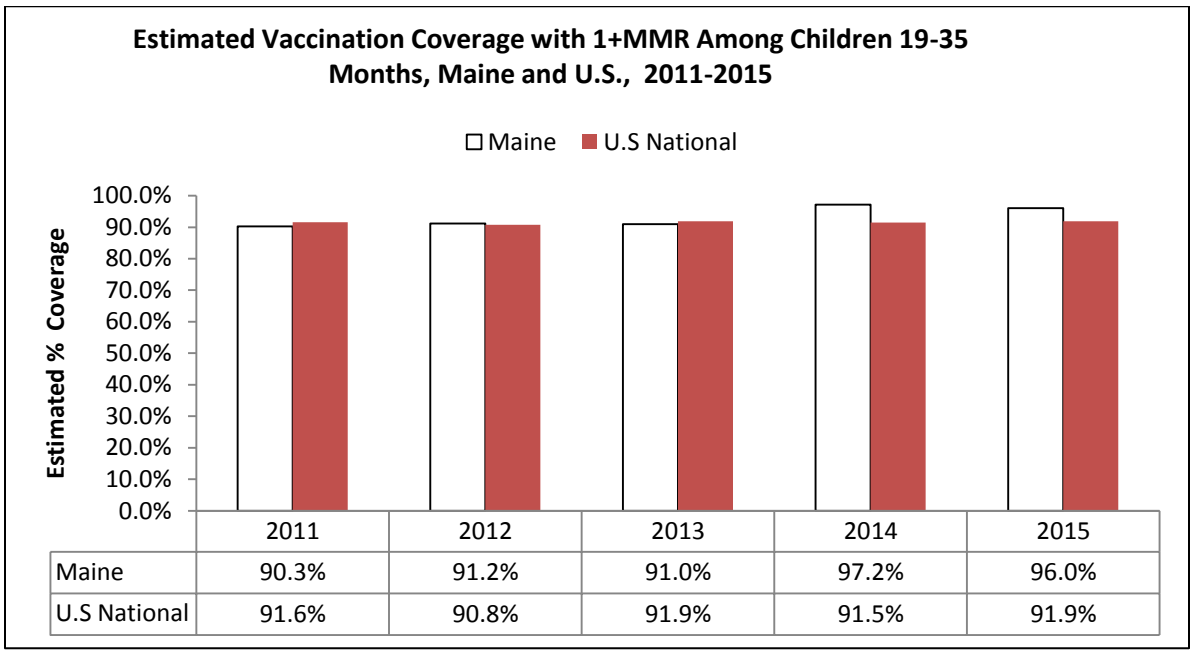
Figure 2: Children 19-35 Months 3+Polio Vaccine Coverage Estimate, Maine and U.S., 2011-2015



	2011	2012	2013	2014	2015
Maine	93.9%	94.7%	94.0%	96.2%	95.0%
U.S National	93.9%	92.8%	92.7%	93.3%	93.7%

3+ Polio ~ ≥3 doses of any poliovirus (Polio) vaccine.
Trend: Overall, Polio coverage in Maine has remained relatively stable (above 90%). Since 2011, Polio vaccine coverage in Maine has met or exceeded the National coverage.

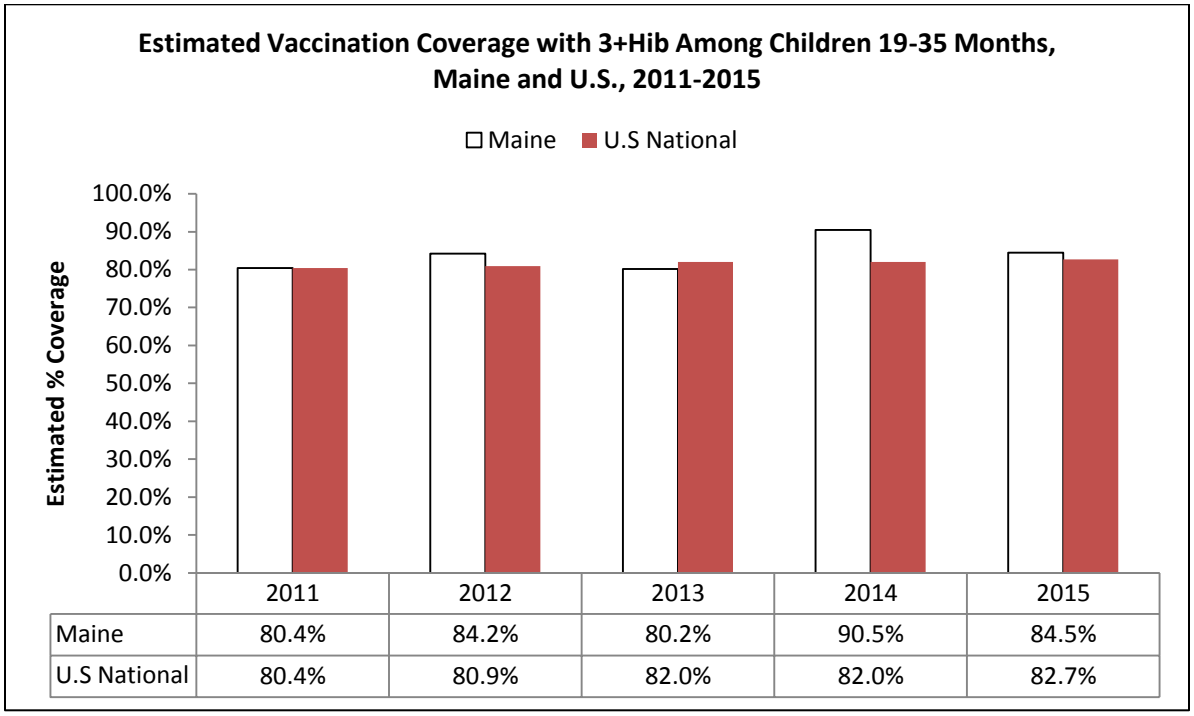
Figure 3: Children 19-35 Months 1+MMR Vaccine Coverage Estimate, Maine and U.S., 2011-2015



	2011	2012	2013	2014	2015
Maine	90.3%	91.2%	91.0%	97.2%	96.0%
U.S National	91.6%	90.8%	91.9%	91.5%	91.9%

1+MMR~ ≥1 dose of measles-mumps-rubella (MMR) vaccine.
Trend: Overall MMR coverage in Maine has remained relatively stable (above 90%) with a statistically significant increase in 2014.

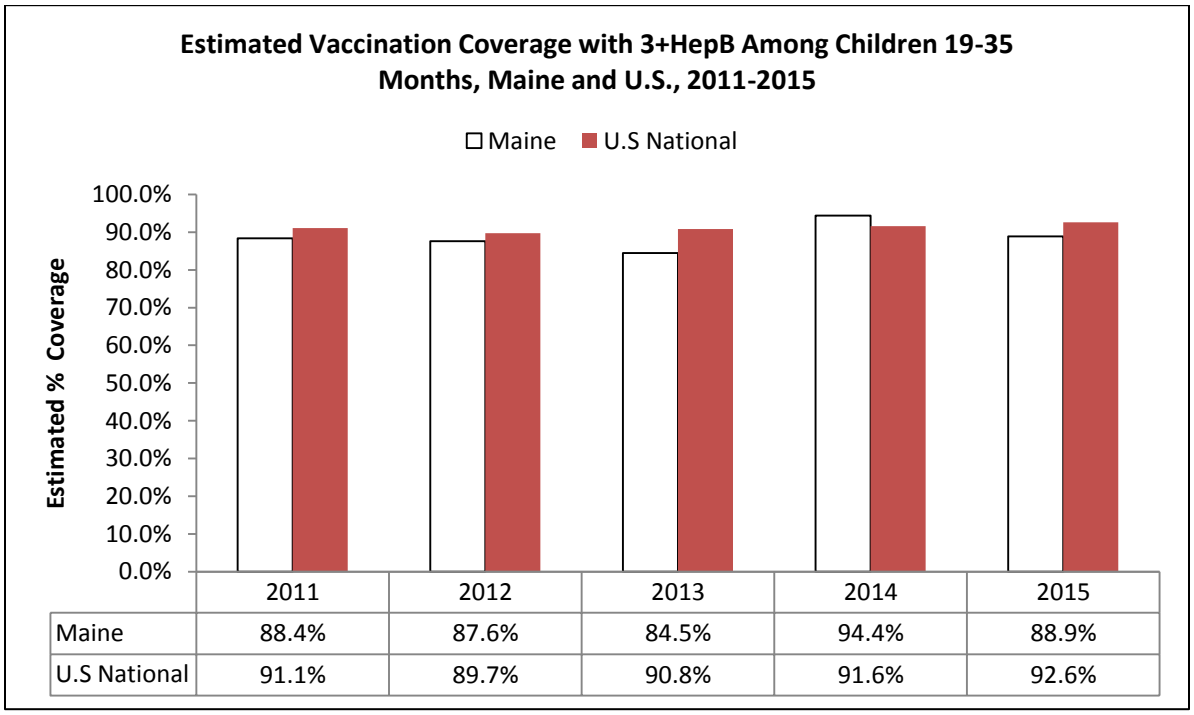
Figure 4: Children 19-35 Months 3+Hib Vaccine Coverage Estimate, Maine and U.S., 2011-2015



	2011	2012	2013	2014	2015
Maine	80.4%	84.2%	80.2%	90.5%	84.5%
U.S National	80.4%	80.9%	82.0%	82.0%	82.7%

3+Hib ~≥3 doses of Haemophilus influenzae type b (Hib) vaccine.
Trend: Overall, Hib vaccine coverage in Maine has remained relatively stable (above 80%) with a statistically significant increase in 2014.
Note: Hib vaccine is not part of the vaccine requirements for school children in Maine.

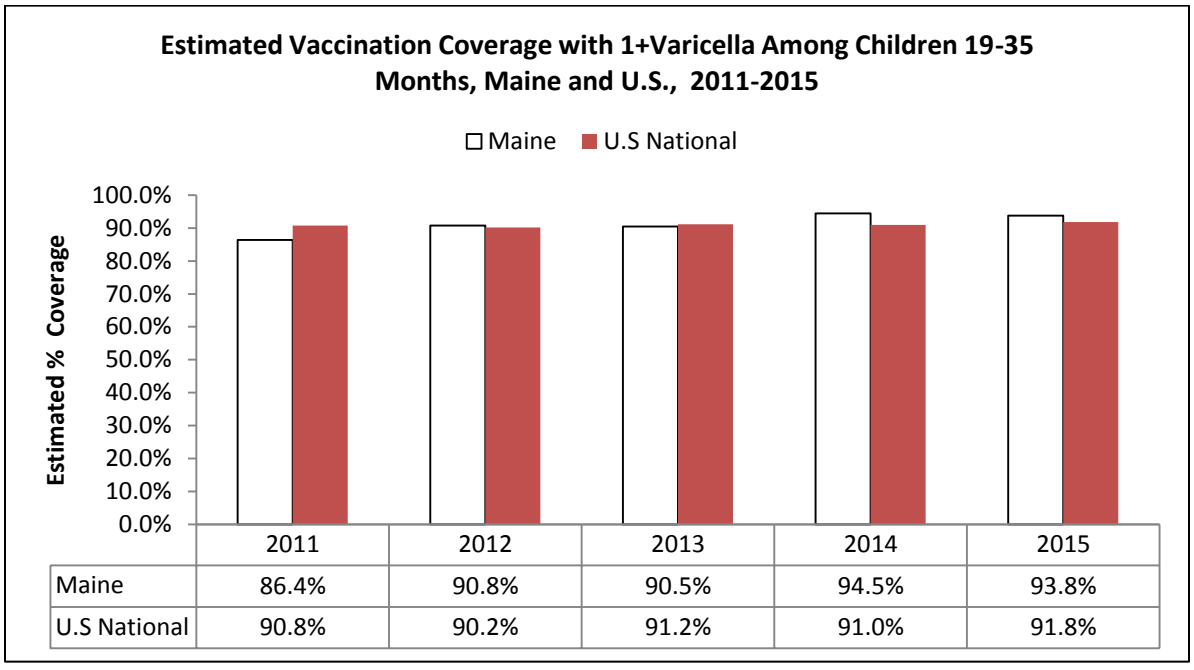
Figure 5: Children 19-35 Months 3+HepB Vaccine Coverage Estimate, Maine and U.S., 2011-2015



	2011	2012	2013	2014	2015
Maine	88.4%	87.6%	84.5%	94.4%	88.9%
U.S National	91.1%	89.7%	90.8%	91.6%	92.6%

3+ HepB ~ ≥3 doses of hepatitis B (HepB) vaccine.
Trend: Overall, HepB vaccine coverage in Maine has remained relatively stable (above 84%) with a statistically significant increase in 2014.
Note: HepB vaccine is not part of the vaccine requirements for school children in Maine.

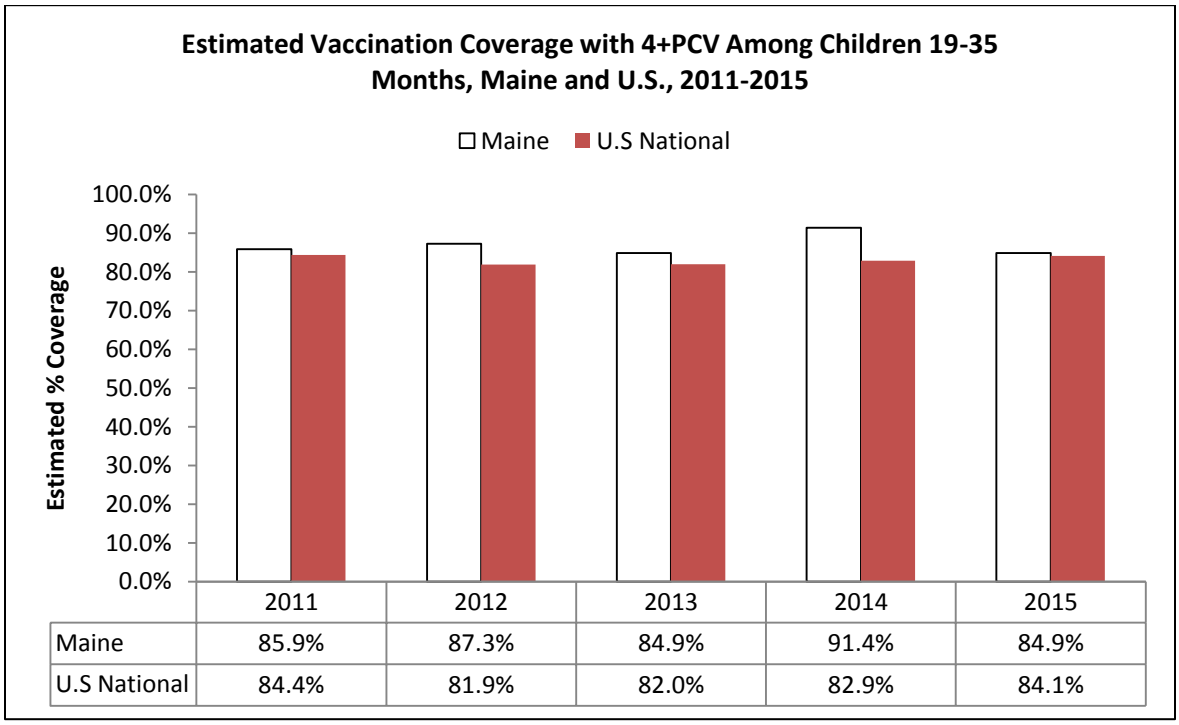
Figure 6: Children 19-35 Months 1+VAR Vaccine Coverage Estimate, Maine and U.S., 2011-2015



	2011	2012	2013	2014	2015
Maine	86.4%	90.8%	90.5%	94.5%	93.8%
U.S National	90.8%	90.2%	91.2%	91.0%	91.8%

1+Varicella ~ ≥ 1 dose of varicella (VAR) vaccine at or after child's first birthday, unadjusted for history of varicella disease (by parent/guardian report or provider records).
Trend: Overall, varicella vaccine coverage in Maine has remained relatively stable (above 85%) with a statistically significant increase in 2014.

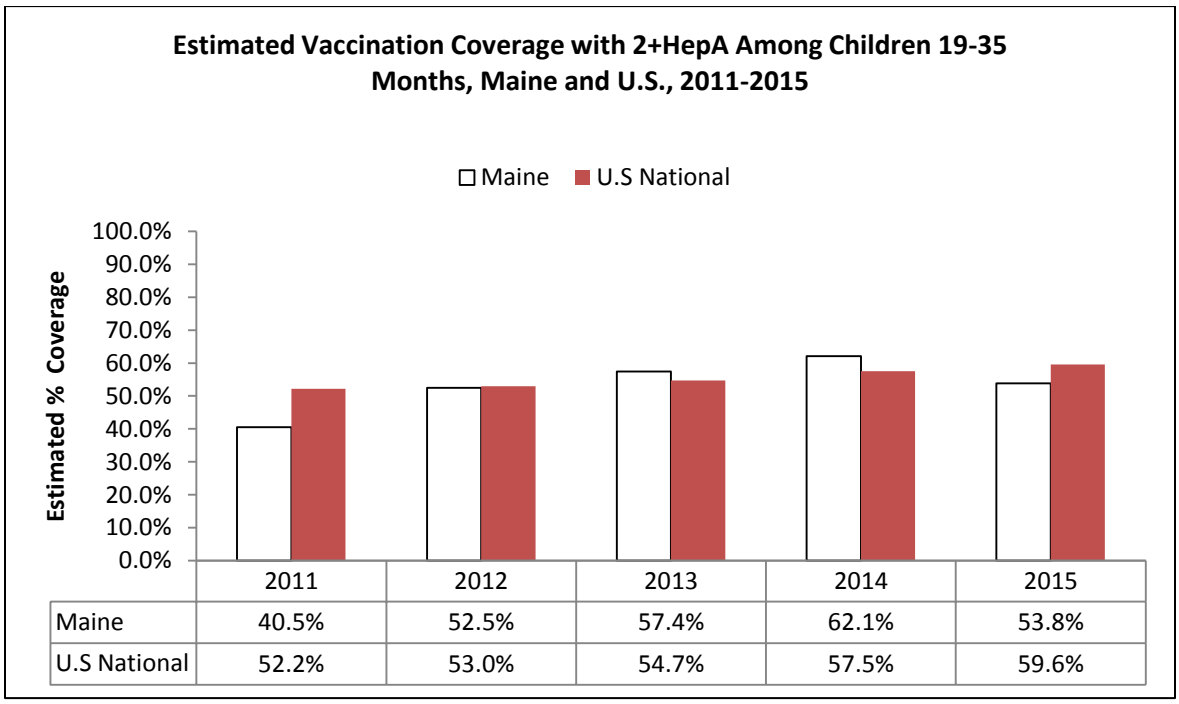
Figure 7: Children 19-35 Months 4+PCV Vaccine Coverage Estimate, Maine and U.S., 2011-2015



	2011	2012	2013	2014	2015
Maine	85.9%	87.3%	84.9%	91.4%	84.9%
U.S National	84.4%	81.9%	82.0%	82.9%	84.1%

4+PCV ~ ≥ 4 doses of pneumococcal conjugate vaccine (PCV).
Trend: Overall PCV vaccine coverage in Maine has remained relatively stable (above 80%) with a statistically significant increase in 2014. PCV vaccine coverage in Maine has been above national coverage since 2011.

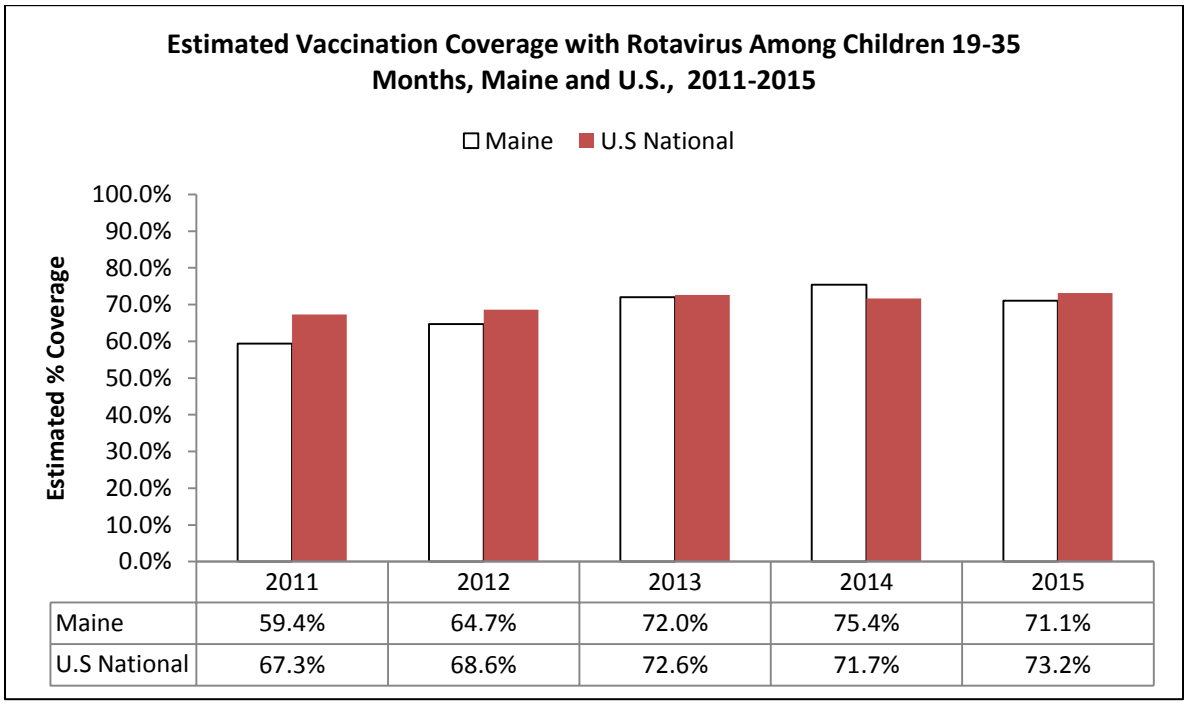
Figure 8: Children 19-35 Months 2+HepA Vaccine Coverage Estimate, Maine and U.S., 2011-2015



	2011	2012	2013	2014	2015
Maine	40.5%	52.5%	57.4%	62.1%	53.8%
U.S National	52.2%	53.0%	54.7%	57.5%	59.6%

2+HepA ~ ≥ 2 doses of hepatitis A (HepA) vaccine.
Trend: Overall, HepA vaccine coverage has remained relatively stable (above 50% since 2012) with a statistically significant increase in 2014.
Note: HepA vaccine is not part of the vaccine requirements for school children in Maine.

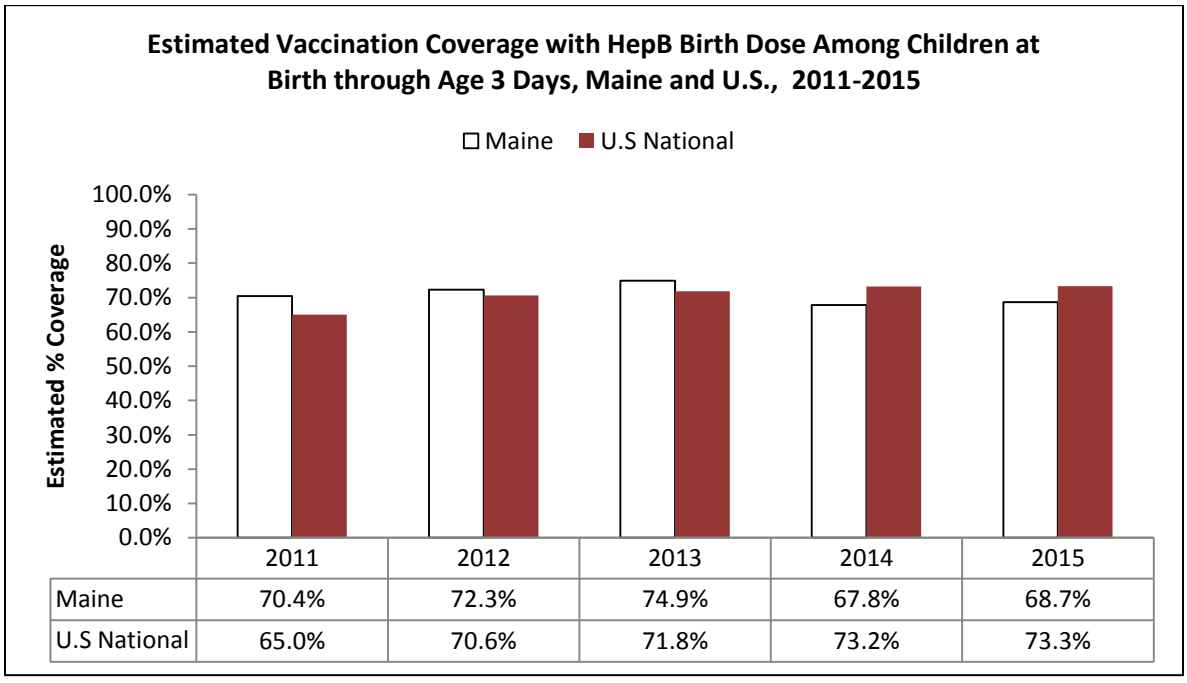
Figure 9: Children 19-35 Months Rotavirus Vaccine Coverage Estimate, Maine and U.S., 2011-2015



	2011	2012	2013	2014	2015
Maine	59.4%	64.7%	72.0%	75.4%	71.1%
U.S National	67.3%	68.6%	72.6%	71.7%	73.2%

Rotavirus ~≥2 or ≥3 doses of Rotavirus vaccine, depending on product type received (≥2 doses for Rotarix® [RVI] or ≥3 doses for RotaTeq® [RV5]).
Trend: Overall, Rotavirus vaccine coverage has increased with the highest coverage in 2014. Rotavirus vaccine coverage in Maine has consistently remained below National coverage with the exception of 2014.
Note: Rotavirus vaccine is not part of the vaccine requirements for school children in Maine.

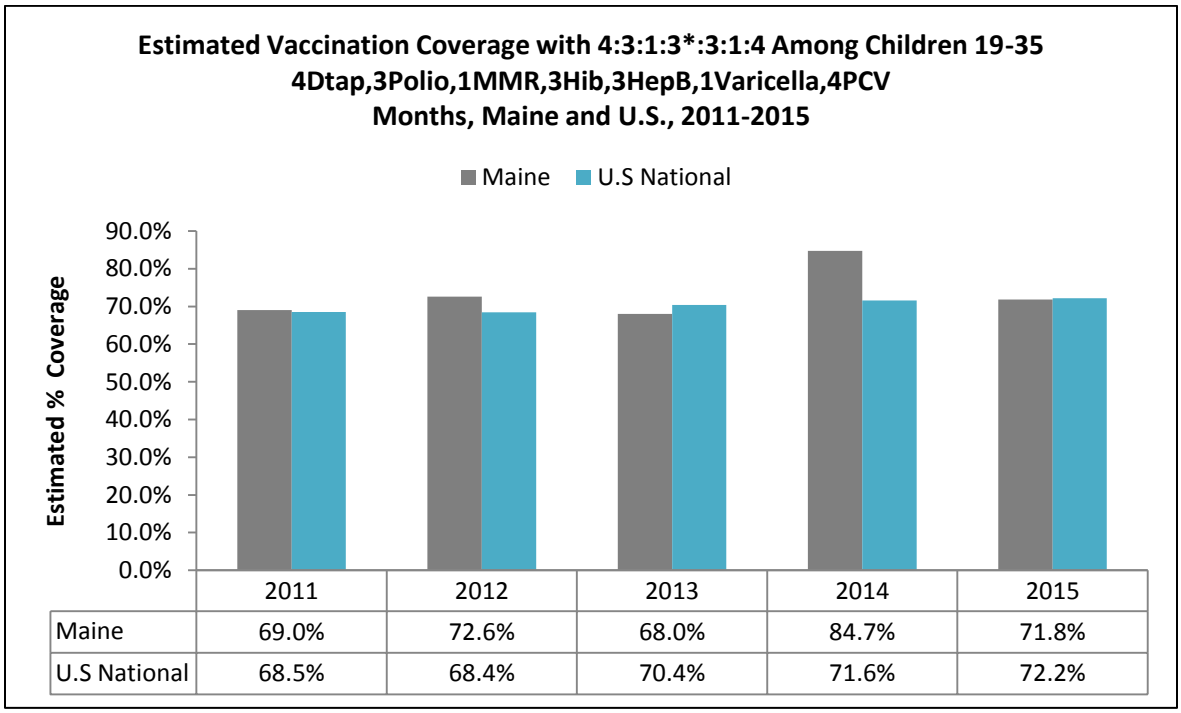
Figure 10: Hepatitis B Birth Dose Vaccine Coverage Estimate, Maine and U.S., 2011-2015



	2011	2012	2013	2014	2015
Maine	70.4%	72.3%	74.9%	67.8%	68.7%
U.S National	65.0%	70.6%	71.8%	73.2%	73.3%

Hepatitis B Birth Dose ~≥1 dose of Hepatitis B vaccine, administered from birth through age 3 days.
Trend: Overall, Hepatitis B vaccine coverage has remained relatively stable (over 65%).
Note: Hepatitis B vaccine is not part of the vaccine requirements for school children in Maine.

Figure 11: Children 19-35 Months 4:3:1:3:3:1:4 Vaccine Series Vaccine Coverage Estimate, Maine and U.S., 2011-2015



	2011	2012	2013	2014	2015
Maine	69.0%	72.6%	68.0%	84.7%	71.8%
U.S National	68.5%	68.4%	70.4%	71.6%	72.2%

4:3:1:3:3:1:4 antigen series ~ 4:3:1 plus ≥3 doses of Haemophilus influenzae (Hib) vaccine of any type, ≥3 doses of hepatitis B (HepB) vaccine, ≥1 dose of varicella (Var) vaccine, and ≥4 doses of pneumococcal conjugate vaccine (PCV).
Trend: Overall, 4:3:1:3:3:1:4 antigen series coverage in Maine increased over the five year period with a statistically significant increase in 2014.
Note: Hib and HepB vaccines are not part of the vaccine requirements for school children in Maine.

Table 1: Children 19-35 Months National Vaccine Coverage Estimate Ranking, Maine 2011-2015

National Vaccine Coverage Ranking for Maine Among Children 19-35 Months, 2011-2015					
Vaccine	**2011**	**2012**	**2013**	**2014**	**2015**
4+Dtap	5th	8th	10th	1st	1st
3+Polio	25th	15th	20th	8th	
1+MMR	36th	27th	30th	1st	3rd
3+Hib	34th	16th	29th	4th	
3+HepB	40st	43rd	51st	15th	
1+Var	46th	20th	30th	7th	
4+PCV	17th	6th	19th	1st	
2+HepA	49th	27th	20th	12th	44th
Rotavirus	43rd	37th	30th	20th	39th
HepB Birth Dose	36th	25th	40th	35th	41st
4:3:1:3:3:1:4	14th	12th	28th	1st	30th

Table 2: Children 19-35 Months New England Vaccine Coverage Estimate Ranking, Maine, 2015

New England Vaccine Coverage Ranking for Maine Among Children 19-35 Months, 2015						
Vaccine	**Connecticut**	**Maine**	**Massachusetts**	**New Hampshire**	**Rhode Island**	**Vermont**
4+Dtap	2nd	**1st**	6th	5th	3rd	4th
3+Polio						
1+MMR	1st	**2nd**	6th	5th	4th	3rd
3+Hib						
3+HepB						
1+Var						
4+PCV						
2+HepA	1st	**6th**	2nd	4th	3rd	5th
Rotavirus	4th	**6th**	2nd	3rd	1st	5th
HepB Birth Dose	1st	**5th**	2nd	4th	3rd	6th
4:3:1:3:3:1:4	1st	**6th**	2nd	5th	3rd	4th