For More Information:
At CDC:
Curtis Allen, (404) 639-8487
callen@cdc.gov
At National Association of Chronic Disease Directors:
Jeanne Alongi, 916-452-2440
alongi@chronicdisease.org
At CDC Healthy Aging Program:
Maggie Moore, 770-488-5598
mmoore6@cdc.gov
At Health Benefits ABCs:
William F. Benson, 202-255-2001
b.benson@hbabcs.com

CDC Says Immunizations Reduce Deaths From Influenza and Pneumococcal Disease Among Older Adults

Adults age 50 and older and anyone else who wants to be protected from influenza should get an annual flu vaccine. With an estimated average of 36,000 annual deaths and 200,000 hospitalizations from influenza-related causes, "every year is a serious year for influenza," explained Dr. Gina Mootrey, Associate Director for Adult Immunizations with the National Center for Immunization and Respiratory Diseases (NCIRD) at the U.S. Centers for Disease Control and Prevention (CDC).

"By definition, we have an epidemic of influenza in this country every year," agreed Dr. Tony Fiore, medical officer in CDC's Influenza Division. "Every year is bad, and some years are worse," he said. CDC recommends that people get vaccinated against influenza each year.

Older adults are especially vulnerable. CDC reports that adults age 65 and older comprise 90 percent of deaths that occur each year from complications related to influenza and pneumonia. Approximately 63 percent of the 200,000 hospitalizations from influenza-related causes involve people age 65 and older.

The number of influenza-related deaths and the cost to society are likely to increase as the nation's population ages. The U.S. Census Bureau projects the number of adults ages 65 and older will double from 36 million (or 12 percent of the population) in 2003 to 72 million (or 20 percent of the population) by 2030. In addition, 2006 data from CDC show that 5,000 people die from invasive pneumococcal disease each year; nearly half are older adults. This type of illness results when pneumococci, a leading cause of bacterial infection, enter the bloodstream (bacteremia), or invade

the tissues and fluids surrounding the brain and spinal cord, causing meningitis. Among people 65 and older with pneumococcal bacteremia, pneumococci often invade the lungs, causing pneumonia.

Vaccinations can reduce the risk for or the severity of illness, yet one-third of people age 65 and older do not get their influenza shots and more than one-third have never been vaccinated against pneumococcal disease, according to CDC data. Vaccination rates for both vaccines are lower among persons who need the vaccines the most, those with chronic illnesses like diabetes, heart disease and kidney disease. This information — despite the fact that public health experts have long recommended both vaccines and that Medicare pays for both vaccines — highlights the need for continued public and physician education and incentives.

"People don't realize how serious influenza is," commented Dr. Jeanne Santoli, Deputy Director of CDC's Immunization Services Division. The classic symptoms of the influenza virus include sudden onset of fever and chills, dry cough, runny nose, body aches, headache and sore throat. Pneumonia begins with high fever, cough and chest pain.

While anyone can get influenza, older adults are the group at highest risk of dying from influenza-related complications and have high rates of influenza-related hospitalization as well. Taken together, pneumonia and influenza are a leading cause of death among seniors. Serious illness and death are also a greater threat among older adults with medical conditions such as asthma and diabetes that place them at increased risk.

The best way to prevent influenza is to get an annual vaccination, but too many people don't. One reason is the prevalence of a myth that people can get the flu from a vaccination, although the inactivated vaccine is made from killed viruses that cannot cause influenza. During the fall and winter months, however, when influenza vaccines are typically given, people often coincidentally experience a cold or other respiratory infection from other organisms soon after receiving an influenza shot, and they may associate the vaccination with what they think is a case of the flu. The most frequent side effect from the inactivated influenza vaccine is soreness at the vaccination site that lasts less than two days. However, fever, sore muscles and other side effects can occur after vaccination and can last for 1-2 days.

The pneumococcal polysaccharide vaccine (PPV) for preventing invasive pneumococcal disease is also safe, CDC said. Up to half of patients have very mild side effects, such as redness or pain where the shot is given.

Public health officials say immunization rates are too low, and the government's goal set in its *Healthy People: 2010* report is to vaccinate 90 percent of people age 65 and older against influenza and pneumococcal disease. Public and health care provider awareness of the importance of influenza shots, increased offering of vaccinations by health care providers, and the initiation of

Medicare reimbursement for influenza vaccination in 1993 helped to raise vaccination rates among people age 65 and older from 30 percent in 1989 to 66 percent in 1999, the National Center for Health Statistics (NCHS) reports. Since 1999, influenza vaccination levels have ranged between 63% and 66%, in years without vaccine shortages. Pneumococcal vaccination rates rose from 14 percent in 1989 to 57 percent in 2004. Both vaccination rates are lower, however, among African-Americans and Hispanics age 65 and over.

CDC said physicians can improve vaccination rates by using reminder/recall systems similar to the cards dentists send out. Also effective are standing orders, which allow nursing staff and other non-physician personnel to administer vaccinations without the physician's written or verbal order; improving vaccination record keeping; using prompts, such as stickers on charts to remind physicians to deliver needed vaccines; measuring health professionals' performance in delivering needed vaccines; and working with staff to think of other ways to improve coverage rates. "Availability of influenza vaccine in places such as stores, pharmacies or senior centers can make it easier for some to get their annual flu shot, particularly for those who may not visit their doctor during the influenza season," said Jim Singleton, M.S., Chief of the Assessment Branch in CDC's Immunization Services Division.

CDC EFFORTS TO PROMOTE ADULT IMMUNIZATION

CDC's national public health education campaign focuses on the benefits associated with influenza vaccination as a way to increase the number of people getting influenza vaccines, noted Kristine Sheedy, Ph.D., Associate Director for Communication Science in the NCIRD. The multifaceted campaign includes public service announcements, print ads, media tours, fact sheets, an online "Flu Gallery" of educational materials including posters and flyers, and other resources.

CDC's "Protect Yourself and Your Loved Ones" message uses visuals, such as a grandparent with a child. Messages about getting vaccinated to help protect family members and others — "such as infants under 6 months of age who are too young to be vaccinated and are at high risk for severe complications" — test favorably during focus groups, Sheedy said.

Data show that influenza activity peaks in January or February in most years. In the two most recent influenza seasons, approximately 84 percent of all influenza vaccinations were administered during September-November. Among persons 65 years and older, the percentage of September-November vaccinations was even higher, at 92 percent. To raise awareness of the importance of continuing influenza vaccination throughout the season in order to increase the vaccination rates among those recommended for vaccination, but who have not received the flu vaccine by the end of November, CDC announced the designation, beginning in 2006, of a week

after Thanksgiving as National Influenza Vaccination Week (NIVW). CDC recommends that people take the opportunity of NIVW to get a flu shot or to make an appointment to be vaccinated if they have not done so already. CDC also encourages flu vaccine providers to use this time to enhance flu vaccine availability by scheduling additional clinics, extending clinic hours, and enabling a larger role for mass vaccination at places such as retail locations.

WHO SHOULD GET SHOTS AND WHEN?

CDC recommends that, optimally, all persons age 50 and older should get an influenza shot each year and a pneumococcal shot after age 65. A second pneumococcal shot is sometimes necessary for those with certain chronic or immunosuppressive diseases. Health officials recommend influenza shots for all people ages 50-64 because many people in this age group have medical conditions that put them at increased risk for influenza-related complications and they often live with or care for older adults or other persons with high risk medical conditions. (Adults of any age with a chronic health problem, such as heart or lung disease, diabetes, anemia and other blood disorders, impaired immunity or kidney disease should be vaccinated.) However, as CDC's Dr. Gina Mootrey acknowledges, this is "an audience which is harder to convince" because those ages 50-64 tend to think they are invulnerable to flu. But, she added, "Anyone who has had influenza knows that you don't have just a touch of the flu, you are flat on your back."

The agency's Advisory Committee on Immunization Practices (ACIP) recommends that influenza vaccinations should be given to all residents and staff of nursing homes, chronic-care facilities, assisted-living facilities, retirement communities and recreation centers. Influenza vaccine should also be given to health care employees, visiting nurses, home-care workers and those in the household who can transmit influenza to persons at high risk.

Vaccine generally starts becoming available in September or October and more is shipped to doctors and other providers over the remainder of the year. "Some people may worry if they are not able to get a vaccine in October," CDC's Dr. Jeanne Santoli said. However, because the influenza season usually peaks in January or February or later, "getting vaccinated in November, December, or January can still provide effective protection against this serious illness" she added. However, the timing of the influenza season is unpredictable, and influenza can circulate and occasionally peak as early as December; thus, ideally as many people as possible should be vaccinated in September, October and November so that they are protected against influenza. It takes 2 weeks after vaccination for a person to develop antibodies against influenza.

ACIP recommends that people age 50 and older and younger persons with high-risk conditions who are hospitalized at any time during September through March should be offered and

strongly encouraged to receive influenza vaccine before they are discharged. In one study, 39 percent to 46 percent of adult patients hospitalized during the winter with influenza-related diagnoses had been hospitalized during the preceding autumn, a time when they could have been vaccinated against influenza. In addition, ACIP recommends pneumococcal vaccination before hospital discharge for persons at risk if they have not received this vaccine previously.

The pneumococcal vaccine should be given to those who are age 65 and older, as well as anyone with chronic heart or lung disease, diabetes, cirrhosis, alcoholism, sickle cell disease, cerebrospinal fluid leaks, or impaired immunity. Persons ages 65 and older should receive a second dose of vaccine if they received the first dose more than 5 years previously and were younger than 65 at the time. One-time re-vaccination is also recommended for people with impaired immune systems, chronic renal failure, and asplenia. When needed, simultaneous administration of influenza and pneumococcal vaccine is strongly encouraged for persons who have not yet received their pneumococcal vaccination.

Older adults can also benefit greatly from the influenza vaccination of health care personnel. Health care personnel who are infected with influenza can transmit influenza virus to patients and other staff, and older adults in hospitals and long-term care facilities are especially vulnerable to influenza and influenza-related complications. A 1999 study shows that during influenza outbreaks in long-term care facilities, attack rates among residents ranged from 25 percent to 60 percent, resulting in the death of 10-20 percent of those who were sick from influenza or influenza-related complications. When vaccine and epidemic strains are well matched, achieving increased vaccination rates among persons living in closed settings (e.g., nursing homes and other chronic-care facilities) and among staff can reduce the risk for outbreaks.

WHY DON'T OLDER ADULTS GET VACCINATED?

The best indicator of whether someone will get an influenza shot is whether the person has done so in the past, according to CDC's Dr. Lance Rodewald, Director of the Immunization Services Division. He said that many adults, when asked why they didn't get vaccinated, state that they didn't know they needed to or that their health care provider did not offer them the vaccine.

In addition to those who do not get vaccinated because they mistakenly believe the shot might give them influenza, many people tend to not see themselves as being in a high-risk category. Then there are those who know they should get a vaccination, but simply fail to do so. "People who get influenza shots tend to be proactive about their health and are interested in preventive care," Dr. Rodewald said. "Those are the ones we can most easily reach, either during regular health care

visits, through use of patient reminders by health care providers, or by availability of vaccinations in stores or pharmacies."

One of the problems with the once-in-a-lifetime pneumococcal vaccination is that people often do not remember whether they have had it, and providers are reluctant to give unnecessary treatment and have concerns about possible risks from revaccinating too soon. However, the ACIP recommends that persons for whom the vaccine is indicated should be immunized if no documentation is available. Those who receive this vaccine are strongly encouraged to obtain a record of its administration from the provider for future reference.

Other reasons older adults do not get recommended vaccinations is because their health care provider does not offer them, or has decided not to administer them. "Many providers have expressed concerns that the Medicare reimbursement rate, which covers the vaccine and the cost of administration, is too low," CDC's Dr. Rodewald, explained. However, in 2005, CMS more than doubled the average Medicare payment for administration of influenza and pneumococcal vaccines from $8.21 to $18.57. Medicare reimbursement rates vary by locality.

CDC also works with state health departments as well as pharmacies and other places that offer mass immunizations, Dr. Rodewald said. However, due to resource constraints, many health departments focus their immunization programs on children.

HEALTH DISPARITIES

CDC data continue to show that vaccination levels for non-Hispanic blacks and Hispanics lag behind those for non-Hispanic whites. In the first half of 2007, 71 percent of older non-Hispanic white adults had received an influenza vaccination within the past 12 months, compared to only 58 percent of older non-Hispanic African-Americans and 55 percent of Hispanic seniors, NCHS reported. Disparities for pneumococcal vaccination coverage were even more dramatic — 62 percent of non-Hispanic whites, 47 percent of non-Hispanic African-Americans and 34 percent of Hispanics had ever received a pneumococcal vaccine.

According to Dr. Rodewald, possible reasons for lower vaccination rates among minority patients include misperceptions about the vaccine, distrust of the government and lack of access to health care services, as well as physician beliefs and systemic biases that may inhibit providers from offering the vaccines. Dr. Rodewald added that the "problems of culture and language may complicate the provider-patient interaction."

"One way to overcome such biases or lack of interest in preventive care is with standing orders for vaccination of any patient who meets certain criteria, such as being age 65 and older or having diabetes or asthma," Dr. Rodewald said. Under these circumstances, a nurse is automatically

empowered to evaluate a patient for contraindications and give necessary immunizations without a physician's involvement. "This frees the physician to focus on other patient-care issues while establishing the process of routine vaccination without reference to race or ethnicity," he explained. Health care experts and minority communities need to work together to increase timely immunizations, ensure effective vaccine delivery, and encourage outreach to all seniors.

MEDICARE IMMUNIZATION POLICY

Medicare began paying for annual influenza vaccinations in 1993 and pneumococcal vaccinations in 1981. It covers an initial pneumococcal shot and revaccination at least five years later for those at highest risk of serious pneumococcal infection. Routine pneumococcal revaccination of people age 65 or older who are not at highest risk is not appropriate, CMS states. Medicare covers one-time re-vaccination with the pneumococcal vaccine for high risk persons if 5 years have passed since their last vaccination.

To improve vaccination of nursing-home residents, hospitalized patients and those receiving home health care, Medicare no longer requires that physicians write an individual order for each immunization. Instead, where state law permits, appropriate non-physician personnel can assess for contraindications and provide vaccinations under a facility-approved standing order, according to CMS.

HOW THE VACCINE IS MADE

Influenza vaccines must be updated annually to match the viruses expected to circulate in the coming year. Federal health officials and vaccine manufacturers start almost a year in advance, determining which strains of influenza to include in the vaccine. Sometimes the virus strains that begin circulating later in the year differ from those in the vaccine, but often they are sufficiently similar to provide some cross-protection even in years when it is not an exact match for the circulating virus.

The influenza vaccine is made from viruses grown in eggs. For inactivated vaccines such as the "flu shot," the virus is killed but may contain trace amounts of residual egg protein. People with an anaphylactic hypersensitivity to eggs or other components of the vaccine should consult a physician before getting an influenza vaccination.

In a typical year, fewer than 100 million Americans receive a flu shot. In recent years, several manufacturers have increased their vaccine production capacity. For the 2007-08 influenza season, five manufacturers produced about 140 million doses of influenza vaccine for the U.S. market, the largest number of doses ever produced for the United States in a single season.

VACCINE SAFETY ISSUES

A vaccine, like any medicine, is capable of causing serious problems, such as severe allergic reactions. However, the risk of a vaccine causing serious harm or death is extremely small, explained John Iskander, MD, MPH, of CDC's Immunization Safety Office. Serious problems from flu or pneumococcal vaccine are very rare, he added, and patients are much more likely to have serious problems from the disease than from the vaccine.

However, some people should talk with their physician before deciding whether to receive the flu or pneumococcal vaccine, Dr. Iskander said. These include people who 1) have had a serious allergic reaction to a previous dose of influenza or pneumococcal vaccine; 2) have ever had a severe allergic reaction to any vaccine ingredient, including eggs, or 3) have a history of a severe paralytic illness called Guillain-Barré Syndrome (GBS).

Mild problems from the inactivated influenza vaccine ("flu shot") may include soreness, redness, or swelling where the shot was given and, occasionally, fever and aches. If these problems occur, they usually begin soon after the shot and last for one to two days, Dr. Iskander said. Life-threatening allergic reactions are very rare. If they do occur, it is within a few minutes to a few hours after the shot. Signs of a serious allergic reaction can include difficulty breathing, hoarseness or wheezing, hives, paleness, weakness, a fast heart beat or dizziness, Iskander explained.

In 1976, swine flu vaccine was associated with GBS. Influenza vaccines since then have not been clearly linked to GBS. However, if there is a risk of GBS from current influenza vaccines, it is estimated at one case per million persons vaccinated. "This is much less than the risk of severe influenza, which can be prevented by vaccination," Dr. Iskander explained.

About half of those who get the pneumococcal vaccine have very mild side effects, such as redness or pain where the shot is given. Less than 1 percent develop fever, muscle aches, or more severe local reactions. Severe allergic reactions have been reported very rarely, Iskander said.

For more information about vaccines, call the CDC Info Contact Center, (800) CDC-INFO (800-232-4636). Spanish speakers can also reach the hotline at (800) 232-4636. For information on Medicare coverage, call (800) MEDICARE.

This document is available online at www.chronicdisease.org and at www.cdc.gov/vaccines/news/media.htm#Reporters. It was written by Nancy Aldrich and Cheryl M. Keyser. William F. Benson was senior editor and project manager.

STORY IDEAS FOR JOURNALISTS

1) What is being done in your local community to promote and increase the number of older adults who get an annual influenza vaccination? Given the lower immunization rates for minorities, what is being done to reach these populations?

2) Do providers in your area believe they receive sufficient reimbursement for vaccinations?

3) Do providers believe that influenza and pneumococcal immunizations are a high priority? What efforts do they make to get their older patients vaccinated?

4) Looking at the high death and hospitalization toll from these diseases, what are the costs to insurers (including Medicare and Medicaid) and society when people fail to get their immunizations?

5) What steps or efforts are hospitals and nursing homes in your area taking to promote adult vaccination, including using standing orders? What levels of coverage are they able to achieve among patients? What about vaccinations of staff?

6) An interesting sidebar might look at the process for developing each year's vaccine supply.

REFERENCES AND RESOURCES

CENTERS FOR DISEASE CONTROL AND PREVENTION:

Adult Immunization Programs in Nontraditional Settings: Quality Standards and Guidance for Program Evaluation, www.cdc.gov/mmwr/preview/mmwrhtml/rr4901a1.htm

Background on Influenza, http://www.cdc.gov/flu/professionals/acip/

Eliminate Disparities in Adult & Child Immunization Rates (CDC Office of Minority Health and Health Disparities), http://www.cdc.gov/omhd/AMH/factsheets/immunization.htm

Flu Gallery: Patient-Education Materials, http://www.cdc.gov/flu/professionals/flugallery/

Healthy Aging for Older Adults website (*sign up here for the Public Health and Aging Listserv*), www.cdc.gov/aging/

Influenza and Pneumococcal Vaccination Coverage Among Persons Aged ≥65 Years --- United States, 2004--2005, http://www.cdc.gov/mmwr/preview/mmwrhtml/mm5539a2.htm

Influenza and Pneumococcal Vaccination Coverage Among Persons Aged ≥65 Years and Persons Aged 18--64 Years with Diabetes or Asthma --- United States, 2003, http://www.cdc.gov/mmwr/preview/mmwrhtml/mm5343a2.htm

Influenza Vaccination and Self-Reported Reasons for Not Receiving Influenza Vaccination Among Medicare Beneficiaries Aged ≥65 years --- United States, 1991—2002, http://www.cdc.gov/mmwr/preview/mmwrhtml/mm5343a3.htm

Influenza Vaccine (Inactivated): What You Need to Know, http://www.cdc.gov/vaccines/pubs/vis/downloads/vis-flu.pdf

Media Page, http://www.cdc.gov/vaccines/news/media.htm

National Center for Immunization and Respiratory Diseases, http://www.cdc.gov/vaccines/

Pneumococcal Polysaccharide Vaccine: What You Need to Know, http://www.cdc.gov/vaccines/pubs/vis/downloads/vis-ppv.pdf

Preventing Seasonal Flu with Vaccination, http://www.cdc.gov/flu/protect/vaccine/index.htm

Prevention and Control of Influenza Recommendations of the Advisory Committee on Immunization Practices, 2007, http://www.cdc.gov/mmwr/preview/mmwrhtml/rr5606a1.htm

Prevention of Pneumococcal Disease (Advisory Committee on Immunization Practices recommendations),

www.cdc.gov/mmwr/preview/mmwrhtml/00047135.htm
Public Health and Aging: Influenza Vaccination Coverage Among Adults Aged ≥50 Years and Pneumococcal Vaccination Coverage Among Adults Aged ≥65 Years --- United States, 2002, http://www.cdc.gov/mmwr/preview/mmwrhtml/mm5241a3.htm
Recommendations of the Advisory Committee on Immunization Practices, http://www.cdc.gov/vaccines/pubs/ACIP-list.htmwww.cdc.gov/nip/publications/ACIP-list.htm
Recommended Adult Immunization Schedule by Age Group and Medical Conditions 2006-2007, http://www.cdc.gov/vaccines/recs/schedules/downloads/adult/06-07/adult-schedule.pdf
Seasonal Flu, www.cdc.gov/ncidod/diseases/flu/fluvirus.htm
Spanish Language Information, http://www.cdc.gov/vaccines/spec-grps/sp.htm
Use of Standing Orders Programs to Increase Adult Vaccination Rates, http://www.cdc.gov/mmwr/preview/mmwrhtml/rr4901a2.htm
Vaccine and Immunization Sites, http://www.cdc.gov/vaccines/about/related-sites.htm
Vaccine-Preventable Adult Diseases, http://www.cdc.gov/vaccines/vpd-vac/adult-vpd.htm
Weekly Influenza Update, http://www.cdc.gov/flu/weekly/

ADDITIONAL RESOURCES:

Flu Shot Trends in the Elderly Medicare Population, http://www.cms.hhs.gov/mcbs/downloads/issue11.pdf
Medicare – Fight Flu and Pneumonia, www.medicare.gov/health/FluDetails.asp
Safe and Appropriate Use of Influenza Drugs (Food and Drug Administration), www.fda.gov/cder/drug/advisory/influenza.htm
Vaccine Adverse Event Reporting System, (800) 822-7967, http://vaers.hhs.gov/
How Does Seasonal Flu Differ From Pandemic Flu?, http://www.pandemicflu.gov/season_or_pandemic.html