

Why everyone over 65 deserves influenza vaccine

Government recommendations should reflect the evidence

In a recent issue of *Effectiveness Matters*, the NHS Centre for Reviews and Dissemination recommends annual influenza vaccination of everyone aged over 65.¹ However, the Department of Health recommends vaccination only of individuals at high medical risk or who are institutionalised.² Each year in Britain, there are thousands of hospital admissions and deaths due to influenza infection, most in people aged over 65.³ Confronted with this disease burden and with differing recommendations about influenza vaccination, what should doctors do?

The recommendations in *Effectiveness Matters* are based on a systematic review of research showing that vaccinating elderly people against influenza is an effective, safe, and cost effective way of reducing influenza related deaths and illness.¹ Systematic reviews from the United States and Canada reached similar conclusions.^{4,5} The evidence they lay before us is clear: annual influenza vaccination of elderly people prevents respiratory illness, pneumonia, hospital admission, and death. Meta-analyses of systematically identified, published cohort studies show that vaccination of institutionalised elderly people reduces the risk of each of these outcomes by about half.⁶

These meta-analyses were based on tens of thousands of patients. The authors calculate that hundreds of unpublished "null" studies would have to exist to refute these results, making publication bias irrelevant. Good quality, population based observational studies in elderly people living in the community have reported similar beneficial effects on mortality and hospital admission with annual influenza vaccination.^{1,4}

The observational studies on which the recommendations are based do have several potential limitations. None of the studies confirmed influenza infection serologically. However, this would lead to under- rather than overestimates of vaccine efficacy because much of the respiratory illness that occurs during influenza season is caused by other organisms (such as parainfluenza and respiratory syncytial viruses) and cannot be prevented by influenza vaccine.

More problematic are possible selection bias (differences between vaccinated and unvaccinated subjects) and information bias (incomplete ascertainment of vaccination status and outcomes). Controls were patients who refused vaccination and who might have differed from cases in other ways that affect outcome. Although none of the studies described subjects sufficiently well to exclude selection bias completely, the studies that did compare vaccinated with unvaccinated subjects reported few differences between them. More than half the observational studies were retrospective, making errors in ascertainment of vaccination and outcome status inevitable.

Randomised controlled trials can avoid these biases, which helps explain why they are the standard for evaluating interventions. Until recently, there had never been a trial with elderly subjects because of ethical concerns in countries where the vaccine was already recommended for this age group.⁷ However, in 1994 a randomised controlled trial of Dutch people aged 60 and over living in the community reported a 50% reduction in serologically confirmed infection and clinical influenza-like illness.⁸ Although the sample was too small to evaluate hospital admissions or deaths, the trial validated the observational study results. Trials of influenza vaccine in

elderly people have also established its safety, reporting mild local side effects (such as soreness) in less than 20% of subjects and no adverse systemic effects.^{9,10}

The vaccine is certainly less than ideal. Because of antigenic drift, a newly formulated vaccine must be administered annually, making compliance a burden for patient and doctor. Its efficacy is lower than we are used to with other viral vaccines like polio and measles, even when there is a good antigenic match, and with a poor antigenic match or in non-epidemic years the vaccine provides even less benefit. Nevertheless, the evidence clearly shows that annual vaccination of elderly people prevents morbidity and mortality, without substantial risk.

Why then isn't universal vaccination of the elderly national policy? There is no question that the burden of disease is sufficiently great to merit wider use of the vaccine. It is less clear whether, in the zero sum game of NHS spending, the availability or quality of other healthcare services would be compromised by the cost and logistical considerations of implementation. American studies show that universal vaccination of elderly people saves money.^{11,12} Medicare, the United States health insurance programme for people aged 65 and over, began to cover the cost of influenza vaccine in 1993 after a large scale demonstration project showed its cost effectiveness. Adequate cost effectiveness analyses have not been performed in Britain. However, even if the vaccine did not save in direct medical care costs here, it is almost certainly cost effective when suffering, incapacity, and lost productivity are taken into account.

We now know that vaccinating all elderly people against influenza prevents illness and saves lives. It is surely the duty of the Department of Health to make recommendations for immunising elderly people that reflect this evidence. And it is just as surely our duty as doctors to ensure that every elderly patient is vaccinated annually against a disease that has "arguably caused more morbidity and mortality than any infectious agent in recorded history."⁷

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