# Influenza Vaccination for the Elderly: When Doing More Costs Less

*Davis JW, Lee E, Taira DA, Chung RS. Influenza vaccination, hospitalizations, and costs among members of a Medicare managed care plan. Med Care 2001;39:1273–80.*

## Study Overview

Objective. To determine the effectiveness and possible cost savings of influenza vaccination in a Medicare managed care population.

Design. Retrospective cohort study.

Setting and participants. All enrollees aged 65 and older in a fee-for-service model Medicare managed care plan in Hawaii were eligible. Patients had to be continuously enrolled for 12 months before the beginning of the 3 influenza seasons under study (1994/1995, 1995/1996, and 1996/1997). Patients were classified as vaccinated or unvaccinated based on insurance claims. Major comorbidities were determined using ICD-9-CM codes.

Main outcome measures. Outcome measurements were taken from insurance claims. These included hospitalizations due to pneumonia or influenza, any respiratory condition, or congestive heart failure (CHF). Eligible costs and the maximal allowable costs per condition covered by the insurer were used for comparison. Generalized linear models were used to estimate adjusted hospitalization costs for vaccinated and unvaccinated patients.

Main results. Vaccinated patients were less likely than unvaccinated patients to be hospitalized during the influenza season with respiratory conditions or CHF (adjusted odds ratios, 0.8 and 0.8 respectively; $P < 0.05$). There was no significant difference in hospitalization due to pneumonia or influenza. Estimated cost savings per vaccinated subject were $85 minus the cost of the vaccine (95% confidence interval, $45 to $113). Differences in outcomes between vaccinated and unvaccinated adults were less pronounced for patients aged 80 years and older compared with patients 65 to 79 years old.

Conclusion. Vaccination against influenza decreased hospitalizations from all respiratory conditions and CHF and reduced health costs for elderly adults in Hawaii.

## Commentary

Davis et al provide an important addition to the body of work demonstrating the cost savings of influenza vaccination in the elderly. Their findings, though less pronounced, are similar to those of Nichol et al, who had studied elderly enrollees of a staff-model HMO in Minnesota and estimated the cost savings to be $21 to $235 per person vaccinated during 3 influenza seasons [1]. Given the geographic and demographic differences between the 2 study populations, the current study helps us apply the findings of Nichol et al more broadly. The efficacy of influenza vaccination for preventing respiratory illness, pneumonia, hospitalization, and death in the elderly has already been well established [2]. Quantifying the costs of excess hospitalizations occurring in unvaccinated elderly persons helps inform managed care organizations and payers, such as Medicare, about potential savings to be gained by investing in programs aimed at improving vaccination rates. Even modestly successful low-cost approaches could be valuable. One group, using personalized mailed reminders, increased their vaccination rate by only 4.6% but estimated that this program was likely to result in considerable cost savings [3].

However, several factors could greatly influence the magnitude of cost savings from influenza vaccination. In this study as in others, there was variation across different influenza seasons. Cost savings of vaccination programs would be expected to be lower in years with fewer cases of influenza and with poor antigenic matching between vaccine and outbreak viral strains. On the other hand, health care system savings could be higher than those estimated here if costs for outpatient care were added to the cost of excess hospitalizations.

## Applications for Clinical Practice

Health plans and Medicare may be able to save money if resources can be used efficiently to achieve greater use of influenza vaccination among the elderly. Everyone stands to benefit from finding ways to advance this underused treatment, which is effective and reduces costs.

*–Review by Stephen D. Persell, MD*

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## References


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2. Gross PA, Hermogenes AW, Sacks HS, et al. The efficacy of influenza vaccine in elderly persons. A meta-analysis and review of the literature. Ann Intern Med 1995;123:518–27.
3. Baker AM, McCarthy B, Gurley VF, Yood MU. Influenza immunization in a managed care organization. J Gen Intern Med 1998;13:469–75.