

Current status and uptake of influenza vaccination over time among senior adults in the United States

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Influenza is a major cause of morbidity and mortality among older adults in the United States, who may also have chronic medical conditions that place them at high risk for complications from influenza. The U.S. Public Health Service recommended influenza vaccination of adults ≥ 65 y and chronically ill persons since 1961 and beginning with the 2010–11 influenza season, the Advisory Committee on Immunization Practices (ACIP) has expanded its recommendation to vaccinate all persons 6 months of age and older. Medicare coverage for influenza vaccination began in 1993. However, despite the presence of a safe and effective vaccine, long-standing recommendations on vaccination, and federal financial support for vaccination, vaccination levels among adults ≥ 65 y are not optimal. Studies have shown that influenza vaccination coverage among U.S. adults ≥ 65 y steadily increased from 30.1% in 1989 to 64.2% in 1997, but plateaued near 65% from 1998 to 2013. Increasing influenza vaccination coverage among older adults in the United States will require more cooperation among health-care providers, professional organizations, vaccine manufacturers, and public health departments to raise public awareness about the benefits of influenza vaccination and to ensure continued administration of vaccinations throughout the influenza season.

Introduction

The number of adults ≥ 65 years in the United States is increasing rapidly. In 1950, there were approximately 10 million adults ≥ 65 years; in 2010, there were 35 million; by 2030, it is

estimated there will be more than 70 million adults ≥ 65 y.¹ The aging population is accompanied by increases in chronic medical conditions and the aggregate costs associated with treating these conditions will escalate sharply, from \$1.3 trillion in 2003 to an estimated \$4.2 trillion by 2023.¹ Influenza is a major cause of morbidity and mortality among older adults in the United States, who may also have chronic medical conditions that place them at high risk for complications from influenza.

Annual epidemics of influenza typically occur during the late fall through early spring in the United States.² Rates of influenza related serious illness and death are generally highest among adults ≥ 65 y. Disease prevention is critical to maintain the health and quality of life of older adults and vaccination can significantly reduce influenza-related morbidity and mortality.² The U.S. Public Health Service recommended influenza vaccination of adults ≥ 65 y and chronically ill persons since 1961 and beginning with the 2010–11 influenza season, the Advisory Committee on Immunization Practices (ACIP) has expanded its recommendation to vaccinate all persons 6 months of age and older.^{3,4} Medicare coverage for influenza vaccination began in 1993. However, despite the presence of a safe and effective vaccine, long-standing recommendations on vaccination, and federal financial support for vaccination, vaccination levels among adults ≥ 65 years are not optimal.^{2,5} Increasing influenza vaccination coverage among older adults in the United States will require more cooperation among health-care providers, professional organizations, vaccine manufacturers, and public health departments to raise public

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awareness about the benefits of influenza vaccination and to ensure continued administration of vaccinations throughout the influenza season.

Discussion

Studies have shown that influenza vaccination coverage among US adults ≥ 65 y steadily increased from 30.1% in 1989 to 64.2% in 1997, but plateaued near 65% from 1998 to 2013 (6–11). The Healthy People 2000, 2010, and 2020 targets for influenza vaccination of adults ≥ 65 y were set at 60%, 90%, and 90%, respectively.¹² The Healthy People 2000 target of 60% coverage in adults ≥ 65 years, set in the year 1990, was first met in 1997. From 2000–2013, coverage was around 65%, well below the Healthy People 2010 and 2020 targets of 90%. The lack of progress in increasing the level of influenza vaccination coverage during this period is a matter of substantial concern.

Several factors may potentially have influenced influenza vaccination uptake over time. One is that the strength or recommendation for vaccination for persons ≥ 65 y, relative to that for persons of any age with chronic medical conditions, has varied during some seasons. Although influenza vaccination was initially recommended for adults ≥ 65 y in 1961, for some seasons during the 1960s through late 1980s, ACIP recommended vaccination for persons of any age with chronic medical conditions more strongly for individuals ≥ 65 y. During 1973–1985, vaccination coverage among adults ≥ 65 y ranged from 22–30% based on information from the United States Immunization Survey.^{6–11} Starting in 1988, adults ≥ 65 y with or without chronic medical conditions were given equal priority for influenza vaccination. From 1989–1997, a steady increase in influenza vaccination coverage was observed following this change to an age-based recommendation.^{6–11} A second factor that potentially influenced influenza vaccination uptake was payment for influenza vaccine by Medicare which began in 1993, removing financial barriers to vaccination for Medicare beneficiaries. Reasons for the leveling of coverage during the last

decade are not well understood.^{6–11} In 2000–01, there was a substantial delay in influenza vaccine availability and distribution, and, in 2004–05, a shortage in vaccine supply occurred.¹⁰

Vaccination coverage among adults ≥ 65 y varies widely by state. Based on the most recent Behavioral Risk Factor Surveillance System (BRFSS) survey, in the 2013–14 season, state-specific influenza vaccination coverage among adults ≥ 65 y ranged from 53.6% in Nevada to 75.4% in West Virginia with a state median of 65.5% across all states.⁵ Coverage was below 58.5% in 5 states (New Mexico, Idaho, Wisconsin, Alaska, and Nevada), and coverage was above 72.8% in 5 states (West Virginia, Kentucky, Tennessee, Hawaii, and South Dakota). Factors that may have contributed to the wide variability in coverage include variations in the way state vaccination programs are implemented; differences in medical-care delivery infrastructure; differences in the effectiveness of specific interventions being implemented by other stakeholders (i.e., community campaigns, health-care provider-based strategies, and workplace vaccination); and differences in population attitudes toward influenza and influenza vaccination. State immunization programs are encouraged to evaluate factors influencing vaccination and to engage health-care providers and other stakeholders in implementing interventions shown to be effective in improving vaccination levels, such as those described in the *Guide to Community Preventive Services* (i.e., the Community Guide).^{13–14}

Among adults aged ≥ 65 years, racial/ethnic differences in influenza vaccination coverage have persisted over the years. Coverage has been consistently lower among non-Hispanic blacks and Hispanics compared with non-Hispanic whites. One study showed that the yearly gap in influenza vaccination coverage between non-Hispanic blacks and non-Hispanic whites from the 2000–01 to the 2009–10 season ranged from a difference of 15 to 23 percentage points. The gap between Hispanics and non-Hispanic whites ranged from 7 to 16 percentage points. The gap between non-Hispanic whites and other non-Hispanic persons ranged from <1 to 11 percentage points. A variety of possible

contributors to the continued racial and ethnic disparities in older adult influenza vaccination include patient, provider, and system factors. For example, older African-American adults report more negative attitudes toward influenza vaccination than older white adults. Standing orders for vaccination to all eligible patients, used alone or in combination with other immunization interventions, have been successful in raising influenza vaccination levels. In one study, vaccination disparities were reduced among older adults using a combination of patient tracking, vaccination reminders for providers and patients, and patient outreach and assistance. Incorporating the standards of practice for adult immunizations, which include routinely assessing vaccination needs during clinical encounters, providing a strong recommendation for vaccination to patients in need of vaccines, and then offering vaccination at the visit, can have a significant impact on coverage and reduce disparities.^{6–11,15}

Additionally, some access-to-care factors are associated with influenza vaccination among senior adults, such as the number of doctor visits and hospitalization in the previous year and having a usual place for health care.^{6,10} Physician contact and recommendation for vaccination services can be a strong determinant of a patient's decision to be vaccinated, but such contact with the medical system does not guarantee vaccination. A substantial proportion of senior adults who had 10 or more physician visits or were hospitalized did not get vaccinated.^{6,10} Broad use of interventions to remove barriers to access and to make offering of adult vaccines in health care and other settings a routine practice, health care system-based interventions, provider assessment and feedback, provider education, provider reminders, and standing order programs are important components of efforts to reduce the number of missed opportunities and increase adult vaccination coverage.^{13–14}

Conclusion

Influenza vaccination can help older adults maintain health and quality of life by minimizing the most severe outcomes from influenza, which occur at higher

rates among adults ≥ 65 y. New approaches are needed to enhance vaccine uptake in this age group. The 2013 National Vaccine Advisory Committee (NVAC) revised Standards for Adult Immunization Practice call on all health-care professionals to ensure adult patients are vaccinated by assessing vaccination status of all patients, strongly recommending necessary vaccinations, administering vaccinations or referring patients for vaccinations, and documenting vaccinations. Finally, given the wide variation in influenza vaccination coverage among states, investigating the practices in public health immunization programs and among community immunizers in states with high coverage might yield clues to help improve vaccination coverage.¹³

Disclosure of Potential Conflicts of Interest

The findings and conclusions in this paper are those of the authors and do not necessarily represent the views of CDC.

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