Flu vaccination in nursing homes: a survey of nursing-home managers
Geoffrey J. Barnes and Catherine Quigley

Abstract
Background This article describes the findings of a survey of nursing-home managers in the Sefton area of Merseyside about flu vaccination in their nursing homes during the 2002/2003 flu vaccination campaign. This followed concerns expressed that significant numbers of nursing-home residents may not have been offered the vaccine during the annual campaign.
Methods A survey of all nursing homes in Sefton carried out in April 2003.
Results Forty-three nursing homes participated in the study. Survey results showed considerable variation in practice with regard to the organization of flu vaccination and consequently considerable variation in the outcomes achieved with regard to the number of residents vaccinated. Residents are more likely to be offered vaccination in some homes than others. The size of the home and the number of qualified staff may be influential. Some homes report uncertainty related to the issues of consent and anaphylaxis and problems obtaining vaccine prescriptions. However, attitudes of nursing-home managers may also be important.
Keywords: continuing care, flu, survey, vaccination

Introduction
The annual influenza (flu) vaccination programme is an important component of primary health care for older people. Influenza is a highly infectious viral infection which for most people is an unpleasant but self-limiting illness lasting about 1 week. For people in 'high-risk' groups, however, such as those with underlying respiratory, heart or renal disease, diabetes, those with impaired immune systems and elderly people, flu is a significant cause of more serious illness and deaths. Immunization of older people against flu is cost effective1–4 and since 2000, flu immunization has been recommended by the Department of Health for everyone 65 years of age and older and all people living in long-term care homes. Standard 8 of the National Service Framework for Older People demands that everyone aged 65 and over should be ‘actively contacted and offered flu vaccine’,5 and a target of 70 per cent uptake of flu vaccination for the over 65s has been established.6

Flu vaccination in Sefton
The borough of Sefton runs predominantly along the Mersey-side coast between Bootle and Southport. It is a socially diverse borough that includes a popular seaside resort, affluent suburbs and a large dockland district fringing Liverpool, which is one of the most deprived parts of the country.

During the 2002/2003 campaign flu vaccination coverage among the over 65s was at the national 70 per cent target figure. However, concerns were raised that significant numbers of nursing-home residents may not have been offered vaccination. For several years, Sefton had actively encouraged all nursing homes in the area to take responsibility for flu vaccination for their residents wherever possible. Annual training days were run before the flu vaccination campaign to ensure nursing-home staff were fully trained and updated on guidelines and resuscitation procedures. A survey of nursing-home managers was proposed to assess the effectiveness of the flu vaccination programme in nursing homes, to explore the practices of nursing homes in Sefton with regard to flu vaccination and where possible to identify the number of nursing-home residents in each home who received the vaccination.

Methods
A questionnaire was sent out to all nursing homes in Sefton, these are homes which provide nursing care by qualified nurses along with accommodation, meals and supported activities to older people or others with significant health problems. The questionnaire included questions about the characteristics of the nursing homes, e.g. number of residents, age range of residents, about the number of qualified staff in the nursing home and when these staff had attended training for flu vaccination, about the participation of the nursing home in annual training updates and about the number of residents in the nursing home who had received flu vaccination and from whom they had received it. It also asked open-ended questions about difficulties the home had experienced ensuring that residents received flu vaccination.

6 Chapel Street, Ormskirk, Lancs L39 4QF, UK
Geoffrey J. Barnes, MFPH, Independent Public Health Specialist
Health Protection Agency North West, Rooms 103-112, First Floor, DBH House, 105 Boundary Road, Liverpool L5 9YJ, UK
Catherine Quigley, FFPH, Regional Epidemiologist
Address correspondence to Geoffrey J. Barnes, 46 Chapel Street, Ormskirk, Lancs L39 4QF.
Email: GJBAFOREVERTON@hotmail.com

© The Author 2006, Published by Oxford University Press on behalf of Faculty of Public Health. All rights reserved.
Results

Forty-six nursing homes were operating in Sefton at the time of the survey, all of which were in the private or voluntary sectors. Thirty-seven completed questionnaires were returned before the closing date and a further six following a reminder. Therefore, 43 questionnaires were returned providing a 93 per cent response rate. The nursing homes accommodated between 15 and 176 people (mean = 36, median = 31). Most accommodated between 20 and 40, and all were operating at or close to capacity. All homes included residents 65 and over, 21 included residents under the age of 65. In most homes, younger residents were in the minority. Overall 87 per cent of nursing-home residents were 65 and over.

Flu vaccination in residents

Each home was asked to record the number of residents and the number who received vaccination. This information should have been recorded in their vaccination logbook. However, eight homes either refused to answer this question or provided incomplete information. Ten homes reported that all residents had been vaccinated, whereas six reported that fewer than 70 per cent of residents had been vaccinated. Figure 1 groups the results for each home into coverage bands showing the greatest number achieved coverage over 95 per cent.

Overall completed returns suggest that 78 per cent of nursing-home residents were vaccinated during 2002/2003. The coverage rate in the under-65 population was only 63 per cent compared with 80 per cent for the 65 and over population. A $\chi^2$ test was carried out which found that the difference between the two age groups is very unlikely to have arisen by chance ($\chi^2 = 24.1, df = 1, p < 0.001$).

There was a suggestion that it was generally the larger homes which were experiencing the greater difficulties vaccinating their residents. Therefore, we looked at the results for each home by displaying the data for each home with homes placed in ascending order of size (number of residents).

The trendline in Fig. 2 appears to suggest that as the number of residents increases, the proportion vaccinated decreases, implying that smaller homes may have better coverage. However, we hypothesized that the number of qualified and trained staff available within the home to vaccinate residents was also likely to be a key factor.

As illustrated in Fig. 1, the proportion vaccinated is not normally distributed, so binary logistic regression was used to model the data. From data available, there are two variables that may be associated with the odds of being vaccinated, the number of residents and the number of qualified staff at the home. These variables were entered as continuous variables and not grouped or categorized. Both of these variables were significant in the model as summarized in Table 1.
As the number of residents increases the odds of being vaccinated decreases and, having taken into account the number of residents in a home, as the number of staff increases the odds of being vaccinated increases. The odds ratio can be interpreted as follows: for each additional resident in the home, residents were 0.978 times less likely to be vaccinated and for every additional member of staff at the home residents were 1.365 times more likely to be vaccinated. Overall, this analysis would suggest that homes with fewer patients and more staff were more likely to have high rates of vaccination.

This result, therefore, emphasizes the importance of ensuring that homes have trained nurses available to carry out vaccinations. However, six homes (14 per cent) reported that they currently had no eligible staff to administer flu vaccination. A further nine (21 per cent) reported only having one nurse able to do this. Seven (16 per cent) reported difficulties recruiting or retaining qualified nurses during the previous year. Two reported that they had lost all staff who had been trained to administer vaccination before the 2002/2003 campaign.

### Flu vaccinations carried out by nursing-home staff

In addition to the six homes with no trained staff, a further four reported that their staff had not vaccinated any residents. Asked to explain why, three reasons were cited:

- Staff had been unable to attend this year’s training so the home considered it inappropriate for them to carry out vaccination (2 responses)
- Staff had declined to vaccinate residents due to concerns about anaphylactic shock (1)
- A GP practice had vaccinated their residents (1)

Twenty-eight homes (65 per cent) indicated that their nurses had vaccinated some residents, whereas others had received vaccination from a GP, district nurse or practice nurse. Reasons for this included patient preference, opportunism (e.g. the patient had attended the GP for another reason), the need for expert advice before vaccination and in one case the insistence of a GP practice that they vaccinate their own patients.

### Training sessions

Twenty-six homes (60 per cent) reported that staff members attended training sessions before the recent campaign. All indicated that these sessions had met the needs of their home.
Homes that did not have any staff members attending gave the following reasons:

- Staff had attended in the previous year so they did not think it necessary for them to attend again (5 responses)
- Unaware of the training session (3)
- Refused places because it was oversubscribed (3)
- No available cover in the home (2)
- Informed with too little notice (2)
- GP carries out vaccinations (1)

Urgent training needs

Respondents identified the following urgent training needs:

- Obtaining consent (5 responses)
- Anaphylaxis and adrenaline administration (4)
- Resuscitation (2)

Organizational problems

Eighteen homes (42 per cent) identified problems within their own organization or with another which made it more difficult for them to provide flu vaccination. Problems experienced within their own organization included lack of staff to deal with paperwork and to provide cover for others to attend training. Problems associated with other organizations included the complexity of obtaining prescriptions from GPs and the delivery/collection of vaccines. Some homes also believed that GPs should provide emergency cover for anaphylaxis.

Discussion

Main finding of this study

The results of this survey pointed to wide variation in the way flu vaccination was organized in nursing homes across Sefton resulting in a service which was not as effective as it could be and inequitable in that patients in some nursing homes were more likely to receive the service than patients in other homes. On the positive side, almost a quarter of Sefton nursing homes managed to ensure the vaccination of all or almost all of their residents and the figure of 78 per cent coverage for the over 65s in nursing homes is better than the 70 per cent coverage achieved for all over 65s. However, there were concerns that the eight homes which refused to answer this question in the survey may not have achieved good rates of coverage and, in any event, given that residents of nursing homes should be easy to reach with primary health initiatives such as flu vaccination, even this figure was considered disappointing and worthy of action to try to improve matters.

A wide range of problems with the process of flu vaccination were identified by respondents including difficulties obtaining the vaccine, concerns about adverse reactions, the preference of some GP practices to vaccinate their own patients, uncertainty about how to proceed with residents unable to consent for vaccination and what they considered to be an inadequate level of training amongst some of their staff. Whilst it was possible for the Primary Care Trusts (PCTs) to address some of these problems through a review of procedures and changes to the training programme, other problems were more complex and indicative of structural problems in the provision and organization of care for the over 65s. The number of qualified nurses in the nursing homes varied widely, and the analysis suggested that this was likely to be an important factor in whether or not homes provided vaccination. Clearly, the attitude of nursing homes was also important. Although some homes were happy to provide flu vaccination, others clearly preferred it to be administered by GP practices and reported that it was a burden on their service.

What is already known on this topic

Since the dramatic growth in the number of institutional care places for older people in the private and voluntary sectors in the 1980s, there has been growing concern about the quality of care provided and the ability of primary care to meet the needs of the client group.7–9 A recent study compared health care received by older people in nursing homes in Bristol with that received by people living in their own homes. The conclusion was that people living in nursing homes received a poorer quality of health care.10

Although nursing-home residents tend to have a low antibody response to vaccination, vaccinated residents are likely to suffer a milder version of the illness even if they develop flu, leading to fewer complications and reduced mortality.11–14 Homes with high vaccination coverage are also less likely to experience flu outbreaks than those with lower rates.15,16 Therefore, flu vaccination for nursing-home residents is an important primary health care intervention and surveys undertaken in recent years have reported uptake rates of 89 per cent in Camarthenshire and 85 per cent in Scotland.17,18

What this study adds

One of the options considered by the Flu Strategy Group in Sefton following the survey was to introduce a team of district nurses to vaccinate all nursing-home residents, totally relieving the homes of their responsibility for this practice. It was felt that the introduction of a district nurse-led service could ensure a more equitable and comprehensive service. There were concerns, however, that taking away from nursing homes the responsibility for a basic nursing task such as flu vaccination is a retrograde step which could contribute to a general diminution of standards in the sector and the expectation that all future services will be provided in a similar way. Therefore, the decision was taken to continue with the current arrangements with improvements to training and increasing the support available to homes that report difficulties carrying out vaccinations.

Another potential improvement being explored is to improve the interface between nursing homes and GP practices in obtaining prescriptions and dosages of the vaccine. The approach in Sefton at the time of the survey required nursing homes to obtain individual prescriptions for the vaccine and...
was reported as cumbersome and wasteful of staff time. Simpler and less time-consuming methods have, however, been proposed by the National Care Standards Commission.19

Although this survey was focused on one Merseyside district, anecdotal evidence from discussions with flu coordinators in other areas suggests that the problems experienced in Sefton are widespread in the nursing-home sector and indicative of problems in ensuring high quality health services to residents of such homes.

With the potential for increasing numbers of people in care homes as the population ages, it is important that guidelines are developed to ensure that similar practices are adopted in nursing homes across the country so that nursing homes and primary care services are clear about what the homes should and should not be doing themselves. Currently, there is a danger that the best homes, which ensure that they have a good supply of well-trained nursing staff and who are keen to provide comprehensive services may suffer financially in comparison to those homes who abdicate this responsibility. This does not encourage good practice in the sector.

Limitations of the study
The main weakness of this study is that we were unable to explore in greater depth the perceptions of individual home managers or staff about the value of flu vaccination for their residents and the difficulties they experience vaccinating residents. This would have required a large qualitative dimension to the work and a much longer timescale. However, such a study would be informative.

Acknowledgements
Many thanks to the staff of Sefton PCTs and nursing homes for assisting with this survey. Thanks also to Islay Gemmell and Patrick McElduff of the Population Health Unit at Manchester University for advice with statistics.

References