10 Population Assessment

Overview

Goals for immunization programs have been set on many levels and serve to keep programs focused and operating at their potential as well as to improve the health status of the population. Continual evaluation of national, state, and local immunization goals (in particular, Healthy People 2010 objectives) is necessary for managing effective immunization programs. At a minimum, grantees must report immunization assessment measures requested by the grantee Annual Progress Report. This enables managers to set objectives, plan strategies and direct limited program resources rationally and effectively.

Several sources of data are available for determining progress in various aspects of immunization. The National Immunization Survey (NIS) provides immunization coverage data on children ages 19–35 months for the 50 state and six city immunization grantees, and for other selected city/county areas. Starting in 2006 the NIS was expanded to assess adolescent vaccination with a national sample of children ages 13 to 17 years. An expansion of the NIS/Teen survey to provide grantee-level estimates is under consideration. The Behavioral Risk Factor Surveillance System (BRFSS) provides influenza and pneumococcal vaccination data for adults age 18 years and older for all 50 states, the District of Columbia, and Puerto Rico. Assessments of children entering school (kindergarten and middle school) and child care centers provide additional population data points, even though the ultimate purpose of these surveys is to assure compliance with state vaccination laws. Data collected for AFIX visits, and from immunization information systems (IIS) may also provide useful vaccination coverage data. Data from Medicaid, Medicare, and other health insurance plans may also be available.

Some states have recently added immunization entry requirements for middle school, junior high school, and high school grade levels. If these grades are surveyed, the resulting data may be useful to generate rough estimates of vaccine coverage among adolescents. Nationally, the validity of these estimates will increase as more states add middle school entry requirements.

The NIS, school and child care center–based surveys, and BRFSS provide measures of progress toward national and state-specific *Healthy People 2010* immunization objectives. Achieving and maintaining 90% coverage for each of the ACIP-recommended pediatric vaccines by the second birthday remains the highest priority nationally. However, substantial vaccine-preventable disease (VPD) morbidity is occurring in adolescent and adult populations. Also, the VFC program has been expanded to cover vaccines recently recommended for routine use in children ages 11-12 years (e.g., human papillomavirus vaccine; meningococcal conjugate vaccine; tetanus, diphtheria and acellular pertussis vaccine). Therefore, implementing programmatic interventions to increase immunization levels among adolescents and adults in high risk groups is important in order to reach the *Healthy People 2010* objectives for these groups.

Independent surveys conducted by state and local public health agencies may be beneficial to estimate coverage in smaller geographic areas or special subpopulations such as certain racial or ethnic minorities, Women, Infants, and Children (WIC) enrollees, adolescents, healthcare

workers, adults aged 65 years and older, and persons with medical conditions that put them at high risk for VPDs for whom ACIP recommends vaccination. Independent surveys can also be used for comparison to NIS, BRFSS, and IIS data. In addition to estimating coverage directly, programs can identify geographic areas with low vaccination coverage by examining sociodemographic factors known to be associated with under-immunization. Factors such as poverty, large family size, and low maternal educational achievement often are associated with low vaccination coverage.

References

- NIS reports are available at http://www.cdc.gov/nis/reports.htm. Reports are also published periodically in the Morbidity and Mortality Weekly Report (MMWR). NIS public use data sets can be obtained at http://www.cdc.gov/nis/datafiles.htm.
- BRFSS information and data are available at http://www.cdc.gov/brfss/.
- Data from the Centers for Medicare and Medicaid Services (CMS) Minimum Data Set for long term care facilities are available at http://www.medicare.gov/NHCompare/Home.asp
- US Department of Health and Human Services. Healthy People 2010. 2nd edition. With understanding and improving health and objectives for improving health (2 vols). Washington, DC: US Government Printing Office, 2000.
- Healthy People 2010 Midcourse Review: http://www.healthypeople.gov/data/midcourse/html/focusareas/FA14TOC.htm
- Technical Support for conducting school and child care center immunization surveys are available at http://www.cdc.gov/nip/coverage/schoolsurv/overview.htm.
- Childcare and School Immunization Requirements 2005-2006. Immunization Services Division, National Center for Immunization and Respiratory Diseases, Centers for Disease Control and Prevention. April, 2007.
- 2008-2012 Immunization Program Operations Manual (IPOM) Chapters 1, 3, 6, and 7

Program Requirements

10.1 Identify and monitor groups of under-immunized children, adolescents, and adults at higher risk for VPDs using immunization coverage estimates (e.g., NIS data, retrospective analysis of school immunization surveys, provider coverage assessments, IIS data, Medicare billing data, BRFSS, and cluster surveys).

Required activities

10.1a. Pre-school Children (children aged <5 years)

- Annually review trends in vaccination coverage for individual vaccines and vaccine series from the NIS.
- Consider at least one other data source to annually identify trends in coverage and subgroups of under-immunized children (e.g., retrospective analysis of school vaccination surveys to assess coverage at age 2 years, provider coverage assessments, IIS, Medicaid billing data, conduct household cluster survey, conduct cohort follow-up study using birth certificates or IIS population as the sampling frame; request use of grant funds for NIS oversampling of specific

geographic areas within your jurisdiction). Ask your project officer for help in obtaining technical support for these kinds of projects.

10.1b. School-aged Children

- See 10.2

10.1c. Adolescents/Teenagers

- Consider at least one data source to monitor trends in coverage and subsets of under-immunized adolescents and teenagers (e.g., analysis of middle school vaccination surveys, provider coverage assessments, juvenile detention centers, STD clinics, IIS, Medicaid billing data, conduct household cluster survey, conduct cohort follow-up study using IIS population as the sampling frame).

10.1d. Adults

- Annually review trends in influenza and pneumococcal vaccination coverage from the BRFSS, in adults aged ≥65 years, adults ages 50-64 years, and adults aged <65 years with selected high risk conditions (e.g., asthma, diabetes, heart disease, pregnancy).
- Develop and maintain a relationship with the state BRFSS coordinator, provide feedback to the BRFSS coordinator and to CDC on CDC-proposed vaccination-related modules, and discuss how to implement BRFSS enhancements with the BRFSS coordinator (e.g., use of optional modules, state-added questions, and oversampling in an area of interest).
- At least annually, review measures of influenza and pneumococcal vaccination for long-term care facilities in your jurisdictions, using results from the Minimum Data Set (MDS) available online or from tables provided by the CDC. Work with the Centers for Medicare and Medicaid Services (CMS) Quality Improvement Organization (QIO) serving your jurisdiction to identify and follow-up with facilities having low vaccination rates.

  Performance Measure: Percentage of children, adolescents, non-institutionalized adults, or institutionalized adults who have received specific vaccines or vaccine series, as specified by Healthy People 2010 objectives.
  Target: As specified by Healthy People 2010 objectives

<u>Recommended activities</u>

10.1e. Pre-school Children (children aged <5 years)

- Consider proposals to sample areas of interest in the NIS. At least two months prior to submitting the grant application, the CDC will need to assess the feasibility of the area proposed for NIS sampling and provide a cost estimate.
- Consider pooling several years of NIS public use files to assess coverage in sociodemographic subgroups of interest within your jurisdiction.
- Estimate program-wide immunization coverage of children who turn age 2 years during a 1-year period, using a CDC-approved follow-back survey method (e.g., school retrospective survey collecting dates of vaccination, sampling based on birth certificates or children in an IIS).

- Assess coverage rates among WIC, Medicaid and State Children's Health Insurance Program (SCHIP) populations.
- Use existing coverage data and vaccine purchase information to monitor uptake of new and recently introduced vaccines, and take steps necessary to increase uptake within the context of the total immunization program.
- Routinely obtain immunization coverage reports from managed care organizations (Medicaid and commercial) for age 2 years.
- Use census data at the zip code or county level to identify geographic regions within your jurisdiction likely to have low vaccination coverage.
- Measure immunization coverage and sociologic factors associated with non-immunization, using a community-based household cluster survey or telephone survey with a provider record check component. Cluster and telephone surveys are resource intensive and should be undertaken only in response to critical need (e.g., low or persistent declines in other indicators of immunization coverage; household cluster survey in areas without adequate telephone coverage).
- Consider use of provider-based data collected for AFIX to assess coverage or identify under-immunized areas or population subgroups. Work with your CDC project officer to get support in selecting a representative sample for this project.

10.1f. School-aged Children

- See 10.2

10.1g. Adolescents/Teenagers

- Conduct a survey to determine the number of colleges and universities that require entering students to have MMR2, hepatitis B series, a Tdap booster, varicella vaccine, and meningococcal vaccine, and the number that offer HPV vaccine.
- Routinely obtain immunization coverage reports from managed care organizations (Medicaid and commercial) for children ages 13-18 years

10.1h. Adults

- Consider use of CDC-sponsored optional modules (e.g., place where influenza vaccination received, month and year of most recent flu shot, high risk and healthcare worker status) on the BRFSS.
- Consider including state-added questions of local interest to the BRFSS.
- Consider oversampling in an area of interest using the BRFSS.
- Consider surveys of long term care facilities to assess influenza vaccination of workers.
- Consider surveys of healthcare facilities to assess influenza vaccination of workers.
- Consider surveys of child care centers to assess influenza vaccination of workers.
- Assess hepatitis B and HPV coverage rates at STD, HIV, correctional and other clinics, and facilities serving high risk populations.
- Assess hepatitis B coverage rates among at-risk immigrant Asian-Pacific populations as appropriate.

- Conduct a survey to determine the number of colleges and universities that require entering students to have MMR2, hepatitis B series, a Tdap booster, varicella vaccine and meningococcal vaccine.
- Measure influenza vaccination coverage among women who were pregnant during the influenza season, using data on currently pregnant women from BRFSS, managed care databases, or WIC participants. In states participating in the Pregnancy Risk Assessment Monitoring System (PRAMS), work with the state PRAMS coordinator to include standard, CDC-developed influenza vaccination questions on the survey.
- Routinely obtain immunization coverage reports from managed care organizations (Medicaid and commercial) for adults aged ≥65 years, and/or high risk subpopulations (e.g., persons with diabetes or chronic pulmonary diseases).

10.2 Use a CDC-approved survey methodology to annually estimate program-wide immunization coverage and exemption rates among children entering kindergarten; report data and assessment methods to CDC annually by April 30. These data will be used to monitor progress toward Healthy People objective 14.23, and will be available annually on CDC's website and published periodically in the MMWR. Refer to "School and Child Care Center Assessments: Instructions for Data Collection and Reporting" and "Requirements for Using CDC Sampling Program" supporting documents at the end of this chapter.

Required activities

10.2a. Kindergarten Assessments

- Assess vaccination status of each child on the day of entry into kindergarten. Use an approved survey methodology by following the procedure described in the guidance at the end of this chapter or by consulting with CDC staff for acceptable alternatives. If you are sampling rather than doing a census, use an approved sampling technique or ask for CDC to draw your sample. Submit your report each year by the deadline--April 30.
  Performance measure: Percentage of children entering school who have received all recommended vaccines
  Target: At least 95% of all children entering kindergarten are up-to-date

Recommended activities

10.2b. Middle School Assessments

- Assess vaccination status of each child on the day of entry into middle school. Use an approved survey methodology. If you are sampling rather than doing a census, use an approved sampling technique or ask for CDC to draw your sample. Submit your report each year by April 30.
  Performance measure: Percentage of children entering school who have received all recommended vaccines
  Target: At least 95% of children entering middle school are up-to-date

10.2c. Child Care Center Assessments

- Assess vaccination status of each child on the day of the assessment. Use an approved survey methodology. If you are sampling rather than doing a census, use an approved sampling technique or ask for CDC to draw your sample. Submit your report each year by April 30.
  Performance measure: Percentage of child care facility enrollees who are age-appropriately immunized
  Target: >95% are up-to-date

10.2d. School and Child Care Center Assessments - Other

- Consider validating the completeness of immunization records from schools by confirming the immunization status of a subset of the schools and children within each school by comparing immunization histories held at the school with immunization histories at the child's medical provider.
- For areas where IIS are available, consider integrating school and child care center vaccination data with the IIS.

10.3 Monitor changes to state immunization requirements for child care centers and schools. Include updated information on state immunization requirements as part of the annual report to CDC on school data and assessment methods. This information will be available annually on CDC's website and published periodically.

Required activities

10.3a. Complete the section of the annual report that deals with state immunization requirements. Ensure that the information on state requirements is updated annually. This report is due by April 30 each year.

10.4 Additional Activities

Recommended activities

10.4a. Conduct a retrospective analysis. Expand your assessment data collection for a portion of your sample to include vaccination dates. Analyze the data to determine the vaccination status of kindergarten children when they were age 2 years.

School and Child Care Center Assessments
Instructions for Data Collection and Reporting

The annual school coverage report should include kindergarten. Inclusion of middle school and child care center data is recommended but not required.

Monitoring vaccinations. Monitor vaccines based on ACIP recommendations, not just state law. If an ACIP-recommended vaccine is not required in your state but it is recorded in the vaccination record at the school, monitor and report on that vaccine. For example, if your state does not require a vaccination for mumps but the record notes that the child received MMR, monitor and report on mumps coverage in your state based on the MMR coverage.

- In your annual report, you will be asked to report coverage based on ACIP recommendations. For example, 3+ polio vaccinations are required for children aged 19 months and older. You need to monitor and count 3+ polio as up-to-date (UTD) and less than that as not UTD.
- For child care center children aged 19 months and older, UTD will consist of the following:
    - 4+ Diphtheria
    - 4+ Tetanus
    - 4+ Pertussis
    - 3+ Polio
    - 1 Measles
    - 1 Mumps
    - 1 Rubella
    - 3+ Hib
    - 3+ HepB
    - 1+ Varicella
    - 4+ PCV

  *Grantees have 2 years from the date of changes in dosing recommendations to adjust their assessment practices to reflect the change.
  For child care center children aged 19 months and younger, UTD status should be calculated based on age.
- For kindergarten, UTD will consist of the following:
    - 4+ Diphtheria
    - 4+ Tetanus
    - 4+ Pertussis
    - 3+ Polio
    - 1 Measles
    - 1 Mumps
    - 1 Rubella
    - 2nd MMR or 2nd dose measles
    - 3+ HepB
    - 2 Varicella
    - 4+ PCV

  *Grantees have 2 years from the date of changes in dosing recommendations to adjust their assessment practices to reflect the change.

- For middle school, UTD will consist of the following:
  - Tdap/Td
  - 3 HepB
  - 2 MMR
  - 1+ Varicella (2 Varicella in 2008*)
  - 1 Meningococcal Conjugate Vaccine

  *Grantees have 2 years from the date of changes in dosing recommendations to adjust their assessment practices to reflect the change.

Timing of the assessment of immunization status. You can do your assessment any time before the due date (April 30); however, the data that you report should be based on the child's immunization status at school entry for kindergarten and middle school. The data for child care centers should reflect immunization status at the time of the assessment.

Data collection:

- Collect information on the number of doses of each vaccine received, not merely on UTD status as defined by state law or regulation. If this has not been your policy in the past, CDC will assist you in developing a new methodology that will work within the available resources.
- For validation audits and for follow-up with children not UTD, dates of vaccination should be collected if possible.
- Data for kindergarten and middle school should reflect vaccination status **at entry** and before follow-up by health departments. This will provide assessment of coverage at entry and a baseline for evaluation of follow-up efforts.
- The Family Educational Rights and Privacy Act (FERPA) (20 USC §1232g, 34 CFR Part 99) is a federal law that protects the privacy of school education records. With very limited exceptions, FERPA requires written parental consent (or the consent of an adult aged 18 years or older or attending an institution of postsecondary education) for the disclosure of any personally identifiable information from the education record. The law applies to all schools that receive U.S. Department of Education funds. Immunization information is considered part of the education record.
  - Unless the disclosure falls under one of the specified exceptions, signed and dated written consent must: (1) specify the records that may be disclosed; (2) state the purpose of the disclosure; and (3) identify the party or class of party to whom the disclosure may be made. (34 CFR 99.30)
  - More information on FERPA is available on the U.S. Department of Education website at http://www.ed.gov/policy/gen/guid/fpco/ferpa/index.html
- Since FERPA generally requires consent for the disclosure of identifiable information from the education record, there are two options for compliance:
  - Obtain written consent: Develop a FERPA compliant consent form that includes the information specified above. Discuss the logistics for obtaining consent with the school and develop a mutually acceptable plan. Note that consent is only required when obtaining personally identifiable information; it is not required for aggregate data.
  - Obtain information that does not identify an individual: Ask the school to remove any information that would identify a specific child before public health has

access to the record. Until we receive more guidance from the U.S. Department of Education, CDC recommends requesting that only the child's month and year of birth and immunization history be shared. If the Department of Education provides additional guidance on this issue, grantees will be notified, and the information will be incorporated in the revised IPOM. For validation audits that assess age-appropriateness and valid spacing of vaccine doses, or include follow-up for children in need of additional vaccinations, the month, day and year of birth would be needed for the most accurate assessment.

Report Scope. Report the scope of the survey for all grade levels—preschool, kindergarten, middle school. That will include:

- Type of sample
- Types of schools surveyed

- Report on the details of the data collection
  - Who collected the data?
  - Is the child care center/school immunization record signed by a provider (doctor, nurse, clinic, health department, physician's assistant)?
  - How many child care centers/kindergartens and middle schools are in the state?
  - How many of the child care centers/schools did you survey?
  - How many children in child care centers/kindergartens and middle schools did you survey?
  - How many children did not have immunization records?
  - How many children were excluded from child care centers, kindergartens and middle schools because they were not UTD?
  - How many children had medical, religious, philosophical, or temporary exemptions?
  - Is each child care center, kindergarten, and middle school immunization record signed by a provider (doctor, nurse, physician's assistant, clinic or health department)?
- Report on coverage of new ACIP recommendations
  - 2 years after a recommendation is added, coverage on the new vaccine will be required for your report to CDC.

Requirements for Using CDC Sampling Program

If you would like CDC to help you select a two-stage sample (random sample of schools/child care centers, random sample of children within the schools), we need the following information from you:

- What is your estimated coverage rate for the vaccine that you think has the lowest coverage? Use the results of previous surveys to estimate this coverage.

- How precise do you want your coverage estimate to be? Many states select ±5%, but you can choose ±7% or ±10%. The more precision you want, the larger your sample will need to be.

- How many records do you want to review (or have reviewed by trained staff) in each school? The recommended number is 30 (or all students if the class size is less than 30).

- We need you to send us an Excel file with the school/facility name and estimated enrollment or capacity. Include in that file anything you would like to have in the electronic report to you. For instance, you might like the school address, contact, or phone number to be in the final report.