SHORT REPORT

Vaccinating health care workers during an influenza pandemic

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Background
In response to the 2009 H1N1 influenza pandemic, health care workers (HCWs) were offered immunization with H1N1 vaccine in addition to seasonal flu vaccine. Previously, low rates of influenza vaccine uptake in HCWs have been attributed to concerns about vaccine clinical effectiveness, side effects and access difficulties.

Aims
To explore H1N1 influenza vaccination of HCWs in London during 2009–10 and examine reasons for vaccine refusal.

Methods
An online questionnaire survey of doctors and nurses working in two primary care trust (PCT) areas and one acute trust area was carried out in London.

Results
Only 59% of the 221 respondents had been immunized with H1N1 influenza vaccine and 43% with seasonal influenza vaccine. The commonest reasons for remaining unvaccinated were ‘side effects’, ‘swine flu not severe’ and ‘concerns about clinical effectiveness of the vaccine’. Respondents who had been vaccinated that season gave positive feedback on their experience.

Conclusions
While uptake among HCWs was greater for the pandemic vaccine than is usually seen with seasonal influenza vaccine, this survey suggests that in this area of London during the 2009 pandemic, HCWs refused H1N1 vaccination due to concerns about clinical effectiveness, side effects and perceptions that H1N1 infection was not generally severe. We found no evidence to suggest poor access was a barrier to H1N1 vaccination of HCWs. If good access is maintained, the key barrier to improving seasonal flu vaccine uptake lies with informing the personal risk assessment made by the HCW.

Key words
Health care workers; hospital staff; immunization; influenza; occupational health care delivery; primary health care; vaccination.

Introduction
Seasonal influenza vaccination is offered to all UK health care workers (HCWs) annually [1]. Immunization may decrease morbidity and sickness absence within this group and protect vulnerable people by reducing transmission in health and social care settings [2,3]. Uptake rates are universally low (Department of Health 2002–09 HCW uptake rates for UK ranged from 13 to 20%). Previous studies report this is due to concerns about clinical effectiveness, side effects and access [4].

In response to the 2009 H1N1 influenza pandemic, HCWs were also offered immunization with H1N1 vaccine. This report describes a survey performed as part of a service evaluation, examining reasons for H1N1 vaccine refusal during the 2009–10 pandemic.

Methods
The survey was carried out using an anonymous, online questionnaire, accessible for a 2-week period in April 2010.
The questionnaire was devised by the Health Protection Unit, HPA London Regional Epidemiology Unit and local occupational health (OH) services. Questions covered six areas of H1N1 vaccination: demographic information, vaccination history, location of vaccination, vaccination experience, reasons for vaccine refusal and occupational exposure to high-risk patients. The questionnaire was uploaded to Survey Monkey to be distributed and completed online.

Doctors and nurses working in two primary care trust (PCT) areas and one London acute trust area were invited to participate. The survey link was distributed by email in the primary care setting and on the acute trust intranet.

Results
There were 221 responses from a total survey population of 3041 giving a response rate of 7.2%. Of the respondents, 63% (139) were female, 21% were male and 16% did not state their gender. Half (111) were aged between 35 and 54 years, 19% were aged between 18 and <35 years, and 16% were aged 55 years and above, and in 15% the age was unknown.

Table 1 describes vaccination status of respondents, with 59% (127) receiving H1N1 vaccine and 43% (93) receiving the seasonal flu vaccine. This compares to 40% and 26%, respectively, for H1N1 vaccine and seasonal flu vaccine uptake by HCWs from the Department of Health 2009–10 London data. Reasons for vaccine refusal focused on concern about risks and benefits, with the three most commonly selected reasons being ‘side effects’, ‘swine flu not severe’ and ‘concerns about clinical effectiveness of the vaccine’ (Figure 1).

Responders were supportive of the rationale behind flu immunization, with 90% (185) agreeing with at least one of the three following statements regarding the need for vaccination: to protect them as an individual, to prevent transmission to vulnerable patients and to reduce staff sickness and ensure maintenance of services. Vaccination to prevent transmission to vulnerable patients was supported by 85% (173) of respondents. Interestingly, 64 of those supporting the rationale for immunization remained unimmunized with H1N1 vaccine.

Respondents who received H1N1 vaccination gave overwhelmingly positive feedback on their experience with ≥90% agreeing or strongly agreeing that: sufficient information was provided; times and location were convenient; they had confidence in the professional giving the vaccine; the physical environment allowed privacy and confidentiality. Most primary care vaccines were given by the GP (41%) or informally by a colleague (38%), whereas ≥90% of secondary care vaccines were given by OH.

Ninety-eight respondents classified themselves as working with high-risk patients (i.e. immunosuppressed or critically ill). Seventy-seven per cent (75) had been immunized with H1N1 vaccine and 56% (55) had been immunized with seasonal flu vaccine. Reasons for vaccine refusal were comparable to those given by people not working with high-risk patients.

Discussion
This survey demonstrated that in London during the 2009 influenza pandemic, HCWs who refused H1N1 vaccination did so mainly due to concerns about clinical effectiveness, side effects and perceptions that H1N1 infection was not generally severe.

The study was limited by the fact that it relied on a volunteer sample and the participation rate was low (7.2%). The outcomes cannot be generalized to represent the views of all HCWs, and reporting and sampling bias should be considered in their interpretation. However, the results do provide a useful indication of local attitudes towards vaccination in the setting of the pandemic.

When H1N1 vaccine became available in 2009, we experienced frequent enquiries from HCWs around evidence for vaccine safety and efficacy. It was perceived that much of the necessary data was not readily available in sufficient time to inform individual decisions about vaccine acceptance.

Overall, our findings on HCWs’ concerns are consistent with the conclusions of previous studies.

<table>
<thead>
<tr>
<th>Numbers of respondents</th>
<th>215</th>
<th>76</th>
<th>109</th>
<th>85</th>
<th>100</th>
<th>98</th>
<th>89</th>
</tr>
</thead>
<tbody>
<tr>
<td>Numbers receiving vaccine (%)</td>
<td>215</td>
<td>76</td>
<td>109</td>
<td>85</td>
<td>100</td>
<td>98</td>
<td>89</td>
</tr>
<tr>
<td>Only seasonal flu vaccine</td>
<td>15 (7)</td>
<td>4 (5)</td>
<td>7 (6)</td>
<td>3 (4)</td>
<td>8 (8)</td>
<td>5 (5)</td>
<td>7 (8)</td>
</tr>
<tr>
<td>Only H1N1 vaccine</td>
<td>49 (23)</td>
<td>20 (26)</td>
<td>20 (18)</td>
<td>31 (36)</td>
<td>9 (9)</td>
<td>25 (26)</td>
<td>15 (17)</td>
</tr>
<tr>
<td>Both seasonal flu and H1N1 vaccine</td>
<td>78 (36)</td>
<td>32 (42)</td>
<td>41 (38)</td>
<td>26 (31)</td>
<td>47 (47)</td>
<td>50 (51)</td>
<td>25 (28)</td>
</tr>
<tr>
<td>Neither vaccine</td>
<td>73 (34)</td>
<td>20 (26)</td>
<td>41 (38)</td>
<td>25 (29)</td>
<td>36 (36)</td>
<td>18 (18)</td>
<td>42 (47)</td>
</tr>
</tbody>
</table>

Information on vaccine uptake, profession, employment area or working with high-risk patients missing for 37 patients.
involving attitudes to seasonal flu vaccine [6–8]. A personal risk assessment may be influenced by the absence of sufficient information on vaccine efficacy and safety, when the infection itself is perceived to be of generally low severity and therefore of low risk.

Our findings did indicate that those HCWs who reported looking after high-risk patients showed higher uptake for both pandemic and seasonal flu vaccine. We also found high levels of HCW agreement with vaccination to prevent transmission to vulnerable patients. These suggest that the perceived risk of passing infection to the patient does influence the risk assessment made by the HCW.

The literature does cite poor access as a barrier to vaccination of HCWs, yet in our study, we found no evidence to suggest this was of concern [9]. In primary care, the majority of vaccines were given by the HCW’s own GP or informally by a colleague. This vaccine delivery model should not be undervalued. In addition to focusing on traditional OH routes, ways to support the informal networks which arose during the pandemic period could be explored.

The evaluation demonstrated satisfaction with vaccine delivery among those who received vaccination in this survey. If good access is maintained, the key barrier to improving seasonal flu vaccine uptake lies with personal risk assessment. The population impact of each HCW’s decision should not be underestimated. OH teams and those in leadership roles should consider how they can directly inform and balance this decision process as it is undertaken each year by every HCW in their trust. Emphasis should be given to the epidemiology of influenza, morbidity and mortality and current vaccine safety and effectiveness data. This key information should be clearly communicated to ensure personal risk assessments are accurately informed.

**Key points**

- During the 2009 influenza pandemic, health care workers refused H1N1 vaccination largely due to concerns about clinical effectiveness, side effects and perceptions that H1N1 infection was not severe.
- Few health care workers reported poor access to H1N1 vaccine, and those who received vaccination were positive about their experience.
- The key to improving influenza vaccine uptake lies with the personal risk assessment made by the health care worker each year.
Acknowledgements

The authors would like to thank Dr Helen Maguire (London Region Consultant Epidemiologist) for her support in carrying out this piece of work.

Conflicts of interest

None declared.

References