Immunisation Rates in Older Veterans and War Widows

Balakrishnan Nair
Geriatric Medicine, University of Newcastle

Julie Byles, Meredith Tavener, Robin Heinze
Centre for Clinical Epidemiology and Biostatistics, University of Newcastle

Aim: To study the immunisation rates of veterans and war widows aged 70 years and above in New South Wales and Queensland, as part of the Preventive Care Trial.

Method: A trained health care worker assessed subjects at home regarding health, illness and immunisation status.

Results: Suboptimal immunisation rate for influenza (72%) and poor rates for pneumococcus (14%) and tetanus (43%) were detected.

Conclusion: Subjects in this study were not immunised according to recommended guidelines. Further education campaigns are warranted to improve immunisation rates in older people.

Introduction
Australia has an increasing older population and health promotion in this group is of vital importance [1]. Increasing age is associated with reduced immunity and underlying chronic respiratory and cardiovascular diseases. These make older people vulnerable to influenza and pneumococcal infections. Furthermore, many older people never had primary immunisation against tetanus.

The National Health and Medical Research Council (NHMRC) of Australia and the Australian Society for Geriatric Medicine recommend routine vaccination against influenza, pneumococcus and tetanus for people above the age of 65 [2, 3]. The US, Canadian and UK guidelines are similar [4].

The aim of this study was to estimate the immunisation status of older people, and to highlight the need for strategies to improve vaccination coverage.

Influenza
During an influenza epidemic, the death rate in Australia increases and the majority of deaths related to influenza are in the very young and the very old [5]. Moreover, 10% of people who die of influenza-related diseases appear to be healthy preceding the illness. Randomised controlled trials have shown that immunisation is effective and meta-analyses of flu vaccination have shown a reduction in morbidity, hospitalisation and mortality. For example, pooled estimates of efficacy based on 20 cohort studies have shown that vaccination reduces respiratory illness by 56%, pneumonia by 53%, hospitalisation by 48% and mortality by 68% [6]. Hospitalisation costs are also reduced by vaccination which is certainly cost-effective [7].

Table 1: NHMRC guidelines

| Vaccination for above 65 years |
|-------------------------------|
| Influenza                     | Every year |
| Pneumococcus                  | Every 5 years |
| Tetanus                       | Every 10 years |

So why are older people not immunised against influenza? One reason is that they perceive themselves as healthy and think that they do not require immunisation. Another reason is fear of local and systemic side-effects. However, only 20% of people have transient local reactions like pain and swelling. Systemic side effects are very rare [8].

People often complain that they had 'flu' in spite of immunisation and are reluctant to repeat their immunisation. Most flu-like syndromes are due to Rhinoviruses or Coronavirus which are not associated with significant mortality and for which the vaccine does not provide any protection. People should be advised that the influenza vaccine will not prevent colds and most flu-like symptoms, but their risk of getting pneumonia or dying is reduced. The best predictors for flu vaccination are previous vaccinations and advice from general practitioners [9, 10, 11].

Pneumococcal Infections
Pneumococcal diseases cause 500,000 cases of pneumonia, three million cases of otitis media, 3,000 cases of meningitis and 40,000 deaths per year in the US. Death rates range from 5 to 25% and are greatest among older people [12]. Pneumococcal infections cause one million deaths every year in the world [13]. In Australia, this is the most common cause of community-acquired pneumonia. There are 84 serotypes known and 80% of infections are caused by 23 serotypes.

The NHMRC recommends immunisation for people 65
years or older every five years [2]. Pneumovax 23 is the licenced vaccine, it has the 23 serotypes and is 80% effective.

The vaccine is generally well tolerated and local pain and swelling only lasts 48 hours. Five per million people develop anaphylactoid reactions [14, 15].

Tetanus
Tetanus vaccination was introduced in the 1950s. Many people now in their fifties had no opportunity for primary vaccination. In Australia 10 cases of tetanus are reported every year and eight of them are in people above the age of 50 [16, 17]. Most cases are in females, because they are less likely to be immunised. In a recent community study, less than 50% of middle-aged people had antibodies against tetanus [18].

NHMRC recommends booster doses every ten years for all adults [2].

Method
At present, we are conducting a randomised controlled trial, based at the Centre for Clinical Epidemiology and Biostatistics, Newcastle (New South Wales), of home visits for veterans and war widows. A random sample of entitled veterans and widows was selected from the Department of Veterans' Affairs' (DVA) database. To be eligible for inclusion in the sample, veterans had to be aged at least 70 years, living in selected postal areas in ten geographical regions (six in New South Wales and four in Queensland). Half the areas in each state were urban and half rural. Within each area, selection was stratified to allow equal representation of males and females and over representation of people above 85 years.

The DVA mailed randomly selected veterans and widows an invitation to participate in the three-year trial of home visits. The consenting subjects had a baseline telephone interview regarding demography and health status. Sixty percent of those visited were randomly allocated to receive home visits during which a specially trained health worker undertook a detailed assessment of health and health care needs, including self-reported immunisation status.

Here we report on the immunisation status of 891 veterans and war widows in the intervention group as recorded during their first home visit of the program.

Results
Of the original sample, 1,620 (30%) of eligible people were interviewed for the randomised controlled trial, and 942 were randomly assigned to receive home visits. Between December 1997 and September 1998, 891 participants were visited. Fifty-four percent of those visited were males and 46% females. In the 70-84 age group there were 799 (90%) subjects and 10% were above 85 years.

In our study, 72% of subjects reported having flu vaccination in the 12 months prior to the home visit, 14% reported vaccination against pneumococcus (three percent of people could not remember and 83% said they had no vaccination), and 43% of people had had tetanus vaccination (46% reported no vaccination, while 10% did not know their vaccination status).

Univariate analyses indicated no statistically significant association between vaccination and age, gender, education or residence (p values = 0.48, 0.49, 0.64, 0.98 respectively).

Similarly, there was no association between vaccination and number of general practitioners (p = 0.99) or recent admission to hospital (p = 0.23).

Discussion
This study found suboptimal levels of vaccination rates against influenza and very low levels against pneumococcus and tetanus. While there is some potential for participation bias (just over one-third of people consented to take part in the trial), these rates are still cause for alarm. If these people are the early adopters of innovations, then rates amongst non-participants may be expected to be even lower.

Low vaccination rates in rural areas have been reported in the past. In our study there was no difference between rural and urban areas. Similarly, there was no difference among people with different educational backgrounds.

Forty-three percent of subjects reported hospitalisation in the preceding year. Seventy-three percent reported attending the same general practitioner during the year. Both these occasions should have been utilised to discuss and initiate immunisation.

Recall bias could be an issue in this study, particularly for pneumococcal and tetanus vaccinations. However, the subjects were active, community-dwelling people with normal cognition. An injection is likely to be
remembered, and telescoping would be expected to result in an over-estimate of vaccinations within the relevant time frames. Further studies by sampling a small proportion of those surveyed and cross checking with medical records will be done.

Even if medical records show slightly higher vaccination rates, these rates are still highly unacceptable and not consistent with the guidelines.

Immunisation is a key public health measure. However, much focus has been on the promotion of immunisation among children, not adults. Target immunisation rates for children are set at 90-95%. Shouldn't we have similar target rates for older adults?

Acknowledgment
The Preventive Care Trial is funded by the Department of Veterans' Affairs.

Key Points

- There are universally accepted guidelines for vaccination for older people.
- People above 65 years should be vaccinated against influenza, pneumococcus and tetanus (see Table I).
- Vaccination is suboptimal in this age group.
- Further educational campaigns are needed for the public and for health professionals.

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