We are committed to—

Promoting Immunization at Every Stage of Life

Immunization is one of the major public health achievements of the 20th century. To maintain this success, the National Immunization Program (NIP) works with health care providers, partners, and state and local government agencies to ensure that childhood immunizations remain at high levels. CDC's Advisory Committee on Immunization Practices (ACIP) continually reviews the recommended childhood immunization schedule to ensure that it recommends the safest and most efficient protection. The National Immunization Program is also committed to achieving high immunization coverage rates for adolescents and adults—especially for hepatitis, influenza, and pneumococcal conjugate vaccines. This includes working with private health care providers, state and local health departments, and other partners to foster awareness of immunization recommendations and increase vaccine knowledge.

Childhood Immunization

Childhood Immunization Schedule

Three advisory bodies collaborate to issue a single schedule of routine childhood immunizations: the ACIP, the American Academy of Pediatrics (AAP), and the American Academy of Family Physicians (AAFP). The schedule is continually evaluated to ensure the highest level of effectiveness, efficiency, and safety in childhood immunizations.

Recommended Childhood Immunization Schedule United States 2002

Vaccine	Age											
	Birth	1 mo	2 mos	4 mos	6 mos	12 mos	15 mos	18 mos	24 mos	4-6 yrs	11-12 yrs	13-18 yrs
Hepatitis B	Hep B #1	only if mother HBsAg(-)										
		Hep B #2										
					Hep B #3				Hep B series			
Diphtheria, Tetanus, Pertussis			DTaP	DTaP	DTaP		DTaP			DTaP	Td	
Haemophilus influenzae Type b			Hib	Hib	Hib	Hib						
Inactivated Polio			IPV	IPV	IPV					IPV		
Measles, Mumps, Rubella						MMR #1				MMR #2	MMR #2	
Varicella						Varicella			Varicella			
Pneumococcal			PCV	PCV	PCV	PCV			PCV	PPV		
Vaccines below this line are for selected populations												
Hepatitis A									Hepatitis A series			
Influenza					Influenza (yearly)							

Range of recommended ages | Catch-up vaccination | Preadolescent assessment

This schedule indicates the recommended ages for routine administration of currently licensed childhood vaccines, as of December 1, 2001, for children through age 18 years. Any dose not given at the recommended age should be given at any subsequent visit when indicated and feasible. ▯ Indicates age groups that warrant special effort to administer those vaccines not previously given. Additional vaccines may be licensed and recommended during the year. Licensed combination vaccines may be used whenever any components of the combination are indicated and the vaccine's other components are not contraindicated. Providers should consult the manufacturers' package inserts for detailed recommendations.

Approved by the Advisory Committee on Immunization Practices (www.cdc.gov/nip/acip), the American Academy of Pediatrics (www.aap.org), and the American Academy of Family Physicians (www.aafp.org)

The following changes have been made in recent years.

- A **pneumococcal conjugate vaccine** was added to the schedule to protect children from pneumococcal diseases—the leading cause of meningitis, bacterial pneumonia, and bloodstream infections among infants and young children.
- The **all–inactivated poliovirus vaccine** (IPV) schedule for polio vaccination was adopted. Today, IPV is the only polio vaccine recommended for routine childhood polio immunization in the U.S. While oral polio vaccine is effective, it carries the rare complication of vaccine-associated paralytic polio. However, the ACIP maintains its support for the use of oral polio vaccine as the only vaccine recommended to eradicate polio from the remaining countries where polio is endemic.
- The **acellular pertussis vaccines** were recommended for exclusive use in the U.S.
- Vaccines recommended for selected populations at high risk of disease, including **influenza, pneumococcal diseases**, and **hepatitis A**, have been added to the schedule.

Vaccines for Children Program

Congress established the Vaccines for Children Program (VFC) in 1994 to provide public-purchased vaccines for eligible children at no charge to public and private health care providers. With over 44,000 VFC-enrolled provider sites in 2001, the VFC is currently the largest child-targeted program administered by CDC.

In this program, children from birth through 18 years of age may receive all vaccines recommended by the ACIP at no cost if they do not have health insurance, or are eligible for Medicaid, or are American Indian or Alaska Native. In addition, children who have health insurance that does not cover vaccines are eligible for the VFC program if they seek vaccines at federally qualified health centers. The VFC program is a state-operated, federal entitlement program that removes vaccine cost as a barrier to immunization for our neediest children and provides a more secure source of funding for approximately 35 percent of our nation's infants, children, and adolescents. Over 70 percent of the health care providers who administer vaccines to children are enrolled in the VFC program.

Executive Memorandum for Women, Infants, and Children

On December 11, 2000, an Executive Memorandum was issued requiring the U.S. Department of Agriculture (USDA) to assess the immunization status of the children participating in the Women, Infants, and Children (WIC) program. Children who are missing recommended immunizations are, when appropriate, referred to a health care provider. This memorandum also directed USDA and CDC to develop a national strategic plan to ensure more accurate and cost-effective immunization assessment, referral, and follow-up for children at risk.

Since that time, CDC and USDA, in conjunction with other partners have developed and begun implementing the "WIC-Immunization Action Plan." The plan contains seven goals that include 24 objectives in the following areas: coordination strategies, data collection, communication, training, funding, medical homes, screening and referral, and registries. Working collaboratively, substantial progress has been made toward meeting these objectives. This was highlighted by the recent dissemination of a new WIC policy to ensure immunization screening for WIC children. The plan will be used as a working document and it will continue to be reviewed and updated as necessary.

Encouraging Adult Immunization

One of the greatest public health challenges is extending the success in childhood immunization to the adult population. Illness caused by vaccine-preventable diseases is expensive—in terms of dollars and, more importantly, human lives. Each year we spend $10 billion treating adults for vaccine-preventable illnesses, and each year over 30,000 die from diseases that could have been prevented. Fortunately, vaccines are available to

prevent many potentially debilitating diseases, including influenza, pneumococcal diseases, and hepatitis B. The hepatitis B vaccine provides protection against common causes of liver disease and liver cancer, making it the first vaccine that is effective in preventing cancer.

Influenza (flu)

The Disease

Agent—A highly contagious virus

Symptoms and Signs—Fever and chills, dry cough, runny nose, body aches, headache, sore throat

Complications—Pneumonia, exacerbation of chronic illnesses (such as heart and lung diseases), and death

Transmission—Contact with an infected person spreading the airborne virus

The Impact (typical year)

Hospitalizations—114,000 (more than 42 percent are 65 years old or older)

Deaths—20,000 (more than 90 percent are 65 years old or older). In the **past decade**, influenza epidemics caused 239,000 deaths.In the **past century**, three influenza pandemics caused over 600,000 deaths.

Direct medical costs—$3 billion to 5 billion (Without the influenza vaccine, the cost would be as much as $10 billion.)

Pneumococcal Diseases
(pneumonia, bacteremia, and meningitis)

The Disease

Agent—A type of bacteria (pneumococci)

Symptoms and Signs of Serious Pneumococcal Diseases—

Pneumococcal Pneumonia occurs when bacteria invade the lungs Symptoms include high fever, cough with production of mucus, shaking chills, breathlessness, and chest pain that increases with breathing and coughing.

Pneumococcal Meningitis occurs when bacteria invade the tissues and fluids surrounding the brain and spinal cord. Symptoms include headache, stiff neck, fever, mental confusion and disorientation, and visual sensitivity to light. The disease can then lead to coma and death. Permanent disabilities among survivors of the disease include hearing loss (the most common), learning disabilities, mental retardation, seizures, and other sensory or motor problems.

Pneumococcal Bacteremia occurs when bacteria invade the bloodstream. Symptoms can include fever, tiredness, abdominal pains, nausea, anxiety, shortness of breath, and confusion. Bacteremia can also be accompanied by signs of other pneumococcal diseases pneumonia and meningitis.

Complications—Death. Pneumococcal infections are one of the most common causes of death in America from a vaccine-preventable disease.

Additional Dangers—Drug-resistant strains of pneumococcus are increasing. Almost a quarter of the isolates of pneumococci tested in 1998 were resistant to penicillin.

Transmission—Pneumococci are in many people's noses and throats. It is not known why these bacteria suddenly invade the body and cause disease, which can then be transmitted from person to person.

The Impact (typical year)

Pneumococcal Pneumonia—
Cases (hospitalized)—100,000 to135,000
Deaths—5 to7 percent of those infected (mostly elderly)

Pneumococcal Meningitis—
Cases—3,300
Deaths—30 percent of those infected (mostly elderly)

Pneumococcal Bacteremia—
Cases—more than 60,000
Deaths—12 percent of those infected (mostly elderly)

Hepatitis B

The Disease

Agent—The hepatitis B virus, which infects and inflames the liver

Symptoms—Yellow skin or eyes, tiredness, abdominal pain, loss of appetite, nausea, or joint pain. Hepatitis B can infect people without making them feel sick.

Complications—Victims of this disease can suffer from lifelong liver problems such as scarring of the liver, chronic liver disease, and liver cancer.

Transmission—Hepatitis B is spread when someone has contact with the blood of an infected person or has sex with an infected person. This is a highly contagious disease—100 times more contagious than the virus that causes AIDS. Sources of infection are not found for about one-third of those infected with hepatitis B.

Adult Vaccine Recommendations—Adolescents, and high-risk populations (people who have more than one sex partner, men who have sex with other men, injection drug users, and health care workers) should be vaccinated.

The Impact (typical year)

Infections—There are approximately 80,000 new infections each year, mostly in adolescents and adults. About 6 percent of these people will become chronically infected and will face a 15 to 25 percent lifetime risk of death from chronic liver disease.

Deaths—About 1.5 million people in the U.S. suffer from chronic hepatitis B infection, and each year approximately 4,000 to 5,000 die prematurely from chronic liver disease.

Major Event of the Past Year—
in Adult Immunization

2001-2002
Influenza Vaccine Delay

In 2001, the nation experienced a delay in distribution of the 2001 influenza vaccine supply. This is the second year that a delay has occurred. The three manufacturers of influenza vaccine for the U.S. market produced 87.7 million doses for the 2001 vaccination season, which is an increase from 77.9 million produced in 2000. Nevertheless, some doctors and clinics did not receive adequate vaccine until November, or later. Fortunately, this season's influenza vaccine was well matched to the vaccine strains that circulated, and influenza activity in the U.S. did not peak until after January 2002.

To manage the delays in flu vaccine distribution, the ACIP issued a recommendation that the first available doses of vaccine be provided to those people at highest risk for complications from influenza. Those people who were not at high risk were asked to wait until November or later to get their flu shots. In addition, CDC worked with a variety of partners, including health care provider organizations and health departments, to publicize these recommendations.

Accomplishments in 2001—
in Adult Immunization

Enhanced Education and Training

- An interactive CD-ROM educational program on adult immunization was produced for primary care practitioners by NIP staff and the Association of Teachers of Preventive Medicine. The CD-ROM, Increasing Adult Immunization Rates: WhatWorks, offers background information, recommendations and resources, model practices, and strategies to increase vaccination rates. Using the CD-ROM, health professionals can test their knowledge about adult immunization, review case studies on implementing the strategies, create an adult immunization plan for their practices or clinics, and obtain continuing education credits. Over 3,000 copies were distributed, free of charge, between October 2001 and January 2002.
- During the 35th National Immunization Conference, the Adult Immunization Plenary Session was broadcast live over the Internet and viewers could receive continuing education credit.

- The National Immunization Program continues to provide cooperative agreement funds to support the Immunization Action Coalition's (IAC's) promotion of childhood and adult immunization recommendations. The IAC distributes over 160,000 *Vaccinate Adults* newsletters to health professionals semiannually. This newsletter contains current information on vaccine use, vaccine safety issues, storage and handling, lists of adult immunization resources, an extensive question and answer section on the most commonly asked questions regarding adult vaccines, and evolving issues for adult immunization programs.

Influenza Communication

Flu Website

Established during the 2000-01 influenza season, the flu website was updated and greatly expanded for the 2001-02 flu season. This site helps health care providers obtain the latest information and developments in influenza vaccine production and distribution, learn about new recommendations for influenza immunization, and access a wide range of patient-education material. Information is also provided for both the public and health care providers on the disease and which people are at greatest risk for complications. This season, an interactive "flu quiz" was added for the public. This quiz helps people determine if they are at high risk of complications from the flu and when they should get a flu shot.

2001 Flu Bulletin

Beginning in August 2001, NIP produced and distributed a flu bulletin every two weeks that gave the latest information on developments in vaccine production, supply, distribution, and other relevant news. The publication was electronically distributed to partner organizations and their members, and was also available on the NIP website where health care providers and other interested people could subscribe. The 2001 Flu Bulletin was very well received and will be offered again in 2002.

National Multimedia Campaign. In response to the 2001 influenza vaccine delay, NIP developed and launched a national multimedia campaign. The campaign included TV, radio, and print public service announcements (PSAs) in English and Spanish that were targeted to African-Americans, Hispanics, and older Americans. Two posters and four flyers were also distributed, as well as kits to help health care providers make best use of the materials. Buttons with the message, "Ask me how to fight the flu" were distributed to health care providers to encourage patients' questions and communication about flu vaccination. The campaign promoted four key messages:

1. People at high risk of complications from influenza, especially those 65 years old and older, should get a flu shot.
2. The first available doses of the flu vaccine should go those people at highest risk.
3. People who were not at high risk for complications should get their shots beginning in November.
4. Flu shots received in December, January, and February provide considerable protection against influenza in most influenza seasons.

Poster—*Should you be one of the first to get a flu shot?*

Expanded State and Local Involvement

Influenza Vaccine Contact Person

Voluntary flu vaccine exchange programs are one way to help ensure that flu vaccine is first administered to people at highest risk of complications from influenza. To help implement such exchange programs, CDC asked states to designate an "influenza vaccine contact person." Health care providers with extra vaccine could contact this person and, through the exchange program, the vaccines could be made available to other health care providers in need. This coordinator could also inform health care providers of other sources for the influenza vaccine. The list of state contact people is available on NIP's flu website at www.cdc.gov/nip/Flu/state-contacts.htm

Adult and Adolescent Immunization Coordinators and Coalitions

In 2000, 40 of the 64 NIP immunization grantees had a coordinator for adult immunization activities. Fifty one of the grantees reported that community coalitions in their areas worked on adult immunization issues, and 41 grantees had coalitions involved with adolescent immunization activities.

Adult Immunization Schedule and Standards

Adult Immunization Schedule

Development of an adult immunization schedule was begun in April 2001 by a sub-group of the ACIP's Adult Workgroup. This schedule is designed to provide a user-friendly summary of immunization recommendations for adults, and carries the endorsement of the American College of Physicians. The schedule is being reviewed by the AAFP, and is expected to be published by the fall of 2002.

Standards for Adult Immunization Practices

With the support and assistance of the National Vaccine Advisory Committee, NIP staff collaborated with representatives from numerous partner organizations to develop updated adult immunization standards. The new standards have been endorsed by almost 40 professional organizations, including AAFP, AAP, American Medical Association, Infectious Diseases Society of America, and the National Medical Association. The updated standards should be published in 2002.

Significant Achievements— in Adult Immunization

Collaboration with Partners

Memorandum of Understanding

A memorandum of understanding was signed between CDC and the Centers for Medicare and Medicaid Services (CMS) to work jointly to improve influenza and pneumococcal vaccination in nursing homes.

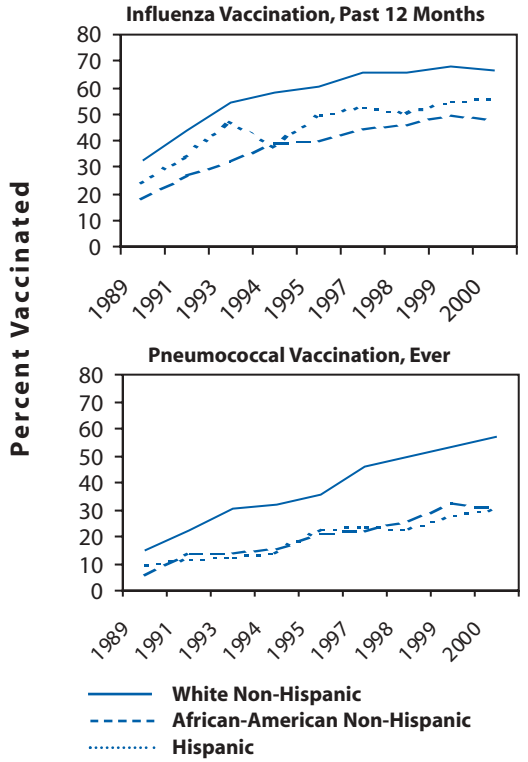
Standing Orders System

The Standing Orders system enables non-physician personnel in settings such as clinics, hospitals, and nursing homes, to administer appropriate vaccinations without having to get a prescription from individual physicians. This approach has been recommended as an effective way to increase adult immunization levels by the Department of Health and Human Services (DHHS)-sponsored Task Force on Community Preventive Services and the Rand Corporation for CMS's Healthy Aging Project.

Vaccines Proven Effective

The Centers for Disease Control and Prevention collaborated with three U.S. managed care organizations to assess the effectiveness of the influenza vaccine among health plan members aged 65 years or older during the 1996 through 2001 influenza seasons. The assessment includes the 1997-98 influenza season when the vaccine was not well-matched to the influenza viruses that circulated. Published results show that influenza vaccination reduced the risk of hospitalizations associated with pneumonia and influenza during the 1996-97 by 18 percent and the risk of death by 60 to 61 percent. During the 1997-98 season, influenza vaccination reduced the risk of hospitalizations associated with pneumonia and influenza by 24 percent

Vaccination Coverage Levels, Persons Aged 65 Years and Older, by Race / Ethnicity, United States, 1989-2000



Source: National Health Interview Survey

and the risk of death by 35 to 39 percent. Unpublished data from the1999-01 season indicate similarly significant effectiveness of the influenza vaccine.

Continuing and Future Efforts—

in Adult Immunization

- Help improve physician and institutional practices with regard to adult immunization.
- Identify and overcome the barriers to adult immunization that lead to substantially lower vaccination levels in African-American and Hispanic populations.
- Connect immunization services to preventive health services for other diseases such as heart disease, asthma, diabetes, and breast and cervical cancers.
- Identify missed opportunities for vaccination in a variety of health care settings, workplace environments, and other community areas.
- Collaborate with partners to increase hepatitis B vaccination coverage rates among high-risk populations.
- Work with DHHS staff and other federal and state agencies to complete an influenza pandemic preparedness plan.

SUCCESS STORY

Adult Immunization

Partners Work to Address Flu Vaccine Delay

The National Immunization Program and the American Medical Association brought a large group of partners together, throughout the year, to address problems associated with delays in 2001-02 season influenza vaccine distribution. The objective was to foster voluntary compliance with the CDC Advisory Committee on Immunization Practices' influenza vaccine recommendation of giving the first vaccine available to people at highest risk of complications from influenza. The partners included health care providers, pharmacists, vaccine manufacturers and distributors, organizations that conduct large or mass flu clinics, the public health community, and other federal agencies. These groups worked extremely well together to try to lessen the impact of the 2001-02 delay in vaccine distribution on those people with the greatest risk of severe complications from influenza. The groups will continue working together in preparation for the 2002-03 flu season.