Encouraging influenza vaccination for nursing home staff reduced mortality and influenza-like illness in the residents

Hayward AC, Harling R, Wetten S, et al. **Effectiveness of an influenza vaccine programme for care home staff to prevent death, morbidity, and health service use among residents: cluster randomised controlled trial.** BMJ. 2006; 333:1241.

Clinical impact ratings: GIM/FP/GP ★★★★★☆☆ Geriatrics ★★★★★☆☆ Infectious Disease ★★★★★★☆

QUESTION

Does encouraging influenza vaccination for nursing home staff reduce mortality and influenza-like illness in the residents?

METHODS

Design: Matched-pair, cluster-randomized, controlled trial.

Allocation: Concealed.*

Blinding: Blinded {residents}†.*

Follow-up period: November to March (influenza season) in 2 consecutive years.

Setting: 50 private nursing homes in England, United Kingdom.

Participants: 3284 staff members and 2604 residents in 2003–2004 and 3492 staff members and 2661 residents in 2004–2005. Residents had a mean age of 83 years, and 70% were women.

Intervention: Staff members in the intervention homes (n = 1610 in 2003–2004 and 1726 in 2004–2005) were actively encouraged by the lead nurse to get the influenza vaccine, and 3 vaccination sessions were offered in the care home in October of each year. Staff members in the control homes (n = 1674 in 2003–2004 and 1766 in 2004–2005) were informed about the study and Department of Health recommendations for influenza vaccination. The study did not modify the homes' policy of offering the influenza vaccine to all residents (73% of residents were vaccinated).

Outcomes: All-cause mortality in residents. Secondary outcomes were influenza-like illness (ILI), general practitioner visits for ILI, hospitalization for ILI, and death with ILI in residents. Results were analyzed separately by year and for periods of national influenza activity or inactivity.

Patient follow-up: 22 pairs (88%) of homes.

MAIN RESULTS

Staff vaccination rates were 35% (48% in full-time and 21% in part-time staff) in the intervention group and 5.0% in the control group in 2003–2004; they were 31% (43% in full-time and 18% in part-time staff) and 3.8%, respectively, in 2004–2005. National influenza activity was below average in 2003–2004, but even lower in 2004–2005. In the period of influenza activity in 2003–2004, rates of all-cause mortality, ILI, general practitioner visits for ILI, and hospitalizations for ILI were lower in the residents of intervention homes than in those of control homes (Table). Groups did not differ for any outcome in the period of influenza activity in 2004–2005 or in periods of influenza inactivity in either year.

CONCLUSION

Encouraging influenza vaccination for nursing home staff reduced mortality and influenza-like illness in the residents during a period of moderate influenza activity, but the strategy provided no benefit during periods of low or no influenza activity.

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*See Glossary.

†Information provided by author.

Encouraging nursing home staff to get influenza vaccination (intervention) vs standard policy of not offering vaccination (control) to prevent death and influenza-like illness (ILI) in residents during the period of influenza activity in 2003–2004‡

Outcomes	Intervention homes	Control homes	Weighted ARR (95% CI)§	NNT (CI)
All-cause mortality	11%	15%	5% (2 to 7)	9 (6 to 21)
ILI	11%	23%	9% (3 to 14)	5 (3 to 14)
Physician visits for ILI	10%	19%	7% (2 to 12)	6 (4 to 21)
Hospitalization for ILI	0.3%	1.7%	2% (0 to 3)	21 (14 to 103)
Mortality with ILI	1.0%	1.4%	1% (–1 to 2)	Not significant

‡Abbreviations defined in Glossary.

§Weighted by number of residents per home and effect size and its standard error.

COMMENTARY

The study by Hayward and colleagues convincingly shows that vaccinating health care workers reduced both ILI and, more important, deaths in nursing home residents. The benefit was found in a year of moderate influenza activity, despite vaccination rates that were fairly low in health care workers and fairly high in residents. Adding to validity, in the following low influenza activity year, no effect was seen. Two smaller previous studies that found similar results were criticized on methodological grounds. Although the trial by Hayward and colleagues was unblinded and lacked laboratory confirmation, it adds to the growing evidence that influenza vaccination benefits not only those vaccinated but also their contacts. At the other end of the age spectrum, a study of vaccinating school-aged children found that most outcomes related to ILI, including absenteeism from school and work, were substantially lower in intervention households than in control households (1).

A cost-effectiveness analysis of the policy to vaccinate health care workers against influenza found that, in the base case, vaccination was cost-saving. Even in the most pessimistic scenario, it cost only £405 (US $793) per life-year gained (2), which compares well with other preventive measures, so the policy can be strongly recommended. Unfortunately, health care workers do not seem more likely than the general public to follow recommendations. A number of measures seem to improve uptake, such as educational campaigns, special vaccination clinics, and gift incentives (3).

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