

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 Series of vaccinations as recommended by the Advisory Committee on Immunization Practices (ACIP). The Series includes 4 doses of diphtheria, tetanus and pertussis (DTaP); 3 doses of polio; 1 dose of measles, mumps, rubella (MMR); 3 doses of Haemophilus influenzae type b (Hib); 3 doses of hepatitis B vaccines; and 1 dose of varicella (chickenpox).

SIGNIFICANCE

Adequate immunization protects children against a number of infectious diseases that were once common and resulted in death or disability.¹ Vaccines interact with the immune system to produce antibodies that protect the body if it is later exposed to disease.² Individuals benefit from immunization because it can improve quality of life and productivity and prevent illness and death. Society benefits from the creation and maintenance of community immunity, prevention of disease outbreaks and reduction of health-related costs.^{3,4} Although many of the diseases against which children are vaccinated are rare, it is important to continue to immunize them until the diseases are completely eradicated.⁵

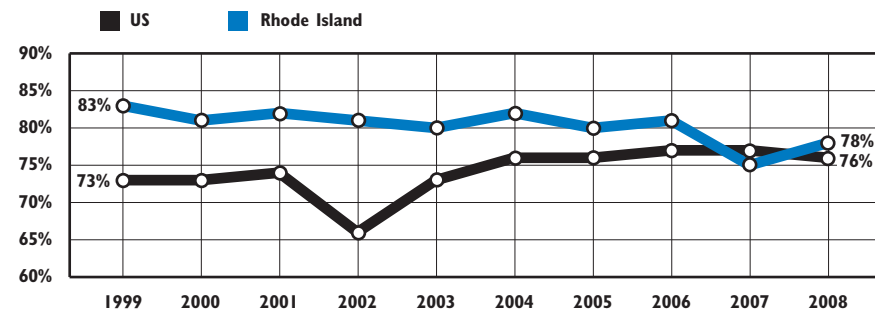
Vaccines are an extremely cost-

effective tool in preventing disease.

Every dollar spent on routine childhood immunization saves \$5 in direct costs and \$11 in additional societal costs.⁶ In order to eliminate cost as a barrier to vaccination, the federal Vaccines for Children program allows states to purchase vaccines at a discounted price. Providers then administer the vaccines at no cost to eligible children, including those who are uninsured, underinsured or Medicaid-eligible.⁷ Because of the rapidly rising cost of vaccines and the increasing complexity of vaccine administration, adequate financing for vaccine programs in the public and private sector has become an area of national policy concern.⁸

Rhode Island purchases 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 Rhode Island health care providers to maintain and share KIDSNET immunization data for children from birth to age 18.^{9,10} In accordance with national recommendations, Rhode Island requires vaccination against the following diseases prior to entry into child care, preschool, Head Start or kindergarten: diphtheria, tetanus, and pertussis (DTaP); hepatitis B; Haemophilus influenzae type b (Hib); measles, mumps, rubella (MMR); polio (IPV); varicella (chickenpox) and pneumococcal disease.¹¹

Fully Immunized Children*, Ages 19 Months to 35 Months, United States and Rhode Island, 1999-2008

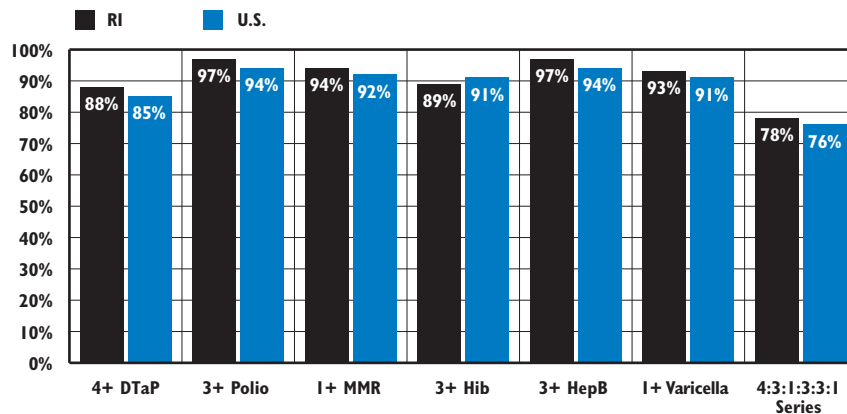


*Fully immunized children received the 4:3:1:3:3 series from 1999 to 2001 and the 4:3:1:3:3:1 series from 2002 to 2008.

Source: Centers for Disease Control and Prevention, National Immunization Survey, 1999-2008.

- ◆ Rhode Island's rate of fully immunized children ages 19 months to 35 months (77.5%) was higher than the national average (76.1%) in 2008.¹²
- ◆ In the U.S. in 2008, the 4:3:1:3:3:1 vaccination rate among children ages 19 months to 35 months was 82% for Asian children, 78% for Hispanic children, 77% for Native American children, 75% for White children and 73% for Black children.¹³
- ◆ Poverty remains a risk factor for under-immunization. In the U.S. in 2008, children living at or above the federal poverty level had a 78% immunization rate while children living below the poverty level had a 72% immunization rate.¹⁴
- ◆ Concerns about vaccine safety have resulted in some parents refusing to have their children vaccinated, contributing to the number of children who are under-immunized in the U.S.^{15,16} As required by the National Childhood Vaccine Injury Act, families must be provided with informational materials about each vaccine and given the opportunity to clarify issues or concerns with their healthcare provider.^{17,18}
- ◆ In 2008, there were 179 Rhode Island children who were exempt from receiving one or more vaccines for medical, religious, or personal reasons.¹⁹

Vaccination Coverage Among Children, Ages 19 Months to 35 Months, United States and Rhode Island, 2008



Source: Centers for Disease Control and Prevention, National Immunization Survey, 2008.

- ◆ Rhode Island ranks 15th in the nation for the completion of the full Series in 2008, an improvement from 38th in 2007.^{20,21}

Immunizations for Elementary and Middle School Students

- ◆ The 2008-2009 *Rhode Island School Immunization Assessment* (comprised of data collected directly from student health records) included an analysis of 2,751 randomly selected records from students at kindergarten entry (5-7 years of age) and at middle school entry (11-13 years of age) across 132 randomly selected public and private schools. Over 94% of entering kindergarteners were up-to-date on the five immunizations needed for school entry. More than 94% of entering middle school students had three of the four recommended immunizations.²²

References

^{1,4} Centers for Disease Control and Prevention. (n.d.). *How vaccines prevent disease*. Retrieved January 14, 2010 from www.cdc.gov

² Centers for Disease Control and Prevention. (2007). *Epidemiology and prevention of vaccine-preventable diseases, 10th ed.* Atkinson, W., Hamborsky, J., McIntyre, L. & Wolfe, S. (Eds.). Washington, DC: Public Health Foundation.

^{3,18} Centers for Disease Control and Prevention. (2006). General recommendations on immunization: Recommendations of the Advisory Committee on Immunization Practices (ACIP). *MMWR*, 55(RR-15), 1-48.

⁵ Centers for Disease Control and Prevention. (n.d.). *Why immunize? For parents*. Retrieved January 14, 2010 from www.cdc.gov

- ◆ State-level data for immunizations among adolescents ages 13 to 17 are available for the first time through the *National Immunization Survey–Teen*. In 2008, Rhode Island adolescents ranked best in the U.S. for four immunizations (3+HepB, 1+Varicella (chickenpox), 1+MCV4, and 1+HPV4), 2nd best for two immunizations (2+MMR and 1+Td/Tdap), and 27th for 1+Tdap. In 2008, more than 95% of Rhode Island adolescents had received the 2+MMR, the 3+HepB and the 1+Varicella vaccines, compared with rates below 90% in the U.S. as a whole.²³

- ◆ To ensure that all high school seniors are fully vaccinated before beginning college or work, the Rhode Island Immunization Program runs Vaccinate Before You Graduate (VBYG) in high schools throughout the state. The program informs parents and students of the importance of immunization and holds vaccination clinics throughout the year at each participating school. The immunizations are funded by the state's Vaccines for Children program and are offered at no cost to students.²⁴

- ◆ During the 2008-2009 school year, 72 schools participated in VBYG. Of the 1,676 students enrolled in the program, 98% received one or more immunizations and 86% completed all immunizations for which they were enrolled. The vaccines administered included Hepatitis B, MMR, Tdap, meningococcal (MCV4), varicella (chicken pox), polio, influenza, and the human papillomavirus vaccine (HPV).²⁵

⁶ Zhou, F, Santoli, J., Messonnier, M. L., Yusuf, H. R., Shefer, A., Chu, S. Y., Rodewald, L. & Harpaz, R. (2005). Economic evaluation of the 7-vaccine routine childhood immunization schedule in the United States, 2001. *Archives of Pediatrics & Adolescent Medicine*, 159, 1136-1144.

⁷ Centers for Disease Control and Prevention. (n.d.). *Vaccines for Children Program (VFC)*. Retrieved January 14, 2010 from www.cdc.gov

⁸ Birkhead, G. S., Orenstein, W. A. & Almqvist, J. R. (2009). Reducing financial barriers to vaccination in the United States: Call to action. *Pediatrics*, 124(5), s451-S454.

⁹ Rhode Island Department of Health. (n.d.). *Childhood immunization program*. Retrieved January 14, 2010 from www.health.ri.gov

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