

# Influenza vaccination for NHS staff: attitudes and uptake

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## ABSTRACT

**Objectives:** Annual vaccination against influenza (flu) is recommended for all UK National Health Service (NHS) staff to help reduce the risk of contracting the virus and transmitting it to patients. However, despite flu campaigns and vaccination promotion, uptake remains low. The aim of this study was to investigate staff attitudes to flu vaccination to see how this may influence their decision to be vaccinated.

**Methods:** An online survey was sent to staff members across 6 NHS trusts, asking if staff had been vaccinated in the preceding flu season (2013–2014); the survey included questions about beliefs and attitudes to the vaccination, scored on a 5-point Likert scale.

**Results:** 3059 NHS staff members responded to the survey (86% in the 26–59 age group, 77% female and 84% hospital based). 68% of respondents reported being vaccinated in the preceding year. Using a stepwise regression model, the survey response retained as a positive predictor of having been vaccinated was ‘people working in healthcare should have the flu vaccination every year’ ( $p<0.001$ ), and the responses retained as negative predictors were ‘the flu vaccination will make me unwell’ ( $p<0.001$ ) and ‘the flu vaccination was too much trouble for me’ ( $p<0.001$ ). Analysis by staff group showed a significant difference in the response to ‘the flu vaccination will make me unwell’ between groups ( $p=0.01$ ), with doctors having a greater tendency to disagree with this statement than other staff members.

**Conclusions:** These results suggest that addressing NHS staff beliefs around the need for vaccination, while ensuring that practical barriers to having the vaccination are removed, may help to increase uptake. An emphasis on alleviating the concerns of particular staff groups regarding adverse effects of the vaccine may also be of benefit in improving uptake, to protect patients as well as staff.

## INTRODUCTION

Annual vaccination against influenza (flu) is recommended for all staff working in the UK National Health Service (NHS) to help reduce the risk of contracting the virus and transmitting it to patients.<sup>1</sup> Around 23% of healthcare workers may become infected with flu during a mild flu season and, of these, 28–59% will have subclinical illness.<sup>2–3</sup>

## KEY MESSAGES

- ▶ This survey identifies differences in National Health Service staff attitudes to flu vaccination that are strongly associated with vaccination uptake.
- ▶ The responses from this survey identify potential barriers to vaccination and suggest that action should focus on increasing the convenience of vaccination for staff, while also addressing beliefs that the vaccine will make recipients unwell.
- ▶ Wider availability of the vaccination on wards, a greater emphasis on identifying staff role models and better provision of information geared towards the concerns of particular staff groups, may help to increase vaccination uptake.

Healthcare workers therefore represent an important vector for transmission to patients. Importantly, in a cluster randomised controlled trial, flu vaccination of care home staff has been found to reduce mortality, morbidity and health service use among residents.<sup>4</sup> However, vaccination uptake in England for the last flu season (2013–2014) was only 54.8% for healthcare workers with direct patient contact.<sup>5</sup> By NHS trust, the median was 53.5% with an IQR of 43–65.6%.

## METHODS

We investigated whether staff attitudes to flu vaccination were associated with their decision to be vaccinated. An online survey was sent to staff members across six NHS trusts during the period May–December 2014. The survey, which used SurveyMonkey (Palo Alto, California, USA), was developed using items derived from a previous review of health worker attitudes to vaccination<sup>6</sup> and then revised by consensus discussion among members of the London Respiratory Network. The survey asked if staff had been vaccinated in the preceding flu season, and included 19 questions about beliefs and attitudes to the vaccination scored on a five-point Likert scale (table 1). The questions were presented to participants in a random order. Statistical analysis was performed using SPSS statistics V.21

**Table 1** Survey responses in flu vaccinated and unvaccinated National Health Service (NHS) staff

Survey statement (1—strongly agree, 5—strongly disagree)	Vaccinated median (IQR) (n=2073)	Unvaccinated group median (IQR) (n=986)	Multivariate logistic regression (p value)
It was easy for me to get the flu vaccine where I work	1 (1–2)	2 (1–3)	<0.001
Flu vaccination for staff is seen as important where I work	2 (1–2)	2 (2–3)	0.48
The flu vaccine will protect me from getting flu	2 (1–2)	3 (2–4)	<0.001
I am confident advising patients about the flu vaccination	2 (2–3)	3 (2–4)	0.01
Having the flu vaccination sets a good example to patients	2 (1–2)	3 (2–4)	0.04
The flu vaccination will make me unwell	4 (4–5)	3 (2–4)	<0.001*
I am likely to come to work even if I am unwell	2 (2–3)	2 (2–4)	0.02
I think flu vaccination should be mandatory for NHS staff	2 (2–4)	4 (3–5)	0.02
My line manager encouraged me to get vaccinated	2 (2–4)	3 (2–4)	0.001
I worry that the flu vaccination will cause serious side effects	4 (4–5)	3 (2–4)	0.54
Getting a flu vaccination is too much trouble for me	5 (4–5)	4 (4–4)	<0.001*
It is important to help colleagues by not being off work with flu	2 (1–2)	2 (2–3)	0.03
I am put off having flu vaccination by fear of needles	5 (4–5)	5 (4–5)	0.25
I cannot have flu vaccination because I am allergic	5 (4–5)	5 (4–5)	0.88
People working in healthcare should have the flu vaccination every year	2 (1–2)	3 (2–4)	<0.001*
The flu vaccine will protect my family from getting flu	2 (2–3)	3 (2–4)	0.03
The flu vaccine will protect patients from getting flu	2 (1–2)	2 (2–3)	0.01
Flu is a serious disease	2 (1–2)	2 (2–3)	0.96
I am at risk of getting flu	2 (1–3)	3 (2–4)	<0.001

The p values are shown for multivariate logistic regression that had an  $r^2$  of 0.60 for the association between survey variables and having had the flu vaccination. Variables with  $p \leq 0.01$  from the logistic regression were then entered into a stepwise model, with those retained marked by \*.

(IBM). Data are shown as median and IQR. Non-parametric analysis was conducted using  $\chi^2$  and Kruskal-Wallis tests. For analysis by NHS role, staff were divided into four groups: doctors, nurses, clerical staff and other members of staff. Regression analysis was performed using multivariate logistic regression. Survey responses with a p value of  $\leq 0.01$  were considered significant and were then entered into a stepwise regression model.

## RESULTS

Three thousand and fifty-nine NHS staff members responded to the survey, with 2616 (86%) in the 26–59 age group, 2353 (77%) female and 2561 (84%) hospital based. Survey responders included 639 nurses (21%), 562 clerical staff (18%) and 526 doctors (17%), with further roles detailed in [table 2](#). Two thousand and seventy-three members of staff (68%) reported being vaccinated in the preceding year. There was a significant difference in vaccination rate between the staff groups ( $p < 0.001$ ), with doctors the most likely to have been vaccinated (doctors 72%, nurses 65%, clerical 63%, other staff members 68%).

All 19 survey responses differed significantly between the vaccinated and not vaccinated groups in bivariate analysis ( $\chi^2$   $p < 0.001$ ), and therefore these were all

entered into the multivariate logistic regression shown in [table 1](#). Vaccinated individuals were significantly more likely to agree that healthcare workers should have the vaccination every year and that it was easy to get the flu

**Table 2** National Health Service (NHS) roles of survey responders

NHS role	Number of survey responders (%)
Nurses	639 (20.9)
Clerical	562 (18.4)
Doctors	526 (17.2)
Managers	257 (8.5)
Healthcare scientists	125 (4.1)
Midwives	105 (3.4)
Healthcare assistants	101 (3.3)
Physiotherapists	86 (2.8)
Pharmacists	63 (2.1)
Radiographers	47 (1.5)
Ambulance staff/paramedics	41 (1.3)
Occupational therapists	35 (1.1)
Dieticians	35 (1.1)
Speech and language therapists	27 (0.9)
Porters	9 (0.3)
Others	401 (13.1)

vaccination where they worked ( $p<0.001$ ). They felt more confident in advising patients about being vaccinated ( $p=0.01$ ), and felt the flu vaccination would protect their patients ( $p=0.01$ ) and themselves ( $p<0.001$ ) from getting flu. Staff who had not had the flu vaccination were more likely to respond that it was too much trouble to get the vaccination, felt less at risk of getting flu, and thought the vaccination would make them feel unwell ( $p<0.001$ ). In a stepwise regression model, the survey response retained as a positive predictor of those who had been vaccinated was; 'people working in healthcare should have the flu vaccination every year' ( $p<0.001$ ), and the responses retained as negative predictors were 'the flu vaccination will make me unwell' ( $p<0.001$ ) and 'the flu vaccination was too much trouble for me' ( $p<0.001$ ).

The three independent predictors were then analysed by staff group. There was a significant difference in the response to 'the flu vaccination will make me unwell' between groups ( $p=0.01$ ), with doctors having a greater tendency to disagree with this statement than other staff members. No significant difference was found in the responses to 'people working in healthcare should have the flu vaccination every year' ( $p=0.08$ ) and 'the flu vaccination was too much trouble for me' ( $p=0.72$ ) between the staff groups.

## DISCUSSION

This survey identifies differences in NHS staff attitudes to flu vaccination that are strongly associated with vaccination uptake. The unpredictable nature of the flu makes it difficult to forecast severity and timing from year to year. However, a successful flu vaccination programme will help to protect staff, reducing the risk of transmission to patients in their care who may not have been vaccinated. The responses from this survey identify potential barriers to vaccination and suggest that action should focus in particular on increasing the convenience of vaccination for staff, while also addressing beliefs that the vaccine will make recipients unwell.

There is some variation in attitudes between staff groups, which may be relevant for developing approaches to improve uptake. Non-medical staff may have a greater need for specific information and reassurance regarding concerns associated with vaccination. For all staff groups, a belief in the need for vaccination was associated with having been vaccinated and, importantly, ease of access to vaccination was also a consistent issue. Wider availability of the vaccination on wards and in other areas where staff work, as well as a greater emphasis on identifying staff role models, may help to increase uptake.

## Methodological issues

Over 3000 staff members responded to this survey, however, a larger survey response population would have allowed further subgroup analysis, particularly in

relation to individual NHS trusts. The overall vaccination rate in our sample population was higher (68%) than in the general population of frontline healthcare workers (54.8%).<sup>5</sup> Interestingly, the figures for staff groups were consistent with national data, with doctors having a higher vaccination rate than hospital nurses, suggesting that the findings are likely to be representative. Although all responses differed individually between vaccinated and unvaccinated groups, there is a potential for confounding in the survey statements. We therefore used regression analysis to identify independent variables and only those with a significant  $p$  value of  $\leq 0.01$  were entered into the final stepwise regression model.

Concerning the validity of the questionnaire, it was based on items identified in a previous review of healthcare workers' attitudes,<sup>6</sup> and on an expert consensus process, suggesting that it is likely to have captured relevant areas. In general, there is an uncertain relationship between attitudes and behaviour. The data in this study relate present attitudes to a past behaviour (having been vaccinated), but we cannot assume that these attitudes will have the same association with future behaviour, and prospective studies are therefore needed.

## CONCLUSION

Recent data from Public Health England for the flu season (2014–2015) reveal a vaccination rate of only 54.6% for frontline healthcare workers,<sup>7</sup> showing no change from the previous season (54.8%).<sup>5</sup> This suggests that more needs to be done to convey messages around flu vaccination to the healthcare community, and the present data may help to focus efforts to improve this in upcoming flu campaigns.

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