Public health responses to influenza in care homes: a questionnaire-based study of local Health Protection Units

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ABSTRACT

Background Influenza virus infection poses a major threat to the elderly people in residential care. We sought to describe the extent to which local public health services in England were positioned to detect and respond effectively to influenza-like illness (ILI) in nursing homes.

Methods A questionnaire-based survey was conducted in all 34 Health Protection Units (HPUs) regarding the 2004–05 influenza season.

Results Of the 20 responses, half reported 24 outbreaks of ILI in care homes. The mean resident population attack rate was 41% (range 15–79) with 31 deaths. Staff ILI occurred in 23 of 24 outbreaks. Seven of 20 HPUs stated that a local policy for the management of ILI in nursing homes was in place, with only four specifying the use of neuraminidase inhibitors (NI) for treatment of cases and prophylaxis of residents. In the outbreaks reported, NIs were used for treatment and prophylaxis, respectively, in only 46 and 54% of instances.

Conclusions Given the availability of effective interventions for treatment and prophylaxis, there is potential to prevent substantial morbidity and mortality from influenza in at-risk populations. This study suggests that challenges remain in the effective response to influenza outbreaks in care homes and that there are wide variations in practice at local level.

Keywords care homes, influenza, policy, public health

Background Influenza virus infection is a major threat to elderly people, especially those in residential care. During annual influenza epidemics in the United Kingdom, an estimated 12 500 people in the United Kingdom die from influenza or its complications,⁴ and the majority of these deaths are among persons over 65 years of age. In United Kingdom’s last large influenza epidemic in 1989–90, 22% of all excess deaths in England and Wales (18 700) occurred among persons resident in long-term care institutions.⁵ Residents of nursing homes may suffer even higher morbidity and mortality than their elderly counterparts living in the open community.⁶

Prevention of influenza through vaccination is effective in reducing serious complications such as pneumonia and death, especially if repeated yearly.⁷ However, vaccination does not always prevent clinical illness due to influenza,⁸ and outbreaks in residential settings sometimes involve strains not included in the current seasonal vaccine⁹ or occur late in the season when vaccine-induced immunity may be waning.¹⁰ Previous research has suggested opportunities for further improvement in wide-scale implementation of influenza vaccination in nursing home residents in the United Kingdom.¹¹

Prompt response to suspected influenza outbreaks with anti-virals has been shown to slow the spread as well as the duration and severity of symptoms.¹² Guidelines issued by the National Institute for Health and Clinical Excellence (NICE) state that when influenza A or B viruses are circulating in the community, zanamivir or oseltamivir should be used to treat influenza-like illness (ILI) in persons considered at risk of developing complications (including the elderly, regardless of place of residence), provided treatment can be
initiated within 48 h of onset of symptoms. Regarding prophylaxis, NICE recommends that oseltamivir should be used in at-risk persons who have been in close contact with someone with ILI, are currently asymptomatic and can start taking oseltamivir within 48 h of the last contact.

We sought to describe the extent to which local public health services in England were positioned to detect and respond effectively to ILI in nursing homes during the 2004–05 season. Responsibility for the health of local populations in England rests with Primary Care Trusts (PCTs). PCTs are supported in the delivery of health protection services to prevent and control infectious diseases and other environmental hazards by local multi-disciplinary Health Protection Units (HPUs) of the Health Protection Agency.

Methods
A letter and questionnaire were sent out retrospectively to all 34 HPUs in England regarding the 2004–05 influenza season. To simplify completion and maximize response rates, we used a tick-box format and, for more detailed numeric data, requested aggregate numbers. Follow-up of non-responders by letter and telephone was made to achieve the highest response rate possible. The questionnaire consisted of five broad sections, with up to 12 sub-questions pertaining to the following areas:

(i) Existence of a local policy for managing ILI or influenza in care homes (and where present, thresholds for HPU involvement and specific interventions identified)
(ii) Local arrangements for rapid provision of neuraminidase inhibitor (NI) treatment and prophylaxis to care home residents
(iii) Local surveillance information sought by HPUs during the influenza season.
(iv) Numbers of care homes covered by each HPU
(v) Details of known influenza occurrences in care homes, management and resulting morbidity and mortality.

Results
Of 34 questionnaires sent, 20 were returned from 19 HPUs, as two were from an HPU with separate north and south offices. The response rate was 20 of 35 (57%), but all major regions of the country were represented. Of returns received, 17 of 20 (85%) HPUs reported that they had over 100 care homes in their area; one (5%) reported that it had 51–100 care homes, and two (10%) HPUs were unclear how many they had in their areas. Seven of 20 returns (35%) stated that a local policy for the management of ILI in nursing homes was in place. Where such a policy existed, one HPU stated it would become involved in the management of ‘flu’ in a care home after a case of ILI in a single patient, and the rest would do so when multiple (≥2) cases of ILI occurred.

In terms of interventions, local policies specified cohort nursing in five of seven instances (71%), enhanced hand hygiene in six of seven (86%) and enhanced disinfection of the environment (surfaces, floors, etc) in five of seven (71%). The exclusion of symptomatic staff was mentioned in six of seven policies (86%), with the restriction of access to symptomatic or vulnerable visitors in five of seven (71%). Only four policies (57%) specified the use of NIs for treatment of cases and prophylaxis of other exposed residents. Regarding local arrangements for the rapid deployment of NIs, 10 of 20 HPUs (50%) indicated that a PCT-held Patient Group Direction existed for the use of NIs in care homes within its territory. Local guidelines for general practitioners (GPs) about influenza treatment and prophylaxis in care homes were in place in 11 HPU territories (55%). Local stockpiles of oseltamivir for rapid deployment were held at the HPU or a designated local pharmacy in 6 of 20 territories (30%) and at individual care homes in one.

Regarding local information, nine HPUs (45%) had formally requested that all cases of ILI in care homes be reported to them, and four HPUs (20%) felt they received such information at the time of the survey. Likewise, eight HPUs (40%) had formally requested that GPs report ILI in care home residents, and three (15%) felt this information was being received at the time.

A total of 10 HPUs (50%) reported 24 outbreaks of ILI in care homes during the 2004–05 season. In the homes affected, a mean of 16 residents per home experienced ILI (range 5–31), with a mean resident population attack rate of 41% (range 15–79). Deaths occurred in 12 of the 24 outbreaks (50%), with 31 deaths (mean of 2.6 per home, range 1–6). Staff ILI occurred in 23 of 24 outbreaks (96%), with a mean of 4.9 staff members affected per outbreak (range 0–12). NIs were used for treatment in 11 of 24 outbreaks (46%) and for prophylaxis in 13 (54%).

Discussion
Main findings
This study demonstrates that challenges remain in the effective response to influenza outbreaks in care homes. Explicit policies on management of ILI need to be developed more widely, as well as robust local systems for the detection of illness in these settings, to facilitate rapid administration of NIs to residents. Currently, the variations in practice at local level are wide, and NIs are generally underused in outbreak control.
What is already known on this subject
Influenza virus infection is a major threat to elderly people, especially those in residential care, and although prevention of influenza through vaccination is effective in reducing serious complications such as pneumonia and death, it does not always prevent clinical illness. Prompt response to suspected influenza outbreaks with anti-viral drugs has been shown to reduce the spread as well as the duration and severity of symptoms in those affected. Given the availability of anti-viral drugs for treatment and prophylaxis, there is potential to prevent substantial morbidity and mortality from influenza in care homes.

What this study adds
There was wide variation in practice at local level reported by HPUs. Many explanations are possible, but the following may be major contributory factors: firstly, surveillance systems for ILI in care homes were not widely established at the time of the study; secondly, response systems were also not fully developed in many localities. Only one-third of nursing homes had arrangements in place for rapid access to NI treatment and prophylaxis.

We found that HPUs generally regard two or more cases of ILI in a care home as the trigger for public health intervention; this contrasts with NICE’s recommendation that a single case of ILI in a care home should trigger prophylaxis with NIs. A previous study, performed in a setting where good surveillance for ILI was in operation, has calculated that by following NICE guidance, up to 75% of all care homes would use anti-viral prophylaxis every season.13 Instead, we found that they were used respectively for treatment and prophylaxis in only 46 and 54% of the outbreaks reported in this study. Furthermore, NICE does not recommend NIs for health workers/carers in care home outbreaks, yet well over 90% of the ILI outbreaks reported in this study also involved ILI in staff members; this has implications for the propagation of the outbreak as well as resulting staff shortages. This is an area where there appears to be a discrepancy between NICE guidance and the practicalities of interrupting nosocomial transmission.

Study limitations
This study provides a ‘snapshot’ of practices during the 2004–05 influenza season, which may subsequently have changed and developed. The response rate was modest (57%) despite attempts to follow-up non-responders.

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References