

# **Health professionals provide feedback on a national pandemic flu website in Ireland.**

## **Authors:**

F Cooney<sup>2</sup>, L Thornton<sup>1</sup>, D Igoe<sup>1</sup> and D O'Flanagan<sup>1</sup>.

1. Health Protection Surveillance Centre, 25 -27 Middle Gardiner Street, Dublin 1, Ireland.

2. Department of Public Health Medicine, HSE West, Bridgewater House, Rockwood Parade, Sligo, Ireland.

**Corresponding author** Dr Lelia Thornton, Health Protection Surveillance Centre, 25 -27 Middle Gardiner Street, Dublin 1, Ireland . Telephone number +353 1 8765300, fax +353 1 8561299, email [lelia.thornton@hse.ie](mailto:lelia.thornton@hse.ie)

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## **Keywords**

influenza A virus, H1N1 subtype, pandemic (H1N1) 2009 influenza, internet, world wide web, survey, communication, health professionals, public health emergency.

## **ABSTRACT**

### **Background**

During the pandemic period in 2009, the website of the Health Protection Surveillance Centre (HPSC) was one of the main means by which health professionals in Ireland were provided with information and guidance on pandemic (H1N1) 2009 influenza.

### **Aims**

To evaluate how well the HPSC website meet health professionals' information needs during the pandemic period and to identify how best to meet information needs in future public health emergencies.

### **Methods**

A national on-line survey of the health professionals in Ireland who were involved in the response to flu pandemic.

### **Results**

There was a high frequency of use of the HPSC website, with 69% of respondents using it at least once weekly during the pandemic period. The website was well regarded, with 70 – 80% of respondents rating its general aspects as either excellent or very good. There were differences in the ratings according to respondents' area of work, with those in public health being the most satisfied, whilst those working in primary care were least so. The main difficulties with the website related to some aspects of the layout of the site and updating of information.

### **Conclusions**

Our findings will be of use to those involved in the preparation and dissemination of information via the internet in future public health emergencies. The main areas for action for HPSC include: review of

website functionality; establishment of user-feedback mechanisms and improvement in the co-ordination of national information resources.

## **INTRODUCTION**

The world-wide web is becoming an increasingly important means by which health professionals access information<sup>1,2,3</sup> Its usefulness for communication in public health emergencies was reported during the anthrax scare in 2001<sup>4</sup> and the 2003 outbreaks of Severe Acute Respiratory Syndrome (SARS)<sup>5</sup>. During the pandemic (H1N1) 2009 influenza period, the importance of the web as a source of information for health professionals was evident from the large number of pandemic flu websites made available internationally<sup>6</sup>.

Despite the acknowledged importance of the web in the rapid dissemination of information and guidance to health professionals during a public health emergency, there is surprisingly little information currently available in the medical literature on the views of health professionals about health websites. This paper addresses this issue by reporting on a survey that sought the views of health professionals regarding a national pandemic flu health information website.

During the pandemic period in 2009, the website of The Health Protection Surveillance Centre (HPSC)<sup>7</sup> was one of the main means by which health professionals in Ireland were provided with information and guidance on pandemic flu. This national website is entirely open access and its remit is to provide information on infectious diseases to both the public and health professionals alike. The guidance on pandemic flu was prepared using materials and advice from the Pandemic Influenza Expert Group, the National Public Health Outbreak Response Team and the Irish Healthcare Occupational Physicians Society, as well as from within HPSC. Information on the pandemic flu vaccine was provided on the website of the Irish National Immunisation Office (NIO), links to which were provided by the HPSC website.

From the information available on numbers of user sessions on the HPSC website during 2009, it is known that usage of the website more than doubled in the first month of the pandemic, and rose steadily to a peak of six times the pre-pandemic usage by November 2009 (internal HPSC statistics). As the website was perceived as an important means of communicating current information to health professionals, HPSC decided to survey users in order to identify how the website can best meet its users' information needs in future public health emergencies. Our findings are likely to be of use to those involved in the preparation and dissemination of information via the internet in future public health emergencies.

## **METHODS**

A national on-line survey of health professionals was carried out in early 2010. Survey Monkey <sup>8</sup>, an on-line survey tool was used and the developed questionnaire was derived from that of UK Health Protection Authority (HPA) <sup>9</sup>, using the same rating scale and similar questions on the key aspects of the website. However, the HPSC devised questionnaire (copy available on request) was significantly expanded and modified according to HPSC needs. The survey was anonymous.

The survey was disseminated nationally via email in January 2010, at the conclusion of the pandemic period, using an email cascade mechanism which had been established during the pandemic emergency period and had been used for the distribution of weekly HPSC pandemic flu updates to healthcare professionals. Recipients of the survey included all consultant paediatricians, medical microbiologists, infectious diseases consultants, consultants in emergency medicine, hospital managers, directors of public health (DPH) and directors of public health nursing throughout the Republic of Ireland. Recipients cascaded the email within their own settings and, in addition, DPHs cascaded the information to general practitioners (GPs) in their regions.

Data analysis from the closed questions was carried out in Microsoft Excel (2007). Data from the open-ended questions were analysed using the qualitative methods of content analysis and grounded theory methodology<sup>10</sup>. All of the comments received in the survey were first read through to identify the full range of key themes and concepts. They were then categorised using open coding, in which themes were identified and grouped into major categories with a further grouping of the data into sub-categories. Following this, selective coding was carried out involving integration and refinement of the data with identification of the final major themes.

## **RESULTS**

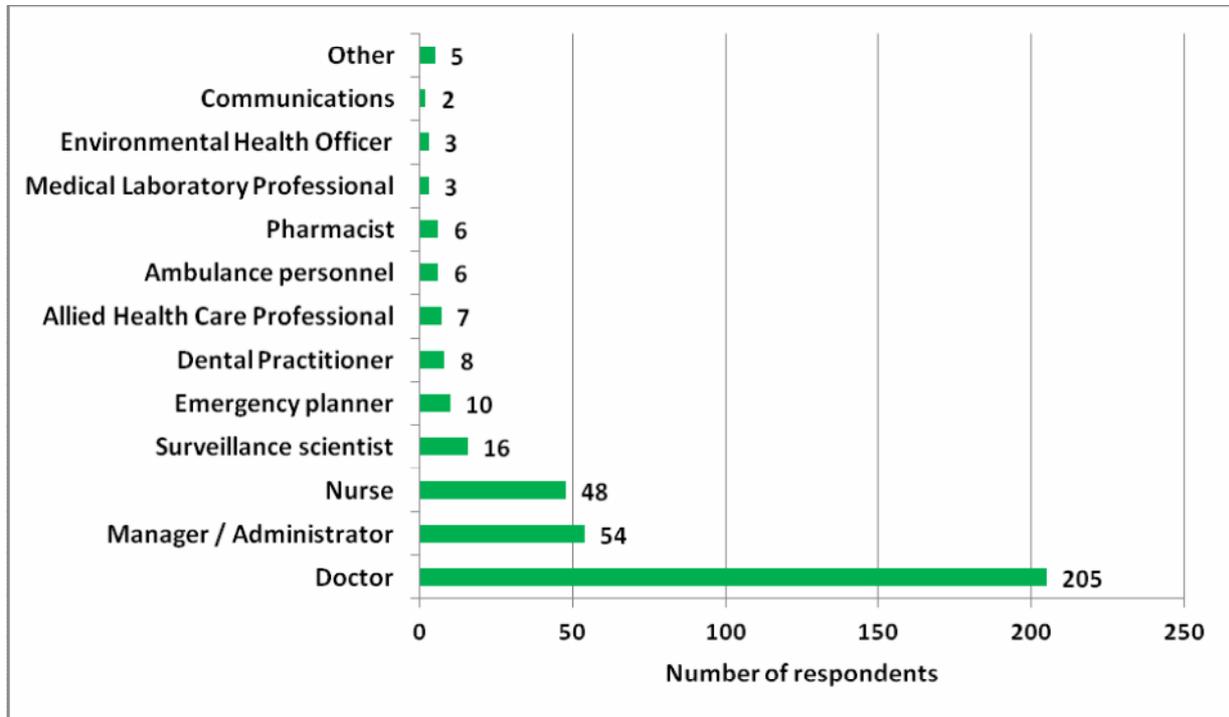
### **I. Survey respondents**

A total of 373 respondents completed the questionnaire of which 87% (n=325) defined themselves as users of the HPSC website.

#### Area of work and profession of the survey respondents

Respondents' main areas of work were: hospital 31% (n=114), general practice 31% (n=111), public health 29% (n=104), community-based (other than general practice) 8% (n=28) and other (non-classifiable) 2% (n=7). Fig. 1 displays the numbers of respondents according to professional group. Doctors were the single largest professional group, comprising 55% of all respondents.

**Figure 1. Profession of survey respondents (n=373).**



## **II. Usage of the HPSC website**

Respondents reported a high frequency of use of the HPSC website during the pandemic, with 69% using it at least once weekly and 25% daily (Figure 2). Within the pandemic flu pages of the website there was a section entitled *Information for Health Professionals* which contained 14 different topic sub-sections. The five most used sub-sections were: links to vaccination information; advice on pregnancy; advice on infection control; surveillance information and advice on antivirals (Figure 3).

Figure 2. Reported frequency of use of HPSC website during the pandemic (n=317)

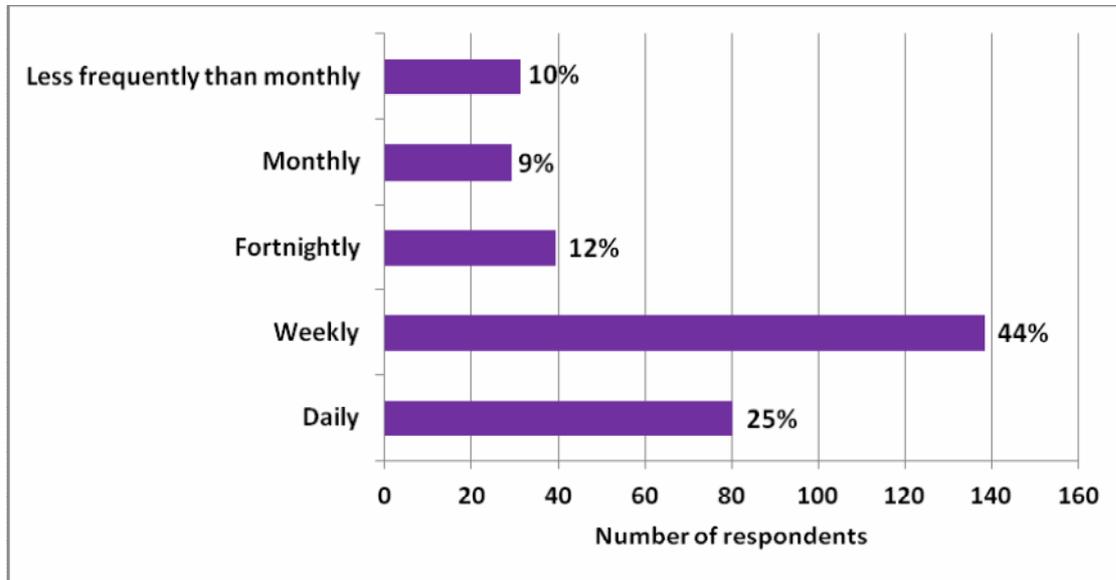
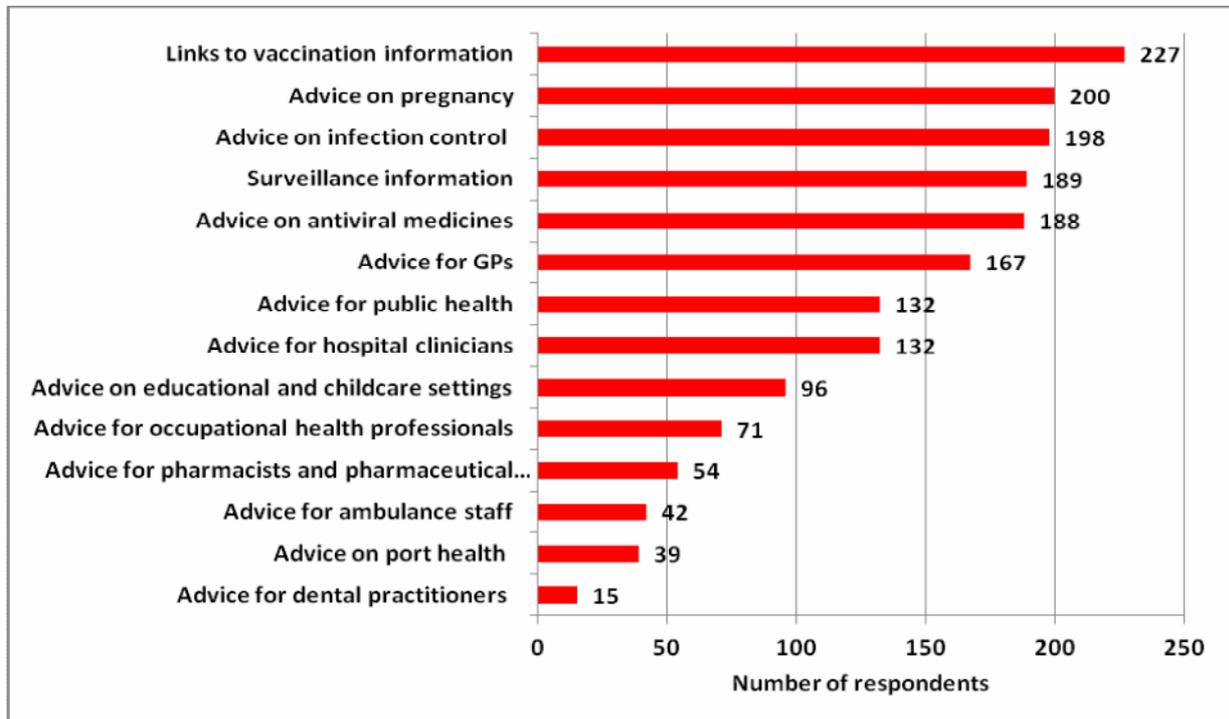


Figure 3. Numbers of respondents who stated that they used specific sub-sections within the pandemic flu section of the HPSC website



### **III. Usage of other websites**

Enquiry was made on the use of pandemic flu websites other than the HPSC site. Of those who answered this question, 26% (n=74) stated that they did not use other websites. The highest proportion not using other websites was among general practice personnel (42%), followed by hospital personnel (27%). In contrast, the most frequent users of other sites were those in public health at 93% followed by community-based personnel at 82%.

Among the 28 other named websites that respondents used for information on pandemic flu, the most frequently cited were those of: World Health Organization (WHO); Health Service Executive (HSE, Ireland); Centers for Disease Control and Prevention (CDC); European Centre for Disease Prevention and Control (ECDC) and the Health Protection Agency (HPA, UK).

### **IV. Main themes arising from the qualitative data analysis of the free text responses**

In response to the six open questions on various aspects of the HPSC website, a total of 334 comments were received. In the analysis these were grouped into nine major theme categories and there was a tenth category for material that was not usable (Table 1). The comments that were not usable comprised comments that could not be interpreted and comments relating to individual patients.

Some of the comments were divided or duplicated so as to be placed in the appropriate major theme category. Categories 1 to 6 contain the comments that related directly to the HPSC website, whilst Categories 7, 8 and 9 were on issues that extended beyond the HPSC website.

**Table 1. Categories of major themes identified from the analysis of the qualitative data, categories one to six relating directly to the HPSC website.**

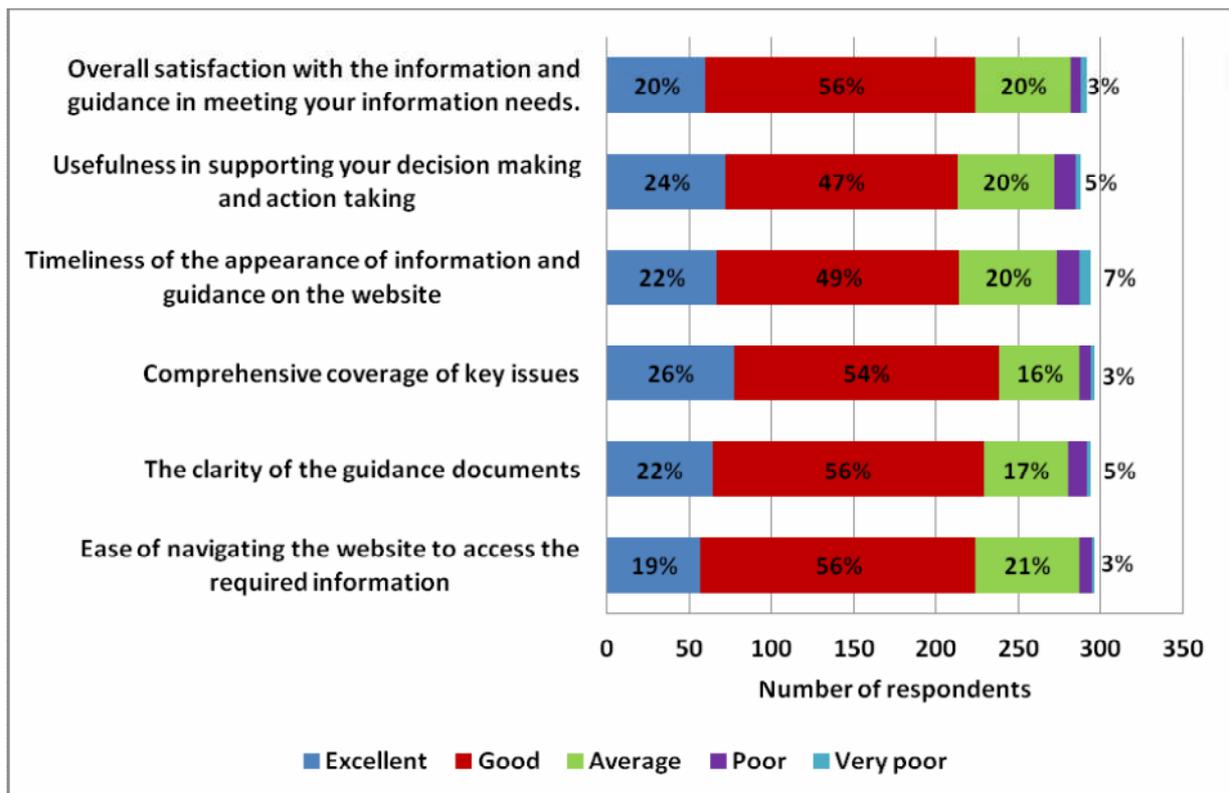
| <b>Title of major themes</b>   | <b>No. of comments</b> |
|--|------------------------|
| 1. Overall satisfaction with the HPSC website and general suggestions for its improvement. | 50                     |
| 2. Layout and navigability of the HPSC website   | 37                     |
| 3. Updating of the HPSC website  | 22                     |
| 4. Timeliness of the information   | 26                     |
| 5. Topics on which the guidance was insufficient or should have been covered               | 73                     |
| 6. Changes to the HPSC website noted over time   | 10                     |
| 7. Comments on the range of information sources in addition to the HPSC website            | 36                     |
| 8. Comments on aspects of the health service response to the pandemic                      | 16                     |
| 9. Comments on the pandemic flu vaccine  | 78                     |
| 10. Comments that are not usable   | 12                     |

V. **Results of the analysis of both the comments and ratings of the HPSC website presented under six major theme categories.**

1. **Overall satisfaction with the HPSC website and general suggestions for its improvement.**

The HPSC website was rated well with approximately 70 – 80 % of respondents rating it as either excellent or good on its general aspects. In fact, 98% of respondents said they would use the HPSC website in a future public health emergency. Fig 4 below presents the rating of the website on six key aspects.

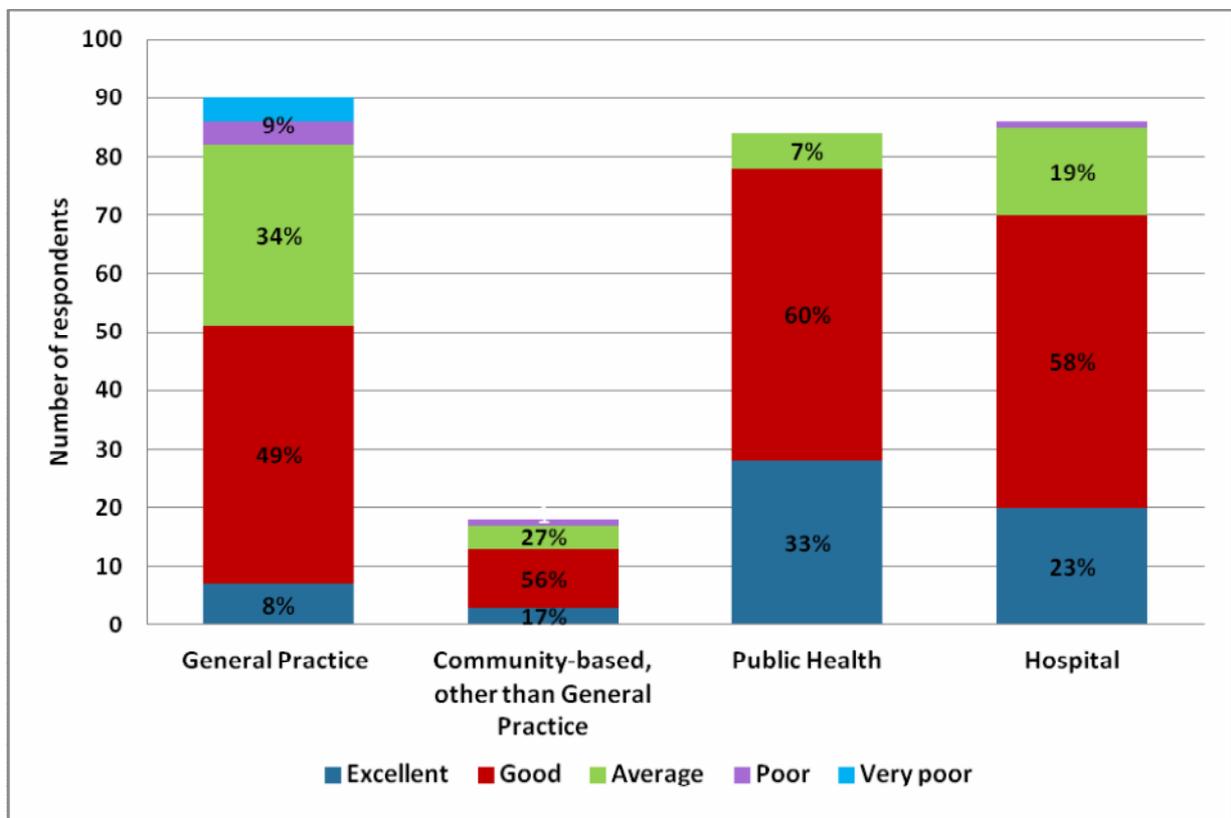
**Figure 4. Rating of HPSC website on six key aspects (n=300), with poor and very poor percentages combined.**



There were differences in the rating of the website between the health professionals according to their areas of work. In general terms, those working in general practice were the least satisfied with the

website, while those in public health were the most satisfied. The satisfaction level among those working in hospital and community services lay between these two groups. Fig 5 displays the differences in the views according to area of work regarding overall satisfaction with the website. Similar distributions were noted in the ratings of the other five key aspects.

**Figure 5. Rating of website regarding overall satisfaction with information and guidance in meeting information needs, according to area of work (n=288), with poor and very poor percentages combined.**



Rating of the specific sub-sections on pandemic flu

Within the *Information for Health Professionals* section in the pandemic flu pages of the HPSC website there were 14 sub-sections (Fig. 3). Each sub-section contained a number of documents and relevant

links. In the survey, respondents were asked if they used each sub-section and only those answering in the affirmative were asked to rate the various items it contained. Overall, all sub-sections were rated as either excellent or good by at least 75% of respondents. The most highly rated sub-section was that on surveillance information, which was rated by 90% as either excellent or good.

Many of the general comments expressed a very favourable view (n=27) of the website. Of the negative general comments received, these related mainly to views that there was excessive information (n=8) and that the advice given was not always practical (n=2). Among the general suggestions for improvement (n=13) were provision of a live Question and Answer section, a frequently asked questions (FAQ) section on clarifying 'rumours', use of fewer words, less detail and more use of visual images. Also there were specific suggestions made regarding posters, leaflets and surveillance forms.

## **2. Layout and navigability of the HPSC website**

As can be seen in Fig 4, 75% of respondents rated this aspect as either excellent or good, 21% rating it as average and 3% rating it as either poor or very poor. Of the 37 comments received on the layout and navigability of the website during the pandemic, 16 were negative and 8 were positive comments. Suggestions included: improvement to the organisation and subdivisions of the sections, clearer layout, avoidance of too many documents, provision of a search facility to find specific topics and the development of core documents, such as infection control precautions, that can be referred to rather than being repeated in the various relevant sections.

## **3. Updating of the website**

In the survey, 70% of respondents (n= 210) were of the view that the updating of documents on the website was clear to them, 15% said it wasn't clear to them and 15% didn't know. There was no variation in the proportion with these views according to respondents' area of work. The comments referred to a need for clear communication about when a document is updated, as well as details on the exact nature of

the update and provision of the correct date and version number. Among the suggestions for improvement were changes to the website itself, such as a message on the homepage, use of RSS feed capability as well communication about the updates by email or SMS alert, or limiting non-urgent updates to an agreed time and frequency, such as once weekly.

#### **4. Timeliness of the information**

As can be seen in Fig 4, 71% of respondents rated this aspect as either excellent or good. Among the comments received there was variability in the views expressed about the timeliness of the information provided on the website, with more negative comments (n=21) than positive ones (n=5). There were seven comments specifically on the negative impact of the media being informed about certain decisions in advance of the front-line health care professionals.

#### **5. Topics on which guidance was insufficient or should have been covered**

Almost a quarter of respondents (24%, n=66) were of the view that there were instances in which the guidance provided was insufficient. There was a higher proportion with this view among respondents working in general practice (35%) than those working in other areas. Of the comments received, the single largest topic on which the guidance was reported as being insufficient was in relation to pandemic flu vaccine, a topic covered on the NIO website, to which the HPSC website provided links. Aside from vaccination, a total of 73 comments were received about other topics that were viewed as not being sufficiently covered on the HPSC website, the most frequently cited being in areas of infection control (n=12), antiviral medication (n=9) and pregnancy (n=7).

#### **6. Changes to the HPSC website noted over time**

Ten respondents made comments on the changes that they noted in the website over the course of the pandemic, three of which reported a disimprovement over time, as the amount of information on the website increased. In contrast, seven other comments reported improvements in layout and content over

time as well as prompt correction of errors and responsiveness in providing guidance when the need was identified.

## **Discussion**

This survey provided very useful feedback to HPSC from its website users regarding the information on its website for health professionals on pandemic (H1N1) 2009 influenza. Although some of the information obtained is specific to the Irish context, there are a number of important points that may be of value to those involved in providing information for health professionals on the web in future public health emergencies.

Although the satisfaction levels with the HPSC website were quite high, there were a number of problems reported, both with the website itself, regarding layout and navigation, as well as with some unmet information needs. The survey also revealed differences in information needs and information seeking practice among health professionals in Ireland according to their areas of work. For example, those working in public health were the group most satisfied with the HPSC website and were also the most frequent web users, whilst respondents working in general practice were the group least satisfied and also the least frequent web users.

The possibility of such differences in needs and practice between the various health professional groups will need to be considered in the communications during future public health emergencies. The variation in usage of the HPSC website as a source of information indicates that, at present, the organisation should avoid depending entirely on the website as a means of communicating to all health personnel. Rather, HPSC should continue to employ a range of additional communication routes and methods, such as email updates, in order to best meet the information needs of healthcare professionals working at the different levels of care.

Regarding the content of the website, the survey revealed that approximately one quarter of respondents were unsatisfied with the sufficiency of the information provided. Clearly it would not be feasible or desirable to meet all of the information needs of the full range of health professionals by the provision of topic specific documents on the website. However, the results from this survey indicate that a likely optimal approach to addressing needs during future emergencies would be through the use of a variety of methods and approaches in conveying information on the website. Resources permitting, these could include: the development of a series of core documents; further development of the FAQ section; provision of a section on clarifying ‘rumours’ and the provision of a live Question and Answer section.

The reported layout and navigation problems with the HPSC website during the pandemic period indicate that planning is required to improve the ease with which users can find the information they need on the site in future public health emergencies. In a usability analysis of selected government websites in the United States<sup>11</sup>, it was identified that a key driver behind many usability problems arose from the internal focus of many organisations. Organisations were found to have their websites designed along department, division or working group lines rather than being organised around satisfying users needs. The Andersen report<sup>11</sup> recommends balancing the needs of an organisation with the needs of its users, by developing sound website function and content that is based on research into both perspectives.

A limitation of this survey arises from the methodology in which participants were self selected, based on their receipt of the invitation to complete the on-line questionnaire. As the invitation was circulated by email cascade, we are unable to estimate a response rate and cannot report on how representative the respondents are of the population of health professionals involved in the response to the pandemic in Ireland in 2009. Despite this limitation, the data obtained from the qualitative component of this survey has clearly identified the perceived strengths and deficiencies of the website, many of which were commented upon consistently by several different respondents. This information has proven to be very helpful to HPSC in improving its preparedness for future public health emergencies.

The web has now become a primary method of conveying current information during a public health emergency. In order to effectively deliver the relevant information to its target audience, organisations need to give careful consideration to the perspectives of the users of their websites in terms of users' information needs and information seeking practices. This paper presents feedback from the perspectives of health professional users of a national pandemic flu website during the pandemic period in 2009. This information will be used at HPSC to improve preparedness for future public health emergencies. The planned actions include:

- a review of the HPSC website to improve its layout and navigability
- use of a very obvious and well sign-posted means to alert users of recent updates to the website
- provision of a clear indication on the HPSC home page about what types of information HPSC can provide, and the appropriate websites that users should go to for other relevant information, e.g. for vaccine information, go to the website of the National Immunisation Office
- establishment of feedback mechanisms from users to critically review the website content during future emergencies
- work with other stakeholders to improve the co-ordination and quality of the information resources being provided to health professionals during future public health emergencies.

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