

IMMUNIZATION ASSESSMENT

WHAT IS THE PUBLIC HEALTH ISSUE?

Assessment of vaccination coverage levels is a critical component of the national immunization program. A system that collects data about the structure, process and outcomes of the immunization program can identify groups of children, adolescents, and adults at risk of vaccine-preventable diseases, monitor racial and ethnic disparities in vaccine coverage, evaluate the effectiveness of programs designed to increase coverage levels, track uptake of new vaccines, assess differential impact of vaccine shortages, measure performance by various types of providers, and provide insight on sociodemographic and attitudinal factors associated with vaccination. This information is used by health care providers, program designers, policymakers, and parents to enhance current strategies and develop new strategies to improve protection of people of all ages against vaccine-preventable diseases.

With the recent additions of rotavirus and hepatitis A vaccines to the routine childhood vaccination schedule, there are vaccines recommended for children before two years of age to prevent fourteen vaccine-preventable diseases. Influenza vaccine is recommended for children from 6-59 months starting with the 2006-2007 season. Additional vaccinations are recommended at 4-6 years of age to boost immunity to previous doses, including recently a second dose of varicella vaccine; these vaccines are typically included in state school and child care center immunization requirements. Over the last two years, an historically unprecedented number of new vaccination recommendations for adolescents have been made. In 2005, ACIP recommended two vaccines for routine administration to adolescents: meningococcal conjugate vaccine (MCV4) and Tdap (tetanus, diphtheria, and acellular pertussis). In 2006, ACIP recommended routine vaccination with three doses of human papillomavirus (HPV) vaccine for girls aged 11-12 years. In addition, catch-up vaccination is recommended for females aged 13- 26 years, who have not been vaccinated previously or who have not completed the full vaccine series.

The addition of these new vaccine recommendations and subsequent expansion of the Vaccines for Children (VFC) program underscores the importance of having a system to monitor vaccination uptake in all age groups. A routine system for monitoring adolescent vaccination was not available prior to 2006. Systems to monitor vaccinations in adults need to be modified to include not only HPV catch-up vaccination in women aged 18-26 years, but also Tdap for adults up to 65 years of age and shingles vaccine for adults 60 years of age and older.

WHAT HAS CDC ACCOMPLISHED?

The National Immunization Survey (NIS) was established in 1994 and provides ongoing, consistent (comparable among geographic areas and over time) measures of national, state and selected urban area estimates of vaccination coverage levels among young children and adolescents in the United States. The NIS uses random-digit-dialing to identify households with age-eligible respondents. Respondents provide vaccination information as well as demographic and socioeconomic information. At the end of the interview, they are asked for permission to contact vaccination providers. For children and adolescents, providers are then contacted by mail to verify vaccinations. The large sample size supports estimation of vaccination levels among different groups, including different income levels, race/ethnicities, maternal educational levels, health insurance levels, provider facility types, and provider participation in the Vaccines for Children (VFC) program. The proportion of children eligible for the VFC program is also estimated by state and urban area. The data are used to evaluate progress of CDC-funded state and urban area immunization grant programs, determine annual need for the VFC entitlement program, which serves 40 percent of children under age 18, and to track progress toward Healthy People vaccination coverage goals.

In 2006, the NIS was expanded to include a national survey for children ages 13-17 years to assess vaccinations recommended at 11-12 years of age and catch-up vaccinations. The State and Local Area Integrated Telephone Surveys also uses the NIS sampling frame as an economical way to conduct other surveys of health in children and adults. To assess vaccination coverage in adults, CDC includes vaccination questions in the National Health Interview Survey (NHIS), the Behavioral Risk Factor

Surveillance System (BRFSS, for state-specific estimates), and the National Nursing Home Survey. The CDC provides technical assistance to state and local immunization program grantees on assessment of vaccination in schools, child care centers and other populations.

In 2006, CDC began to allow state immunization programs to designate a portion of their grant funding to include a city or other geographic area in the NIS sample of children aged 19-35 months. CDC is also working with U.S.-affiliated jurisdictions to conduct household cluster immunization surveys in children and adults. Findings from the NIS and other vaccine coverage assessment systems are annually posted on the CDC website and published in the MMWR. The NIS data set is also available to the public for further analysis. The CDC regularly publishes articles related to vaccine coverage assessment on a wide variety of topics. Operational research is also conducted to assess and improve validity and cost-efficiency of vaccine coverage assessment systems.

WHAT ARE THE NEXT STEPS

As new vaccines are added to the immunization schedule, CDC will continue working with other federal agencies, state and local health departments, and private and community partners to develop a comprehensive plan for monitoring vaccine uptake in all age groups. Studies to be conducted in 2007 include: a national immunization survey of adults; development of NIS modules to collect more detailed socioeconomic data and parental attitudes and concerns; evaluation of the dual use of NIS and Immunization Information Systems; and approaches for including households with cell phones in the NIS. New vaccine questions will be added to the NHIS in 2008. Options for expanding the annual national NIS-Teen survey to allow estimates by state and selected urban areas will be explored.

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