



# Immunization and Infectious Diseases

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## PROGRESS REVIEW



Acting Assistant Secretary for Health Cristina Beato chaired a focus area Progress Review on Immunization and Infectious Diseases, the 12th in a series of assessments of *Healthy People 2010*. Dr. Beato noted that success in this area requires an unusually close collaboration among the fields of science, research, surveillance, information management, workforce training, education, and communication. Just as important, achieving such success involves partnerships between the public and private sectors, which must be prepared to confront global issues that affect the ability to control the spread of certain illnesses. In conducting the review, Dr. Beato was assisted by staff of the Centers for Disease Control and Prevention (CDC), which has the lead for this *Healthy People 2010* focus area. Also participating were representatives of other offices and agencies within the Department of Health and Human Services.

The complete text for the Immunization and Infectious Diseases focus area of *Healthy People 2010* is available at [www.healthypeople.gov/document/html/volume1/14immunization.htm](http://www.healthypeople.gov/document/html/volume1/14immunization.htm). The meeting agenda, data presentation (tables and charts), and other briefing materials for the Progress Review can be found at [www.cdc.gov/nchs/about/otheract/hpdata2010/fa14/immun.htm](http://www.cdc.gov/nchs/about/otheract/hpdata2010/fa14/immun.htm).

### Data Trends

In opening his presentation on the status of objectives for Immunization and Infectious Diseases, Edward Sondik, Director of CDC's National Center for Health Statistics, remarked that this focus area presents a highly positive picture overall, with notable progress toward many of the targets. Some of the lessons learned from successful strategies here could very likely be applied to good effect in other focus areas. An indication of the success of immunization efforts is preliminary data for 2002 that show record lows in morbidity for five of nine vaccine-preventable diseases—measles, mumps, polio (0 cases), rubella, and tetanus (Obj. 14-1).

In 2002, the 2010 target of 90 percent coverage levels was met or surpassed for four of seven recommended vaccinations of children aged 19 to 35 months—*Haemophilus influenzae* type b (Hib), hepatitis B, measles-

mumps-rubella (MMR), and polio. Coverage for pneumococcal conjugate vaccinations (for which no target has been determined) showed a dramatic improvement in 2002 (Obj. 14-22). In general, rates of vaccination coverage for this age group advanced at a rapid pace over the past few years, and disparities among population groups narrowed substantially. In contrast, efforts to increase vaccination coverage rates for older people have been less successful on the whole. In 2002, an estimated 66 percent of adults 65 years of age and older had been vaccinated against influenza during the preceding 12 months, compared with 64 percent in 1998. The target is 90 percent coverage (Obj. 14-29a). Preliminary data for 2002 show that 56 percent of adults 65 years of age and older had at some time received pneumococcal vaccine, compared with 46 percent in 1998 (target, 90 percent). Whereas coverage rates for whites and blacks have risen in

every year since 1998, rates for Asians and Hispanics have fallen during the first years of this decade (Obj. 14-29b).

The incidence of hepatitis A decreased from 11.2 new cases per 100,000 in 1997 to 2.9 per 100,000 (preliminary data) in 2002, surpassing the target of 4.5 (Obj. 14-6). This remarkable decline was spurred by the licensure of a new vaccine in 1995 and the issuance of revised recommendations by the Advisory Committee on Immunization Practices in 1996 and 1999. Hepatitis B incidence among people aged 19 to 39 years decreased from an estimated 44.5 new cases per 100,000 in 1990 to 13.94 per 100,000 in 2002, while among people aged 40 and older, the rate decreased from 21.1 to 12.6 per 100,000 in the same timeframe (Obj. 14-3). Among people younger than 19 years of age, the incidence declined from 18.6 per 100,000 in 1990 to 1.5 in 2002, reflecting a particularly sharp downturn in the years from 1998 onward. Among five racial/ethnic groups for whom data were available, hepatitis B incidence in 2001 was highest for

blacks (more than 20 cases per 100,000 in all three age groups) and second highest for American Indians/Alaska Natives (more than 15 per 100,000 in the three age groups).

Between 1998 and 2001, the incidence of new tuberculosis (TB) cases in the total population decreased from 6.8 to 5.8 per 100,000, a decline of 15 percent. The target is 1.0 case per 100,000 (Obj. 14-11). Of the five racial/ethnic groups, incidence was highest for Asians and Pacific Islanders—34.9 per 100,000 in 1998, declining by 12 percent to 30.8 per 100,000 in 2001. During that period, the incidence declined by 20 percent for blacks (second highest)—from 17.4 to 13.7 per 100,000. Whites as a group came closest to the target in 2001, with an incidence of 1.7 per 100,000, a decline of 26 percent from 2.3 per 100,000 in 1998. The proportion of TB patients who complete curative therapy within 12 months increased from 74.0 percent in 1996 to 79.9 percent in 1999. All five racial/ethnic groups were within 3 percentage points of the national proportion. The target is 90 percent (Obj. 14-12).

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## Key Challenges and Current Strategies

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In the presentations that followed the discussion of data, the main themes were introduced by senior CDC staff members Walter Orenstein (immunization), Stephen Ostroff (infectious diseases), and Kenneth Castro (tuberculosis). Participants in the review identified a number of obstacles to achieving the objectives and outlined activities under way to meet these challenges, including the following:

- **Resource Issues.** In general, the closer the approach to elimination of an infectious disease, the more difficult it becomes to take the incremental final steps toward the goal. Application of cost-effectiveness principles at that stage of diminishing returns is misguided and can be self-defeating. For example, when adjusted for inflation, Federal funds appropriated for TB control

programs have decreased in almost every year since the mid-1990s, partly as a result of the relative success of those efforts.

- Because of their low visibility in the public eye, longstanding endemic infectious diseases face inherent difficulty competing for funds and other resources with more dramatic recent arrivals, such as SARS and West Nile virus.
- Preparation of action and contingency plans in advance of infectious disease crises has helped the legislative branch to appropriate funds quickly when these events occur.
- Childhood immunization is ranked topmost among 30 preventive clinical services recommended by the U.S. Preventive Services Task

Force in its *Guide to Clinical Preventive Services*. The procedure is estimated to produce direct savings of \$10.5 billion and overall savings to society of \$42 billion.

- **Outreach Issues.** Factors that depress levels of vaccination coverage in adults include misinformation about the efficacy of influenza vaccinations and ignorance of the existence of vaccine against pneumococcal disease. Blacks and Hispanics have significantly lower rates of immunization for influenza and pneumococcal disease than other racial/ethnic population groups.
- The Racial and Ethnic Adult Disparities Immunization Initiative (READII) is a 2-year demonstration project being conducted by CDC in four cities and the Mississippi Delta region to improve influenza and pneumococcal vaccination rates for blacks and Hispanics 65 years of age and older.
- CDC has several campaigns under way to address issues of antibiotic use and resistance:
  - *Get Smart: Know When Antibiotics Work* is a national advertising campaign aimed at instructing parents against the overuse of antibiotics when treating colds and flu in their children.
  - *The Campaign to Promote the Appropriate Use of Antibiotics* develops strategies and materials that will lead to changes in antibiotic use and encourage formation of partnerships to harness the resources of collaborating organizations.
  - *The Campaign to Prevent Antimicrobial Resistance* promotes strategies to reduce antimicrobial use among a variety of inpatient populations and focuses on four goals—prevention of infection, effective diagnosis and treatment, wise use of antimicrobials, and prevention of transmission.
- **Public Health Infrastructure Issues.** A resurgence of measles in 1990 and 1991 was a dramatic illustration of the fallacy of ever considering an infectious disease completely controlled. Positive results from this outbreak include the development of infectious disease action plans by all states, greater funding for infrastructure, and a redirecting of priority to the immunization of children.
- Factors contributing to the unprecedented resurgence of TB from the mid-1980s to 1992 included a deficient infrastructure; the impact of HIV, immigration, and institutional outbreaks; and the emergence of drug-resistant strains of TB. By 1993, corrective actions led to a resumption in the declining trend in reported cases, which had halted in 1984.
- Most cases of TB in this country now occur in people born outside the United States. The countries that currently contribute the greatest number of entrants with active TB are Mexico, Vietnam, and the Philippines.
- **Workforce Training Issues.** CDC is working with six schools of medicine and the American Medical Association to develop a curriculum and standards for the diagnosis and treatment of otitis media, an ear infection that is often overtreated with antibiotics.

## Approaches for Consideration


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During the review, the following suggestions were made for steps that could be taken to bring about further progress against infectious diseases:

- **Outreach.** Work with the states to lengthen the period of time during the school year when vaccinations are given to schoolchildren.
  - Strive to increase access to vaccination for younger children who are at high risk for hepatitis B.
  - Place greater emphasis on immunization of adolescents and ensure that vaccination against meningococcal meningitis is available to them.
  - **Vaccine Development and Manufacture.** Increase efforts to develop vaccines against TB and hepatitis C.
- Seek new ways to provide incentives for manufacturers to increase the supply and availability of vaccines.
  - **Public Health Infrastructure.** Strengthen the infrastructure in existing public health and correctional settings for delivering hepatitis A and hepatitis B vaccine and for hepatitis C testing and referral for treatment.
  - Prepare action and contingency plans for the management of infectious disease crises in partnership with those who will implement them and can help mobilize resources. Use lessons learned from such crises to identify necessary changes in the permanent infrastructure for responding to infectious disease outbreaks.
  - Create better ongoing and integrated infectious disease surveillance systems that can provide regional and local data capable of driving political action.

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