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RESEARCH PAPER

Factors associated with uptake of pandemic influenza vaccine among general practitioners and practice nurses in Shropshire, UK

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Abstract

Background: At the time of the 2009–10 influenza pandemic there was considerable unease about vaccination. Early surveys suggested that the intention to be vaccinated amongst healthcare workers was low.

Aims: To determine what influenced vaccination uptake among general practice healthcare workers in Shropshire County Primary Care Trust in the UK.

Methods: A cross-sectional survey was distributed to all frontline healthcare workers in Shropshire County's general practices in June 2010. All 45 practices participated. Questionnaires were distributed by practice managers to frontline staff and returned by post. Practices with the lowest return rates were reminded by telephone after 3 months.

Results: 205 valid replies were received, giving a response rate of 48.0%. 10.0% reported being infected with the pandemic H1N1 strain by the time they received the questionnaire. 172 (83.9%) respondents reported that they had been vaccinated against H1N1. Influenza infection prior to vaccination had a negative impact on uptake (adjusted OR 0.17, 95% CI 0.05 to 0.56) and previous vaccination against seasonal influenza was associated with increased uptake (adjusted OR 4.07, 95% CI 1.62 to 10.24). Those who received the pandemic vaccine were seven times more likely to accept future vaccines (adjusted OR 7.04, 95% CI 2.70 to 18.37).

Conclusions: Vaccination uptake was significantly higher than the national (40.3%), regional (40.9%), and county averages (49.3%). Motivation for and against vaccination was very similar to that for seasonal vaccination, with previous vaccination having the greatest influence. Ensuring healthcare workers receive vaccination early in their career is likely to set a precedent for future vaccination. This is the first detailed study purely in general practice in England.

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See linked editorial by Simpson and McMenamin on pg 246

The full version of this paper, with online appendix, is available online at www.thepcrj.org

Introduction

In 2009 a new strain of the influenza A virus (H1N1) was recognised in Mexico and the USA, quickly spreading worldwide. On 11 June 2009 the World Health Organization declared the outbreak to be a pandemic.[1] In England, whilst the disease was not as severe as initially anticipated, the pressure experienced within the healthcare sector was significant. This strain of pandemic influenza proved to be mild in most cases, but severe and sometimes fatal in a minority.[2]

Vaccines were developed as part of a global response to the pandemic. The two vaccines initially licensed for use in the UK were Pandemrix (GlaxoSmithKline), a one-dose schedule for most people, and Celvapan (Baxter), a two-dose schedule, reserved in the UK for persons unable to have Pandemrix.[3]

All 2009 H1N1 vaccines were shown to have an acceptable safety profile.[4] However, at the time of the pandemic there was considerable media unease, in particular with regard to safety testing in pregnancy[5] and also a possible link with Guillain-Barré

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syndrome and other rare complications.[6] These concerns were articulated by the general population,[7,8] and early surveys suggested that the intention by healthcare workers to be vaccinated was also low,[9-11] presumably due to similar concerns. Similar patterns were seen internationally.[12,13]

Vaccinating healthcare workers has been shown in other healthcare settings to be a cost-effective way to reduce transmission and to protect the most vulnerable in the population.[14] From the beginning of the pandemic vaccination campaign, frontline healthcare workers were prioritised for vaccination to protect not only themselves but also their patients and to maintain frontline medical services.[15]

The aim of this study was to determine what factors affected vaccination uptake among general practice healthcare workers in Shropshire County Primary Care Trust (PCT) in the UK.

Methods

Participants

The survey was aimed at all front line healthcare workers who were working in Shropshire County's general practices in June 2010 (defined as 'those who had regular clinical contact with patients and who were directly involved in patient care'[16]). This group included GPs, practice nurses and healthcare assistants. Each practice manager or delegate was personally approached and asked if the practice would participate. All 45 practices agreed to take part.

Vaccination programme

The vaccination programme began in Shropshire County in November 2009. Practices were provided with vaccine for all eligible staff but were required to devise their own systems for vaccination.

Procedure

Questionnaires (marked with practice code but no further identifiers) were provided to each practice manager in June 2010 and distributed to front line members of staff, who were then asked to return them by post using pre-paid addressed envelopes. Practice managers of practices with the lowest return rates were reminded by telephone in September 2010.

As the survey was designed and conducted during the pandemic, the situation was still evolving and no pre-existing validated questionnaire was found for the purposes of this study. A questionnaire was designed, adapting questions previously used within the context of seasonal influenza where applicable,[17,18] supplemented with customised specific H1N1 questions. The full questionnaire is provided as an appendix, available online at www.thepcrj.org. Questions were mainly yes/no or required the respondent to select from a list of options. Some sections had space for open answers. The questionnaire was designed to be as simple and short as possible, and was amended following piloting on 10 healthcare workers from a neighbouring PCT. No identifiable data were collected.

Outcomes

The primary outcome for analysis was pandemic influenza immunisation status in the 2009–10 influenza season.

Sample size

Based on an initial estimate of 750 frontline primary healthcare workers (from PCT figures) and assuming a response rate of 33%, 250 respondents would provide 80% power (and 95% confidence interval (CI)) to detect an increased odds ratio (OR) for acceptance of 3.5 for factors prevalent at 10%.

Table 1. Participants' baseline characteristics

	Number	Percentage
Age		
25-34	19	9.3%
35–44	53	25.9%
45–54	100	48.8%
55–64	30	14.6%
65 or over	3	1.5%
Gender		
Male	58	28.3%
Female	130	63.4%
Undisclosed	17	8.3%
Job title		
GP	108	52.7%
Nurse	84	41.0%
Healthcare assistant	13	6.3%
Working hours		
Part-time	116	56.6%
Full-time	89	43.4%
Number of years in the NHS		
5 years or less	11	5.4%
6–10 years	23	11.2%
11–20 years	47	22.9%
More than 20 years	124	60.5%
Average number of patients seen in a week		
1–50	32	15.6%
51–100	82	40.0%
More than 100	90	43.9%
Undisclosed	1	0.5%
Ethnicity		
White	194	94.6%
Undisclosed	5	2.4%
Other	6	2.9%
Children under 18 living at home		
No	83	40.5%
Yes	121	59.0%
Undisclosed	1	0.5%
Current smoking status		
Never smoked	161	78.5%
Ex-smoker	41	20.0%
Current smoker	3	1.5%
Underlying medical condition*	23	11.2%
Diagnosed with or believed to have had H1N1 by time of questionnaire	20	10.0%
Vaccinated against seasonal influenza in 2008–9	149	73.4%
Vaccinated against seasonal influenza prior to 2008–9	138	67.3%
Vaccinated against H1N1 at time of survey	172	83.9%

*Chronic lung, heart, kidney, liver or neurological diseases; diabetes mellitus; immunosuppression, i.e. eligible for vaccination on medical grounds.

Ethical approval

Ethical approval was granted by the Birmingham, East, North and Solihull Research Ethics Committee on 26 April 2010.

Data analysis

All statistical analyses were undertaken in Stata/IC 10.0 software.

Basic descriptive statistics were used to describe uptake and distribution of characteristics and factors. Multiple logistic regression analyses (based on p >0.1 or logical confounders such as gender) were used to determine the most important factors associated with acceptance or refusal of vaccination among healthcare workers, including analysis by occupational group.

Although respondents were asked to rank answers in some questions, few people did so, therefore the analysis was based on total answers given rather than ranks.

Results

Demographics

Practice managers estimated that the number of frontline primary healthcare workers would be 427, although larger numbers of questionnaires were provided for distribution, of which 218 were returned. Each of the 45 practices returned at least one questionnaire. Thirteen of the replies were from staff whose job title as reported in the questionnaire did not fulfil the definition of 'frontline healthcare worker' and therefore were excluded. This left a total of 205 replies, giving a response rate of 48.0%. The demographics of the respondents are shown in Table 1. A large proportion of respondents (n=100, 48.8%) were aged 45–54 years and 130 (63.4%) were female; 108 (52.7%) were GPs and 116 (56.6%) worked part-time. Most (94.6%) were of white ethnicity and very few were current smokers. 73.4% had received an influenza vaccine the previous year. Twenty (10.0%) believed they had been infected with the pandemic H1N1 strain by the time they received the questionnaire.

Influenza and influenza vaccination uptake

One hundred and seventy-two respondents (83.9%) reported that they had been vaccinated against H1N1 (Table 2). Few demographic characteristics had an effect on vaccination uptake. In particular, age, gender, ethnicity and job title had no significant effect. Influenza infection prior to vaccination had a negative impact on uptake (adjusted OR 0.17, 95% CI 0.05 to 0.56) and previous vaccination against seasonal influenza was associated with increased uptake (adjusted OR 4.07, 95% CI 1.62 to 10.24). Pre-existing medical conditions had no impact on vaccination uptake.

Attitudes to vaccination

Table 3 shows that there was a widespread belief that pandemic influenza was not more serious than seasonal influenza, although 57% of healthcare workers believed they were at risk of contracting pandemic influenza. Concerns were expressed about the risk of side-effects, in particular Guillain-Barré syndrome, and also about the use of adjuvants, especially thiomersal. However, the large majority of respondents felt they had adequate information and convenient access to vaccination and believed it to be effective. The greatest predictors of vaccination were believing the vaccine to be effective (OR 14.06, 95% CI 2.78 to 71.07) and believing vaccination was of personal benefit (OR 45.74, 95% CI 8.3 to 251.91) or of benefit to colleagues (OR 17.29, 95% CI 3.41 to 87.78). Those who were concerned about the adjuvant were least likely to accept the vaccination (OR 0.16, 95% CI 0.05 to 0.51). Those who received the pandemic vaccine were seven times more likely to accept future vaccines (OR 7.04, 95% CI 2.70 to 18.37).

When specifically asked, of those who accepted vaccination the most common reasons given were to reduce transmission to others (n=152, 88.3%) and to protect themselves (n=142, 82.6%). Of those who refused (n=33), the most common reason was concern about side-effects (n=19, 57.6%). Four respondents said they would

Table 2. Factors affecting influenza vaccination uptake

		Number vaccinated	Percentage uptake	Odds ratio	95% Confidence interval	Adjusted odds ratio*
Sex	Male	52	89.7	1.0	–	1.0
	Female	106	81.5	0.5	0.2 to 1.3	0.8
Age	25–34	15	78.9	1.0	–	1.0
	35–44	47	88.7	2.1	0.5 to 8.4	1.4
	45–54	79	79.0	1.0	0.3 to 3.3	0.8
	55–64	28	93.3	3.7	0.6 to 22.8	2.2
	65 or over	3	100.0	–	–	–
Ethnicity	White	164	84.5	1.0	–	1.0
	Other/undisclosed	8	72.7	0.5	0.1 to 2.0	0.4
Job	GP	94	87.0	1.0	–	1.0
	Practice nurse	12	92.3	1.8	0.2 to 14.8	1.0
	Healthcare assistant	66	78.6	0.5	0.3 to 1.2	0.6
Previous H1N1 infection	No	159	85.9	1.0	–	1.0
	Yes	13	65.0	0.3	0.1 to 0.8	0.2
Pre-existing medical condition	No	153	84.1	1.0	–	1.0
	Yes	19	82.6	0.9	0.29 to 2.84	0.7
H1N1 infection prior to vaccination offer	No	159	84.1	1.0	–	1.0
	Yes	13	65.0	0.3	0.10 to 0.79	0.17
Vaccinated against seasonal flu	No	50	74.6	1.0	–	1.0
	Yes	122	88.4	2.6	1.13 to 5.93	4.07

*Adjusted for age, sex, job, ethnicity, previous H1N1 infection and previous seasonal influenza vaccination.

Table 3. Summary of attitudes towards vaccination and their effect on uptake of vaccination

	Vaccinated, answering		Unvaccinated, answering		Overall uptake		Adjusted odds ratio*	95% CI
	Yes	(%)	Yes	(%)	N	(%)		
Beliefs about pandemic influenza								
Believe swine flu is a potentially serious disease	145	(84.3)	19	(57.6)	164	(82.0)	3.6	1.2 to 10.5
Believe swine flu more serious than seasonal flu	72	(41.9)	6	(18.2)	78	(39.0)	3.9	1.2 to 12.0
At the start of the pandemic, thought it likely to get pandemic influenza	94	(54.7)	19	(57.6)	113	(56.8)	1.8	0.7 to 4.8
Thought risk of pandemic influenza over-hyped	111	(64.5)	29	(87.9)	140	(69.7)	0.2	0.04 to 0.7
Beliefs about vaccine								
Believe vaccine is effective	154	(89.5)	22	(66.7)	176	(90.7)	14.1	2.8 to 71.1
Aware DH recommended the vaccine	167	(97.1)	32	(97.0)	199	(98.0)	1.4	0.1 to 21.4
Thought vaccine was offered too late	46	(26.7)	18	(54.5)	64	(32.5)	0.1	0.1 to 0.4
Thought vaccination could give pandemic influenza	1	(0.6)	1	(3.0)	2	(1.0)	0.1	0.00 to 3.7
Concerned about side-effects	34	(19.8)	17	(51.5)	51	(25.4)	0.3	0.1 to 0.7
Concerned about risk of Guillan-Barré syndrome	28	(16.3)	14	(42.4)	42	(21.0)	0.2	0.1 to 0.6
Concerned about the adjuvant	14	(8.1)	11	(33.3)	25	(12.5)	0.2	0.1 to 0.5
Concerned about thimerosal	36	(20.9)	18	(54.5)	54	(27.6)	0.1	0.1 to 0.4
Beliefs about vaccination								
Thought time for vaccination was convenient	159	(92.4)	25	(75.8)	184	(92.0)	6.7	1.8 to 24.7
Thought location for vaccination was convenient	161	(93.6)	29	(87.9)	190	(95.0)	3.2	0.6 to 18.5
Thought pandemic vaccine could cross-protect against seasonal flu	21	(12.2)	2	(6.1)	23	(11.7)	1.2	0.2 to 6.7
Thought seasonal vaccine could cross-protect against pandemic flu	34	(19.8)	5	(15.2)	39	(19.6)	0.9	0.3 to 2.8
Felt they had received all the information needed	162	(94.2)	30	(90.9)	192	(96.0)	3.3	0.6 to 19.3
Protecting others								
Believe being vaccinated could benefit self	155	(90.1)	12	(36.4)	167	(89.8)	45.7	8.3 to 251.9
Believe being vaccinated could benefit own family	154	(89.5)	13	(39.4)	167	(89.8)	12.9	3.2 to 52.2
Believe being vaccinated could benefit patients	158	(91.9)	20	(60.6)	178	(94.7)	4.2	0.7 to 24.8
Believe being vaccinated could benefit colleagues	155	(90.1)	13	(39.4)	168	(92.3)	17.3	3.4 to 87.8

*Adjusted for age, sex, position, underlying medical conditions, previous seasonal vaccine and previous H1N1 infection.

have liked to be vaccinated but missed the opportunity, one had contraindications to vaccination, and two disliked needles. No respondents refused because of objections to immunisations in general or because they were not considered eligible.

Discussion

Main findings

Our sample of 205 healthcare workers included 108 GPs, which represents 53.2% of Shropshire's GPs (based on 2007 GP census statistics[19]). The vaccination uptake for pandemic influenza (83.9%) was significantly higher than the national (40.3%), regional (40.9%), and county averages (49.3%).[20] Acceptance of vaccination was predicted by higher confidence in the efficacy of the vaccine and belief in the potential severity of pandemic influenza. Crucially, all respondents in this survey felt that access to vaccination was convenient, which may go some way towards explaining the higher uptake than seen elsewhere. This higher uptake, however, may also reflect a responder bias, since the PCT vaccination rate for healthcare workers overall was only 49%.[20] This study may also reflect a national trend of higher vaccination in primary care than in secondary care in the UK.[1] This contrasts with the USA where the highest uptake of voluntary vaccination has been seen in hospital settings, most notably paediatric.[21]

Strengths and limitations of this study

An accurate estimation of the size of the workforce in primary care is notoriously difficult,[22] as indicated in this study by the difference between PCT- and practice-level estimates of the population to be targeted by the questionnaire. The response rate in this study was just under 50% of questionnaires issued, which is similar to the response rates obtained with other respiratory questionnaires.[23] However, our study is likely to suffer from some degree of response bias as vaccine uptake was much higher than the official PCT figures,[20] although the same uncertainty may exist regarding the denominator used in both estimates. Responders may well be different from the general

population of healthcare workers and thus reasons/attitudes may not be fully generalisable. Non-responders may be more likely to have refused the vaccine and therefore their characteristics could be quite different from the responding 'non-uptake' group. However, it is not possible to predict in which direction this may affect the risk estimates. Furthermore, it should be cautioned that odds ratios could exaggerate the effect size compared with relative risk where outcomes are common. However, our results are generally consistent with other national and international studies of actual receipt of, and intention to receive, pandemic vaccine. In addition, very few of the factors were statistically significant, which may reflect both the sample size and the high uptake. However, our study investigated vaccination uptake only within GP practices, which is a different arena from the primary care figures collected nationally which include staff from many backgrounds with no clinical contact. This is the first detailed study of influenza vaccination purely in general practice in England.

Interpretation of findings in relation to previously published work

It is clear that the circumstances surrounding the influenza pandemic were different from seasonal influenza. Consequently, it is not known whether factors influencing uptake of seasonal influenza vaccination will be pertinent in the case of pandemic influenza vaccination. Reasons given for healthcare workers refusing seasonal vaccination in non-pandemic years have included fear of side-effects, fear that vaccination would cause influenza, lack of awareness of vaccine availability or usefulness, forgetting, and perceived low risk of contracting influenza.[17,23] In contrast, wishing to prevent transmission, believing the vaccine is effective, and previous influenza vaccination are all predictors of future seasonal influenza vaccination in both healthcare workers[24] and the general public.[25] An online poll conducted by the *Nursing Times* early in the pandemic showed that intended acceptance of pandemic influenza vaccines was associated with receipt of previous seasonal influenza vaccines, perceived likelihood of being infected, and belief in the efficacy of influenza vaccine.[26] This has been reinforced by a meta-analysis of actual vaccine uptake internationally[27] whose conclusions correspond closely with the findings here, although there was a greater expression of concern about side-effects in our study, probably due to media coverage. It thus seems reasonable to conclude that important variables in seasonal vaccination translate into pandemic situations.

Interestingly, aside from official Department of Health reporting, there is still a lack of published work examining vaccination in healthcare workers in the UK, with only one study in primary care[28] and one in secondary care currently available.[29] The other UK study (in Scotland)[28] indicated that male and older healthcare workers and those with chronic medical conditions were more likely to receive vaccine. None of these factors was significant in our study, but males tended to be more likely to receive vaccine.

Implications for future research, policy and practice

Our study again shows that receiving seasonal influenza vaccination predicts receiving pandemic influenza vaccination, and this predicts future intention to receive later seasonal vaccinations. This comes as no great surprise, perhaps, but our study once again emphasises the importance of attaining and maintaining high vaccination uptake. Whilst vaccine acceptance in this population was high, nationally the figures are still suboptimal. Respondents were significantly more likely to have had pandemic or seasonal influenza vaccination than both local and national figures.[1] This is key since, by identifying 'bright spots' of high performance, lessons learned can be applied to a wider setting.[30] Here and in secondary care[19,25] the lesson seems to be that easy access and a clear and consistent message about the efficacy, necessity, and safety of vaccination increase vaccination rates. Ensuring healthcare workers receive the vaccination early in their career is likely to set a precedent for future vaccination; an attractive option would be the routine introduction of influenza vaccine at medical/nursing school. Some commentators have even called for the vaccine to become mandatory[31] to mitigate against the consistently low rates of voluntary uptake. Although this study highlights some important areas for improvement in vaccine uptake, further qualitative work to obtain the views of non-responders might generate further insights.

Conclusions

This study shows that predictors of vaccination behaviour for pandemic influenza are very similar to those for seasonal influenza. Consequently effort should be made to instil the vaccination habit early in the careers of health care workers.

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Appendix

GENERAL PRACTICE FRONTLINE HEALTHCARE WORKER SWINE FLU QUESTIONNAIRE

Web Appendix: Sample questionnaire

This questionnaire is anonymous and you will not be identifiable through your answers.

Questions about yourself

Q.1. Age:

- 18 - 24 ☐
- 25 - 34 ☐
- 35 - 44 ☐
- 45 - 54 ☐
- 55 - 64 ☐
- 65 or more ☐

Q.2. Sex:

- Male ☐
- Female ☐

Q.3. What is your position?

- GP ☐
- Practice Nurse ☐
- Healthcare Assistant ☐

Other – please specify: ……

Q.4. Are your working hours:

- Full time ☐
- Part time ☐

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Q.5. How many years have you been working in the NHS?

- 5 years or less ☐
- 6 to 10 years ☐
- 11 to 20 years ☐
- More than 20 years ☐

Q.6. How many patients do you see in a normal week?

- None ☐
- 1 to 50 ☐
- 51 to 100 ☐
- More than 100 ☐

Q.7. Do you have any of the following medical conditions? (Tick any that apply)

- Chronic respiratory disease including asthma ☐
- Chronic heart disease ☐
- Chronic renal disease ☐
- Chronic liver disease
- Chronic neurological disease (including stroke / transient ischaemic attack) ☐
- Diabetes Mellitus ☐
- Impaired immunity (due to disease or treatment) ☐
- Multiple Sclerosis ☐

Q.8. Are there any children aged under 18 living at home?

Yes ☐ No ☐

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Q.9. What is your current smoking status?

- Smoker ☐
- Ex-smoker ☐
- Never smoked ☐

Questions about swine flu

Q.10. Do you think you have had swine flu (Pandemic H1N1 influenza)?

Yes ☐ No ☐ Don't know ☐

If 'Yes', please continue to Q.11.

If 'No' or 'Don't know', please skip to Q.12.

Q.11. How were you diagnosed? (Please select one)

- Through the National Pandemic Flu Service (either the website or flu line) ☐
- Self-diagnosed ☐
- Diagnosed by another healthcare professional ☐

Other – please specify: ……

……

Q.12. Do you live with anyone who was diagnosed with swine flu?

Yes ☐ No ☐

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Q.13. Please select 'Yes' or 'No' for each of the following statements:

	Yes	No
I believe that the swine flu vaccines are effective	☐	☐
I think swine flu is a potentially serious disease	☐	☐
I think that swine flu is a more serious disease than seasonal flu	☐	☐
At the start of the pandemic, I thought it likely that I would get swine flu	☐	☐
I am aware that the Department of Health has recommended I get vaccinated	☐	☐
Swine flu vaccination was offered too late in the pandemic	☐	☐
Swine flu vaccines could give me swine flu	☐	☐
I have concerns about potential side-effects of swine flu vaccines	☐	☐
I have concerns about a potential association between swine flu vaccines and Guillain-Barre syndrome	☐	☐
I am concerned about the use of adjuvant in the Pandemrix swine flu vaccine	☐	☐
I am concerned about the use of thimerosal (mercury-based preservative) in the Pandemrix swine flu vaccine	☐	☐
I think the swine flu risk has been over-hyped	☐	☐
The swine flu vaccination was offered to me at a convenient time	☐	☐
The swine flu vaccination was offered at a convenient location	☐	☐
The swine flu vaccine offers cross-protection against seasonal flu	☐	☐
The seasonal flu vaccine offers cross-protection against swine flu	☐	☐
I have received all the information I needed to make a decision about the swine flu vaccine	☐	☐

Q.14. Are you in an at-risk group for swine flu?

Yes ☐ No ☐ Don't know ☐

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Q.15. Were you offered the swine flu vaccination in 2009-10?

Yes ☐ No ☐

Q.16. Did you receive the swine flu vaccine?

Yes ☐ No ☐

If 'Yes', please continue to Q.17.

If 'No', please skip to Q.18.

Q.17. I was vaccinated against swine flu because: (Tick any that apply, then please rank the top 3 reasons, 1 being the most important reason)

	Yes	No	Rank
➢ I wanted to protect myself from getting swine flu	☐	☐	.....
➢ I wanted to reduce the risk of me transmitting the virus to others	☐	☐	.....
➢ I am in an at-risk group for swine flu	☐	☐	.....
➢ I wanted to decrease the risk of me needing time off work with swine flu	☐	☐	.....
➢ I was following Department of Health advice	☐	☐	.....
➢ I was advised by my employer	☐	☐	.....
➢ It was recommended by friends, family or colleagues	☐	☐	.....
➢ I wanted to set an example to others	☐	☐	.....
➢ I did not want the vaccine but I felt pressured to have it	☐	☐	.....

➢ Other reason – please specify: ....

Please skip to Q.19.

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Q.18. I was not vaccinated against swine flu because: (Tick any that apply, then please rank the top 3 reasons, 1 being the most important reason)

	True	False	Rank
➢ I don't think I'm at risk of getting swine flu	☐	☐	.....
➢ I don't think swine flu is a serious disease	☐	☐	.....
➢ I don't think the vaccine is effective	☐	☐	.....
➢ I was worried about side effects of the swine flu vaccination	☐	☐	.....
➢ Vaccination was not offered to me	☐	☐	.....
➢ I did not think I was eligible for the swine flu vaccine	☐	☐	.....
➢ It was inconvenient to get vaccinated	☐	☐	.....
➢ I have a contraindication to swine flu vaccines	☐	☐	.....
➢ I object to immunisations generally	☐	☐	.....
➢ I don't like needles	☐	☐	.....
➢ I did not think it was offered at the right time in the pandemic	☐	☐	.....
➢ I wanted to have it, but missed the opportunity	☐	☐	.....

- If you answered 'True' to 'missed the opportunity', please specify why:

.....

➢ Other reason – please specify: ....

Q.19. Do you think that being vaccinated against swine flu could benefit:

Yourself:	Yes	☐	No	☐	Don't know	☐
Your family:	Yes	☐	No	☐	Don't know	☐
Your patients:	Yes	☐	No	☐	Don't know	☐
Your colleagues:	Yes	☐	No	☐	Don't know	☐

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Q.20. Are you or have you been pregnant during the swine flu pandemic?

Yes ☐ No ☐ Not applicable ☐

Questions about seasonal flu

Q.21. Have you been vaccinated against seasonal flu this year (2009-10)?

Yes ☐ No ☐ I'm not sure ☐

If 'Yes', please continue to Q.22.

If 'No' or 'Not sure', please skip to Q.24.

Q.22. Would you still have had the seasonal flu vaccine this year (2009-10), had the swine flu pandemic not occurred?

Yes ☐ No ☐ I'm not sure ☐

Q.23. Have you been vaccinated against both swine flu and seasonal flu this year (2009-10)?

Yes, both at the same time ☐

Yes, but at different sittings ☐

No, I have not been vaccinated against swine flu ☐

Please skip to Q.25.

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Q24. Would you have wanted to have the seasonal flu vaccine this winter if we had not been in a swine flu pandemic?

Yes ☐ No ☐ Don't know ☐

Q25. Were you vaccinated against seasonal flu: (Tick any that apply)

Last winter (2008-09)? Yes ☐ No ☐

Previous to last winter? Yes ☐ No ☐

Q26. Do you intend on getting vaccinated against influenza next winter?

Yes ☐ No ☐ Don't know ☐

Ethnicity

Q27. Please could you indicate how you would describe your ethnicity:

White ☐ Mixed ☐

Asian or Asian British ☐ Black or Black British ☐

Chinese ☐ Other Ethnic Group ☐

I'd rather not disclose

Thank you!

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