

## Medicare & Medicaid Research Review 2011: Volume 1, Number 4

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*A publication of the Centers for Medicare & Medicaid Services,  
Center for Strategic Planning*

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# Flu shots and the characteristics of unvaccinated elderly Medicare beneficiaries

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Key findings: Data from the Medicare Current Beneficiary Survey, 2009.

- Overall, 73% of Medicare beneficiaries aged 65 years and older reported receiving a flu shot for the 2008 flu season, but vaccination rates varied by socio-demographic characteristics. Flu vaccination was lowest for beneficiaries aged 65-74 years old, who were non-Hispanic Blacks and Hispanics, were not married, had less than a high school education, or who were eligible for Medicaid (i.e., dual eligibles).
- Healthcare utilization and personal health behavior were also related to vaccination rates, with current smokers and those with no hospitalizations or physician visits being less likely to be vaccinated.
- Among those beneficiaries who reported receiving a flu shot, 59% received it in a physician's office or clinic, with the next most common setting being in the community (21%); e.g., grocery store, shopping mall, library, or church.
- Among those beneficiaries who did not receive a flu shot, the most common reasons were beliefs that the shot could cause side effects or disease (20%), that they didn't think the shot could prevent the flu (17%), or that the shot wasn't needed (16%). Less than 1% reported that they didn't get the flu shot because of cost.

Elderly persons (aged 65 years and older) are at increased risk of complications from influenza, with the majority of influenza-related hospitalizations and deaths occurring among the elderly (Fiore et al., 2010). Most physicians recommend their elderly patients get a flu shot each year, and many hospitals inquire about elderly patient's immunization status upon admission, providing a vaccination if requested. The importance of getting a flu shot is underscored by the Department of Health and Human Services' Healthy People initiative, which has set a vaccination goal of 90% for the Nation's elderly by the year 2020 (Department of Health and Human Services [DHHS], 2011). Although all costs related to flu shots are covered by Medicare, requiring no co-pay on the part of the beneficiary (Centers for Medicare and Medicaid Services, 2011), for the 2008 flu season, only 73% of non-institutionalized Medicare beneficiaries, aged 65 years and older, reported receiving one.

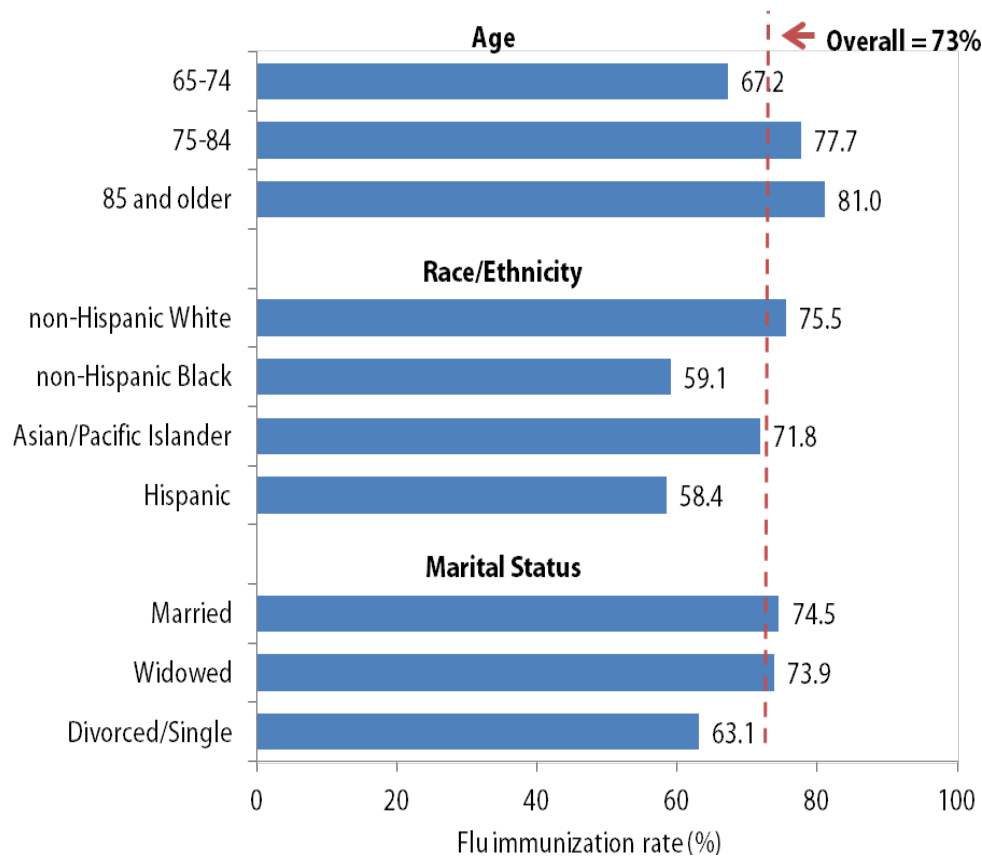
This report presents the most recent data on flu vaccination rates among non-institutionalized elderly Medicare beneficiaries and their association with socio-demographic and personal health characteristics. The report also describes the places beneficiaries received their flu shot and, for those not getting vaccinated, the reasons reported for not doing so.

**Keywords:** Medicare, Influenza, Medicare Current Beneficiary Survey, Flu Shot, MCBS

doi: <http://dx.doi.org/10.5600/mmrr.001.04.b01>

Flu vaccination rates among elderly Medicare beneficiaries increased with age and were significantly lower for non-Hispanic Blacks and Hispanics, and for beneficiaries who were divorced, separated, or never married (Figure 1).

**Figure 1: Prevalence of flu vaccination among elderly Medicare beneficiaries by age, race/ ethnicity, and marital status: 2008 flu season**

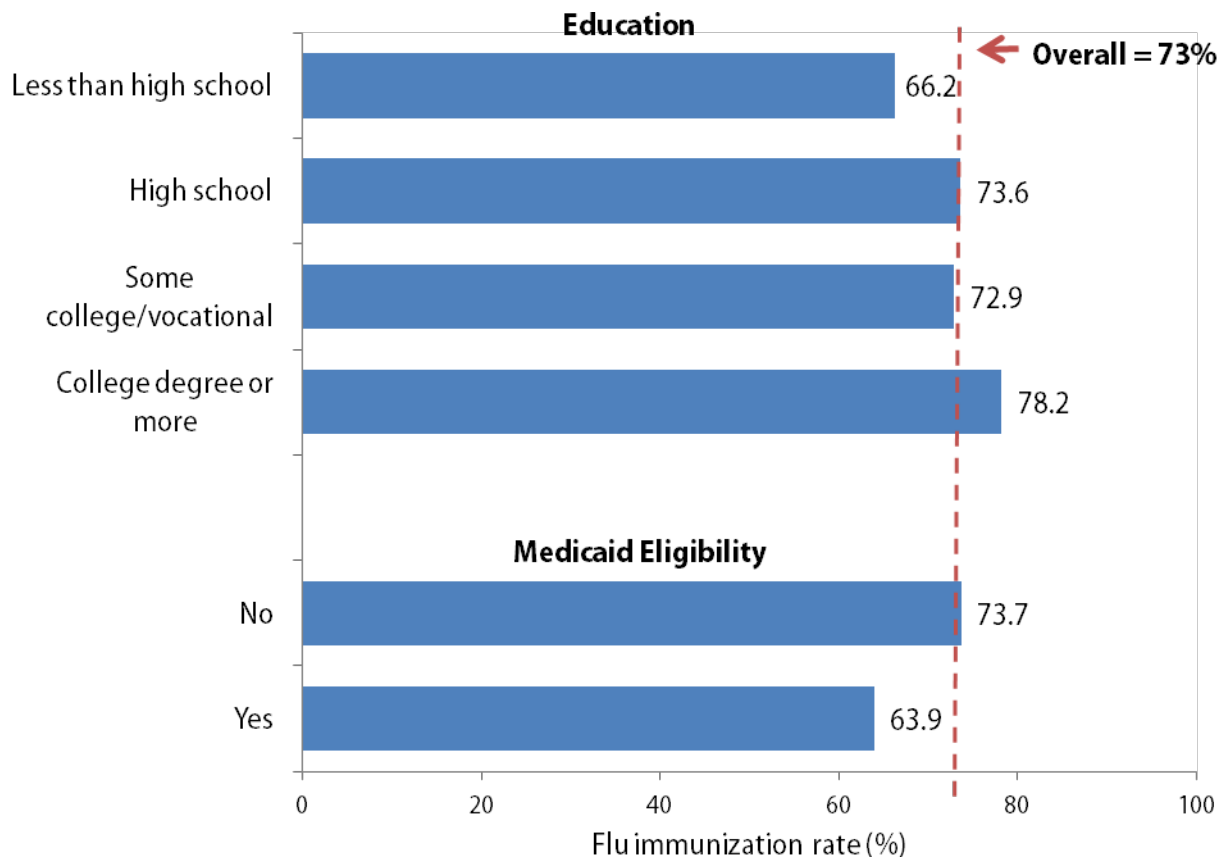


Source: The 2009 MCBS Access to Care File.

The younger the Medicare beneficiary, the less likely they were to get a flu shot. The vaccination rate for beneficiaries aged 65-74 years was 67% compared to 81% for beneficiaries 85 years and older. White beneficiaries were approximately 30% more likely to get vaccinated than their Black and Hispanic counterparts. Vaccination rates for non-Hispanic Blacks and Hispanics were 59% and 58%, respectively. There was no significant difference in flu vaccination between non-Hispanic Whites and Asian/Pacific Islanders. Beneficiaries who were divorced, separated, or never married were 15% less likely to be vaccinated than married beneficiaries.

Flu vaccination rates were lowest for those Medicare beneficiaries in the lowest socioeconomic strata. Medicare beneficiaries with less than a high school education or who were eligible to receive Medicaid benefits were significantly less likely to get a flu vaccination, compared to those with at least a college degree or those not receiving Medicaid (Figure 2).

**Figure 2: Prevalence of flu vaccination among elderly Medicare beneficiaries by education level and Medicaid eligibility: 2008 flu season**

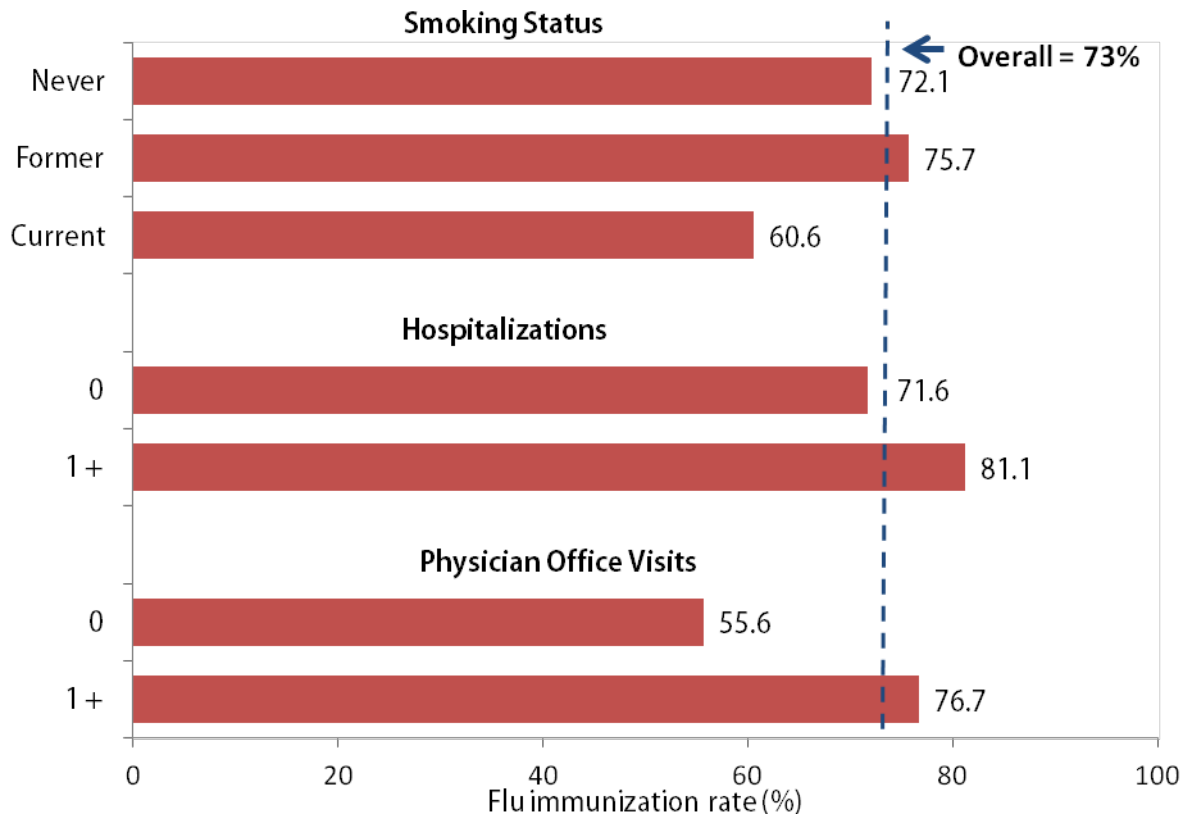


Source: The 2009 MCBS Access to Care File.

Twenty three percent (7.8 million) of elderly Medicare beneficiaries have less than a high school education and 21% have at least a college degree. The flu vaccination rate for those with less than a high school education was significantly lower than the rate for those with at least a college degree, 66% compared to 78% respectively. Similarly, among the 3.4 million (10%) elderly Medicare beneficiaries who also were eligible for Medicaid benefits (known as dual eligibles), only 64% had a flu shot, about 14% lower than the rate for non-dual-eligible Medicare beneficiaries.

**Beneficiaries who were current smokers or who had no physician visits in the last year were significantly less likely to receive a flu shot (Figure 3).**

**Figure 3: Prevalence of flu vaccination among elderly Medicare beneficiaries by smoking status and health care utilization: 2008 flu season**



Source: The 2009 MCBS Access to Care File.

In addition to socio-demographic factors, health status, personal health behavior, and health care utilization influenced the likelihood of getting a flu shot. About 10% of Medicare beneficiaries were current smokers and they were about 16% less likely to get vaccinated than non-smokers. Although most beneficiaries (84%) did have at least one physician visit during the year, those beneficiaries who reported not seeing a physician during the year were 28% less likely to get vaccinated than those beneficiaries who did see a physician. In 2008, 84% of beneficiaries reported having at least one physician visit during the year. Beneficiaries with a chronic condition (i.e., COPD/asthma, heart failure, high cholesterol, or hypertension) were more likely to get a flu shot, reporting vaccination rates between 75 and 80 percent. Beneficiaries with a chronic condition were also more likely to have seen a physician during the year (data not shown).

Beneficiaries without a physician visit were younger, non-Hispanic Black or Hispanic, divorced or single, less educated, and resided in the western United States. They also were more likely to be current smokers (Table 1).

**Table 1: Characteristics of elderly traditional<sup>1</sup> Medicare beneficiaries with no physician visit in 2008**

	Weighted Percentage		Weighted Percentage
Age (years)		Educational attainment	
65-74	22.4	Less than high school	19.0
75-84	10.4	High school	15.4
85 and older	8.7	Some college/vocational	16.1
Sex		College degree or more	15.5
Men	20.9	Medicaid eligibility	
Women	12.9	Yes	14.2
Race/ethnicity		No	16.7
Non-Hispanic White	15.2	Region	
Non-Hispanic Black	23.1	Northeast	16.0
Asian/Pacific Islander	17.4	Midwest	15.7
Hispanic	25.6	South	14.0
American Indian/Alaskan Native	11.9 <sup>2</sup>	West	22.0
Other/Unknown	22.8	Smoking status	
Marital status		Never	14.7
Married	16.7	Former	15.3
Widowed	11.7	Current	29.5
Divorced/Separated/Single	25.6		

<sup>1</sup> Beneficiaries with any Medicare Advantage enrollment are excluded.

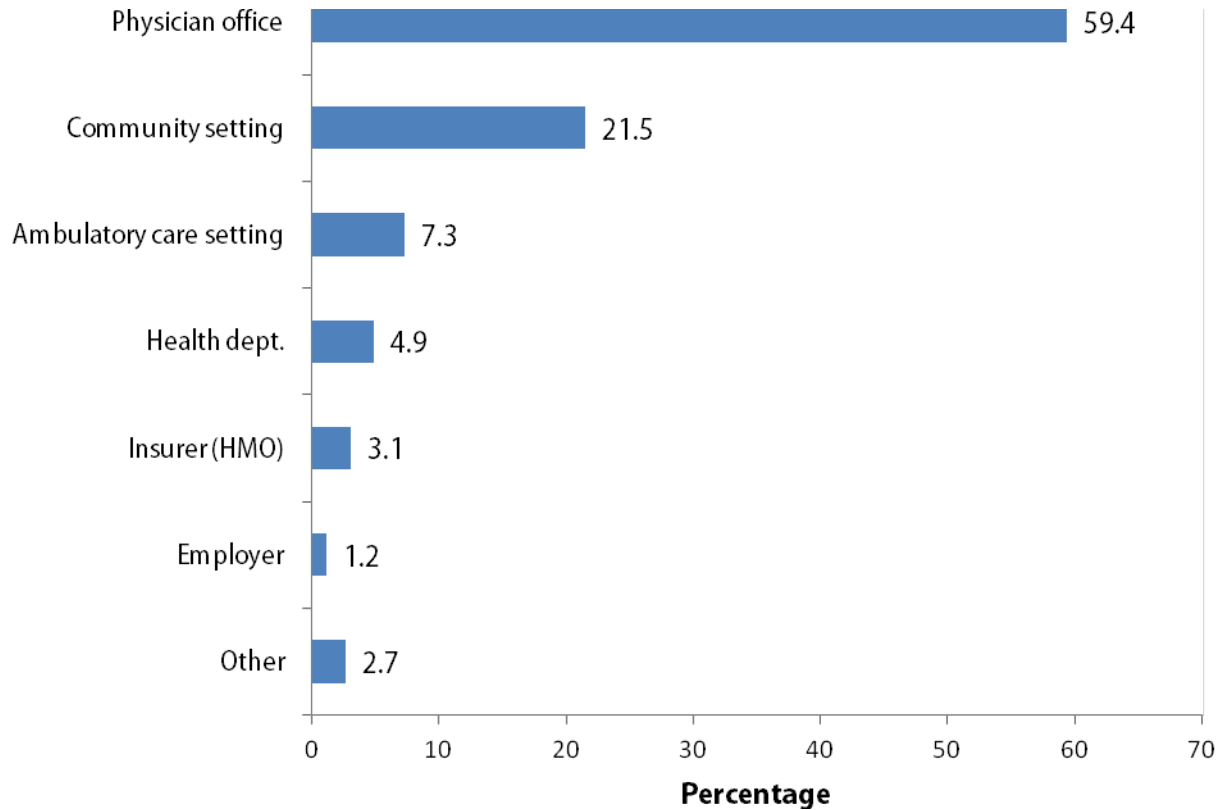
<sup>2</sup> Estimate is considered unreliable as it has a relative standard error  $\geq 30\%$ .

Source: The 2009 MCBS Access to Care File.

Since not having a physician visit is an important determinant of whether or not a beneficiary receives a flu shot, it is important to understand the characteristics of this population. Twenty-two percent of beneficiaries 65-74 years of age did not have a physician visit compared to about 10% of older beneficiaries. About one-quarter of Black and Hispanic beneficiaries had not seen a physician in the last year compared to only 15% of Whites. Finally, 30% of current smokers had no physician visit, which was about twice as high as non-smokers.

A physician office or community setting; e.g., grocery store, shopping mall, library, or church, were the most common places beneficiaries reported getting a flu shot (Figure 4).

**Figure 4: Settings where elderly Medicare beneficiaries reported receiving their flu vaccination: 2008 flu season**



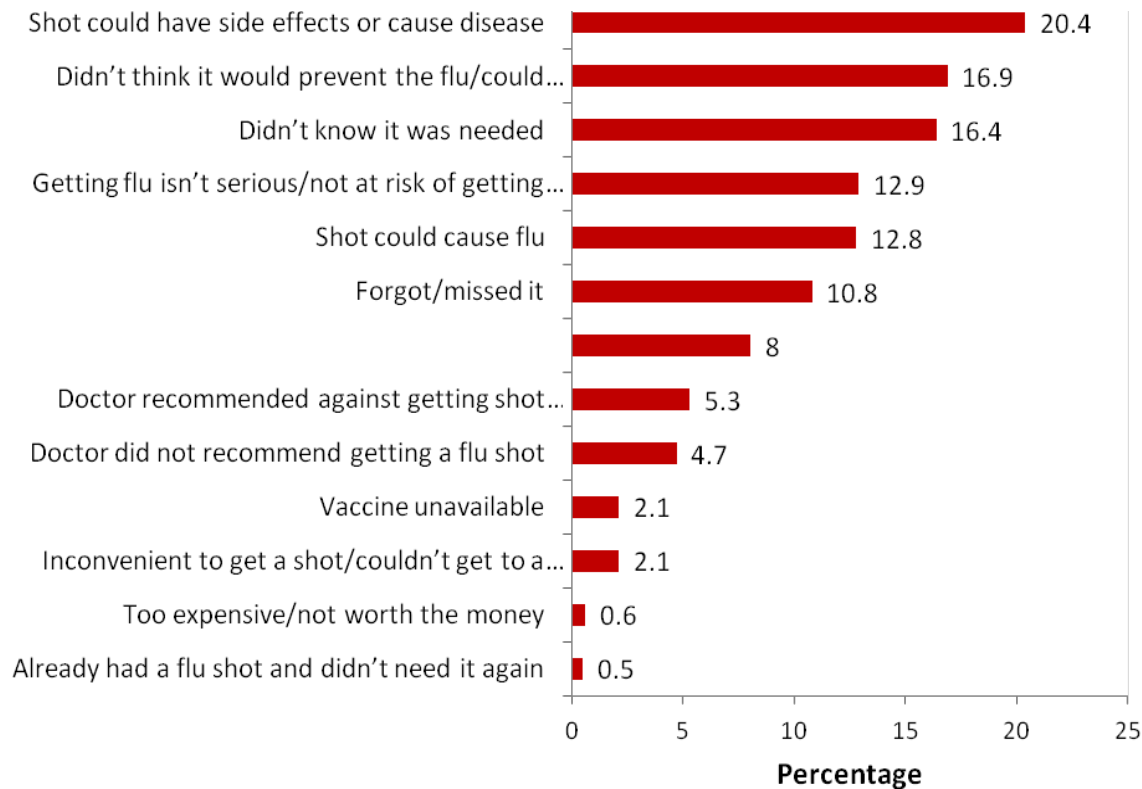
Source: The 2009 MCBS Access to Care File.

Among beneficiaries who did receive a flu shot, most received it in a doctor's office or clinic (59%) followed by 21.5% in a community setting, such as a grocery store, shopping mall, senior center, library, church, or school. Seven percent received their flu shot in an ambulatory treatment facility, such as a surgical center, urgent care center, outpatient clinic, or hospital emergency room. All other settings such as a health department or place of employment accounted for the remaining 12%.

Interestingly, of those beneficiaries who did receive a flu shot for the 2008 flu season, those in the lower economic strata, or who were Black or Hispanic, were less likely to receive it in a community setting. Only 15% of beneficiaries with a less than a high school education received their flu shot in a community setting, compared to 26% of college educated beneficiaries. Similarly, about 11% of Blacks, 15% of Hispanics and 16% of beneficiaries eligible for Medicaid received their shot in a community setting. (data not shown).

Common reasons for not getting a flu shot were related to beliefs that the shot could cause side effects or disease, could not prevent the flu, or wasn't needed (Figure 5).

**Figure 5: Reasons elderly Medicare beneficiaries reported not getting a flu vaccination for the 2008 flu season**



Source: The 2009 MCBS Access to Care File.

Over one-quarter of non-institutionalized elderly Medicare beneficiaries did not receive their recommended flu vaccination for the 2008 flu season. When asked the reasons why they didn't get a flu shot, one-fifth indicated that the shot could cause side effects or disease and 13% thought that the shot could cause the flu. Similarly, about 17% said they didn't get a shot, because they didn't think it would prevent the flu or they didn't know it was needed. Only 5% indicated that their doctor did not recommend getting a flu shot and less than 1% said they didn't get it because of the cost.

### Summary and Recommendations

Flu alone is responsible for over 200,000 hospitalizations on average each year, and flu/pneumonia is the fifth leading cause of death in the elderly (Centers for Medicare & Medicaid Services, 2011b). Despite the benefits of flu vaccination and the elimination of all out-

of-pocket expenses for the beneficiary, the use of the Medicare flu vaccination benefit is not optimal—and is falling short of the Healthy People goals (DHHS, 2011).

Data from the Medicare Current Beneficiary Survey (MCBS) shows that those at the most risk—e.g., beneficiaries aged 85 years and over, with chronic conditions or in poor or failing health—are the most likely to be vaccinated. Conversely, for the remainder, the likelihood of being vaccinated varied by socio-demographic characteristics and personal health behaviors. The Medicare beneficiaries least likely to get a flu shot include the following:

- Newly covered and younger (aged 65-74)
- Divorced, separated or unmarried
- African American or Hispanic
- Medicaid eligible (lower socioeconomic strata)
- Less educated (less than a high school education)
- Less likely to use community resources
- Located in the western United States
- Current smokers, and
- Have no interaction with the delivery system (no physician office visits or hospitalizations).

These findings have implications for prevention and outreach efforts. Traditional outreach that focuses on provider interactions and mainstream media may prove ineffective in reaching this population and in reducing the disparity in vaccination rates: beneficiaries who most likely live alone, who have no regular interaction with providers or the health delivery system, may have language or reading comprehension barriers, may have been uninsured prior to enrolling in Medicare, and may not have been familiar with prevention benefits. It is also possible that this population is geographically diverse and difficult to reach, focused either in congested inner cities or remote rural areas.

Outreach efforts that focus more on interactions with faith-based organizations; grocery, pharmacy, and “big box” retailers; federal, state, and local government employees (e.g., Social Security, Motor Vehicle Administration, Economic Security) may have more success. These efforts should also include targeted, culturally-focused communication strategies that address barriers to getting immunized, such as negative beliefs and perceptions held by beneficiaries.

This brief has highlighted the characteristics of elderly Medicare beneficiaries who do not receive their recommended flu vaccination, but additional insight could be gained by leveraging multiple data sources, such as CMS administrative data and the MCBS, the Medical Expenditure Panel Survey (MEPS), the Behavioral Risk Factor Surveillance Survey (BRFSS), the National Health Interview Survey (NHIS), the Census Bureau’s American Community Survey (ACS), as well as commercial marketing databases. As each of these data sources contains information related to geography, utilization, demographics, or health behaviors, synthesizing



these data with analytic and predictive modeling techniques could lead to more effective and focused outreach, including geographic targeting.

### **Data Source and Methods**

The findings are based upon data from the 2009 MCBS Access to Care file. The MCBS is a continuous, multipurpose survey of a nationally representative sample of aged, disabled, and institutionalized Medicare beneficiaries. The MCBS collects information from approximately 14,000 beneficiaries on their health status, health care use and expenditures, health insurance coverage, and socioeconomic and demographic characteristics (Centers for Medicare & Medicaid Services, 2011a). A complete description of the MCBS survey can be found on the CMS Web site (<http://www.cms.gov/mcbs/>).

We included non-institutionalized Medicare beneficiaries aged 65 years or older, who were part of the community sample participants in the 2009 MCBS, survived the entire year and had a valid response to the question asking whether they had received a flu shot the previous winter (i.e. the 2008 flu season). Our sample included 11,235 Medicare beneficiaries representing over 34.1-million beneficiaries. Since utilization information is not available for those participating in the Medicare Advantage (MA or HMO) program, information on physician visits and hospitalizations was based upon 7,939 beneficiaries representing over 24-million beneficiaries enrolled in the traditional fee-for-service (FFS) program.

The MCBS design is based upon a stratified, unequal-probability, multi-stage sample. Sample weights, which account for the differential probabilities of selection, non-response, and non-coverage, were incorporated into the estimation process. The standard errors of the percentages were estimated using Balanced Repeated Replicates (BRR) available in the SAS survey procedures, a method that incorporates the sample weights and sample design. Differences between percentages were evaluated using the Wald chi-square, two-sided significance tests at the 0.05 level.

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## References

- Centers for Medicare and Medicaid Services (2011). *Manage your Health*. Retrieved from <http://www.medicare.gov/navigation/manage-your-health/preventive-services/flu-shots.aspx>
- Centers for Medicare and Medicaid Services (2011a). *Overview Medicare Current Beneficiary Survey*. Retrieved from <http://www.cms.gov/mcbs/>
- Centers for Medicare and Medicaid Services (2011b). *Overview of Adult Immunization*. Retrieved from <http://www.cms.gov/AdultImmunizations/>
- Department of Health and Human Services (DHHS) (2010). *Healthy People 2020*. Retrieved from <http://healthypeople.gov/2020/topicsobjectives2020/objectiveslist.aspx?topicId=23>
- Fiore, A. E., Uyeki, T. M., Broder, K., Finelli, L., Euler, G. L., Singleton, J. A., . . . Cox, N. J. (2010). Prevention and Control of Influenza with Vaccines: Recommendations of the Advisory Committee on Immunization Practices (ACIP), 2010. *MMWR. Recommendations and Reports: Morbidity and mortality weekly report. Recommendations and reports/Centers for Disease Control*, 59(rr08), 1–62. Retrieved from <http://www.cdc.gov/mmwr/preview/mmwrhtml/rr5908a1.htm> [PubMed](#)

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## Medicare & Medicaid Research Review

2011

Volume 1, Number 4

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