# Childhood Immunizations

## DEFINITION

*Childhood immunizations* is the percentage of children ages 19 months to 35 months who have received the entire 4:3:1:3:3:1:4 series of vaccinations as recommended by the Advisory Committee on Immunization Practices. In 2016, the complete series included four doses of diphtheria, tetanus and pertussis (DTaP); three doses of polio; one dose of measles, mumps, rubella (MMR); three to four doses of Haemophilus influenzae type b (Hib); three doses of hepatitis B (HepB); one dose of varicella (chickenpox); and four doses of pneumococcal conjugate (PCV).

## SIGNIFICANCE

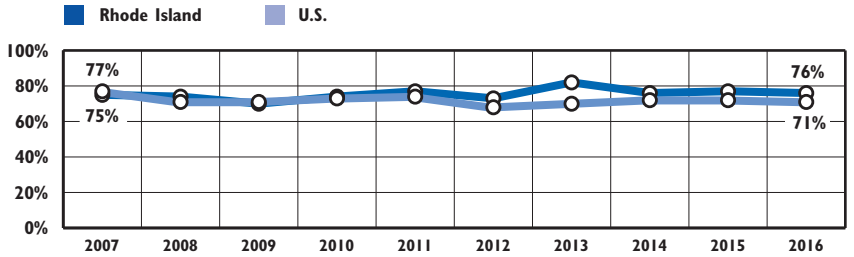
Timely and complete immunization protects children against a number of infectious diseases that were once common and resulted in death or disability. Vaccines interact with the immune system to produce antibodies that protect the body if it is later exposed to disease. The benefits of immunization include improved quality of life and productivity, reduced health spending, and prevention of illness and death. Society benefits from high vaccination levels because disease outbreaks are minimized. Although many of the diseases against which children are vaccinated are rare, it is important to continue to immunize against them until the diseases are completely eradicated.[1,2,3]

The federal *Vaccines for Children* program is used to eliminate cost as a barrier to vaccination. It allows states to obtain vaccines at a discounted price. Local providers then administer the vaccines at no cost to eligible children under age 19, including those who are uninsured, underinsured, or Medicaid-eligible.[4] Due to the federal *Affordable Care Act (ACA)*, children and individuals enrolled in new health insurance plans now have access to recommended vaccines without deductibles or copays, when delivered by an in-network provider.[5]

Rhode Island obtains vaccines for all children and distributes them to health care providers. In order to ensure that vaccines reach all children, the Rhode Island Department of Health works in partnership with local health care providers to maintain and share KIDSNET immunization data for children from birth to age 18.[6]

Rhode Island requires vaccination against the following diseases prior to entry into child care, preschool, Head Start, or Kindergarten: diphtheria, tetanus, and pertussis; Haemophilus influenza type b; hepatitis A; hepatitis B; influenza; measles, mumps, and rubella; pneumococcal conjugate; polio; rotavirus; and chickenpox. Kindergarten entry requires vaccinations for all of these diseases except hepatitis A, Haemophilus influenza type b, influenza, pneumococcal conjugate, and rotavirus.[7,8]

**Fully Immunized Children*, Ages 19 Months to 35 Months, Rhode Island and United States, 2007-2016**




**Fully immunized children received the 4:3:1:3:3:1 series from 2006 to 2007; the 4:3:1:0:3:1:4 series in 2008 to 2010; and the 4:3:1:3:3:1:4 series in 2011-2016.*

Source: Centers for Disease Control and Prevention, *National Immunization Survey*, 2007-2016.

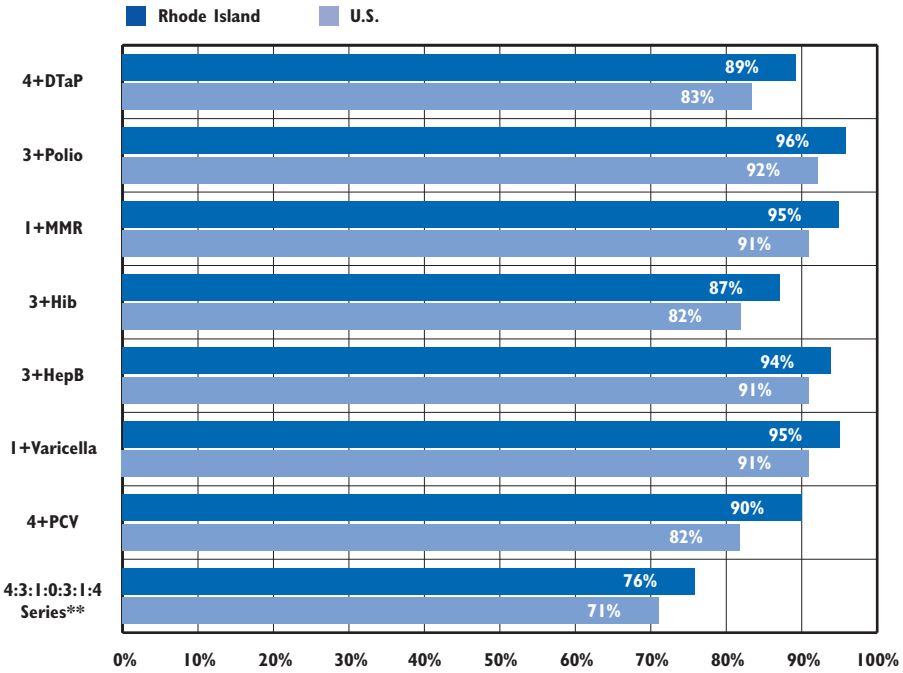
◆ **In 2016, Rhode Island's rate of children ages 19 months to 35 months that were fully immunized (76%) was above the national average of 71% and 14th best in U.S.[9]**

◆ **In 2016, the U.S. rate for fully immunized children ages 19 months to 35 months ranged from 66% for children living below the federal poverty level to 73% for children living at or above the federal poverty level. The 2016 U.S. rate was 72% for Asian, non-Hispanic children, 72% for White, non-Hispanic children, 71% for Hispanic children, and 64% for Black, non-Hispanic children.[10]**

◆ **Vaccine concerns have led some parents to request alternative vaccination schedules or to refuse some or all immunizations, which contribute to under-immunization.[11,12] Federal law requires that families be provided with information about each vaccine and given the opportunity to clarify issues or concerns with their health care provider.[13]**

◆ **In Rhode Island, children may be exempt from receiving one or more vaccines for medical or religious reasons.[14] In the 2016-2017 school year, 1.18% (129) of kindergarten students and 5.19% (599) of seventh grade students received exemptions from vaccination requirements. Of the 728 exemptions, 91% were for religious reasons and 9% were for medical reasons. Religious exemptions for seventh graders increased from 0.5% (60) in the 2014-2015 school year to 4.8% (553) in the 2016-2017 school year, mainly due to the addition of HPV vaccine to the seventh grade immunization requirements. Despite the increase in exemptions, the Rhode Island HPV vaccination rate for young adolescents is the best among 50 states and DC.[15,16]**

## Vaccination Coverage Among Children, Ages 19 Months to 35 Months, Rhode Island and United States, 2016




Source: Rhode Island Department of Health analysis of data from the *National Immunization Survey-Children*, 2016.
*Depending on the product type received, 3+ or 4+ doses of Hib vaccine is a full dose.

◆ In 2016, Rhode Island ranked first in the U.S. for the rotavirus vaccines; second in the U.S for the 4+PCV vaccine; third in the U.S. for 1+VAR vaccine; fifth in the U.S. for the 4+DTaP; sixth for 3+Polio, and twelfth for 3+HepB vaccines.[17]

◆ In 2016, Rhode Island's rate of completion for the 4:3:1:3:3:1:4 (76%) did not reach the national *Healthy People 2020* target (80%), but a number of individual vaccine coverage rates in Rhode Island did. Polio, MMR, HepB, and chickenpox had coverage rates that met or surpassed the *Healthy People 2020* targets (90%) set for each type of vaccine for children ages 19 months to 35 months.[18]

## Child and Adolescent Immunization

◆ The 2016-2017 *Rhode Island School Immunization Assessment* reported the immunization status of 98% of kindergarten students and more than 90% of seventh grade students. Of the immunizations needed for school entry, entering kindergarteners had coverage rates between 95% and 98%, while entering seventh grade students had rates between 74% and 99%.[19]

◆ The human papillomavirus (HPV), tetanus, diphtheria, pertussis (Tdap), and meningococcal conjugate (MCV) vaccines as well as any needed catch-up doses are required for all Rhode Island adolescent students before entering certain grade levels.[20]

◆ According to the 2016 *National Immunization Survey–Teen*, Rhode Island adolescents ranked first in the U.S. for the 1+MenACWY vaccine; first for the 1+HPV and 3+HPV vaccines for males and females; and second for the 1+Tdap vaccine. In 2016, 96% Rhode Island adolescents received the 1+MenACWY vaccine, 97% received the 2+MMR vaccine, 95% received the 1+Tdap vaccine, 94% received the 2+VAR vaccine, 95% received the 3+HepB vaccine, and 73% of females and 69% of males received the 3+HPV vaccine.[21]

◆ To ensure that all high school seniors are fully vaccinated before beginning college or work, the Rhode Island Office of Immunization runs the *Vaccinate Before You Graduate (VBYG)* program in high schools throughout the state. The program holds vaccination clinics at each participating school. The immunizations are offered at no cost to students.[22,23]

◆ During the 2016-2017 school year, 107 schools participated in *VBYG*. In total, 5,060 vaccine doses were administered to 2,433 students. Vaccines administered included influenza, HPV, MCV4, hepatitis A (HepA), hepatitis B (HepB), measles, mumps, and rubella (MMR), polio (IPV), tetanus, diphtheria, pertussis (Tdap), and varicella (chicken pox).[24]

◆ The School Located Vaccination (SLV) program administered over 25,932 doses of the influenza vaccine to both children and adults at school-based clinics throughout Rhode Island from October to December 2017. The goal of SLV is to ensure all Rhode Island children receive their annual flu vaccination with no out-of-pocket cost.[25]

### References

[1] Centers for Disease Control and Prevention. (2017). *Why are childhood vaccines so important?* Retrieved November 21, 2017, from www.cdc.gov

[2] *Immunization.* (2015). Washington, DC: Child Trends.

*(continued on page 178)*