The impact of communications about swine flu (influenza A HINIv) on public responses

The impact of communications about swine flu (influenza A HINIv) on public responses to the outbreak: results from 36 national telephone surveys in the UK

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Executive summary

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Executive summary

Background

During the 2009 influenza A H1N1v (swine flu) pandemic, the UK government urged members of the public to adopt several behaviours in order to reduce the effects of the outbreak. A major communications campaign was launched in which people were asked to clean their hands regularly, use tissues appropriately and use automated telephone numbers or websites if they wished to check whether they might have swine flu. Later on in the outbreak, selected population groups were advised to have the new swine flu vaccination, with the possibility raised that the vaccine might eventually be offered to most people.

In order to understand the public's attitudes and knowledge relating to swine flu, the Department of Health, England commissioned a series of 40 telephone surveys, each of which contacted a new, randomly selected sample of between 1047 and 1173 members of the public across the UK. All participants were aged 16 years or over and spoke English. Surveys occured on average once per week, and over a 3-day time period. Response rates for each were in the range of 8–11%, which is usual for this type of research. Quota sampling ensured that each sample was demographically representative of the UK population.

We analysed the data from 36 of these surveys, covering the period between 1 May 2009 and 10 January 2010. Data for the last four surveys were still being finalised when we conducted our analyses. We used the data to assess the impact of the government's communications campaign on uptake of recommended behaviours, on behaviours that had not been recommended and on likely uptake of the swine flu vaccine. We also assessed possible psychological factors that might have mediated any associations between exposure to information and behaviour. Because we were interested in how public responses changed over time, we examined how responses to five survey questions concerning perceptions of the outbreak altered over time, and whether any changes correlated with changes in the amount of media reporting about swine flu.

Our overall approach was guided by a psychological theory that suggests that higher levels of worry about a hazard, coupled with perceiving a specific action to be effective in protecting against the hazard, increases the likelihood of an individual performing that action.

Objectives

1. To assess whether changes in the volume of media reporting about swine flu were associated with changes in the percentage of people who reported being worried about the possibility of catching swine flu or with other changes in the way the outbreak was perceived.
2. To assess how many members of the UK public would have accepted the swine flu vaccine had it been offered to them, and to identify whether likely acceptance was predicted by worry about the possibility of catching swine flu, perceptions about the outbreak or the amount or type of information heard about the outbreak.
3. To assess whether being more likely to have the seasonal flu vaccine as a result of the swine flu outbreak was predicted by worry about the possibility of catching swine flu, perceptions about the outbreak or the amount or type of information heard about the outbreak.
4. To assess what percentage of the public had performed recommended and non-recommended behaviours in the early stages of the outbreak.
5. To assess whether people who had been exposed to media coverage or advertising about swine flu were more likely to perform recommended or non-recommended behaviours, and to assess whether effects of media coverage or advertising were due to changes in knowledge about swine flu, levels of worry about the possibility of catching swine flu or perceptions about the efficacy of different protective actions.

Methods

Because the questions included in the surveys changed over time, different surveys were used to address the different objectives. Three studies were conducted.

- *Study 1* used data from all 36 surveys to address Objective 1. Percentages of people in each survey who reported the following were documented: being fairly or very worried about the possibility of catching swine flu; being very or fairly satisfied with the amount of information available to them about swine flu; having heard a great deal or a fair amount in the past week about swine flu; tending to agree or strongly agree that 'too much fuss is being made about the risk of swine flu'; and believing that the government was very well prepared, or fairly well prepared, for a swine flu pandemic. Specialist media monitoring software was used to search 11,132 UK-based news sources for articles that mentioned the words swine flu, 'H1N1' or 'pandemic' in their opening paragraphs. Additional searches identified the number of stories that also included terms in their headlines relating to children or deaths. Time series analyses were used to investigate whether changes in the aggregate survey data were associated with changes in the total volume of media reporting relating to swine flu or changes in the volume of reporting that also mentioned children or deaths. These analyses adjusted for the number of new hospitalisations from swine flu per week, to control for the fact that changed levels of reporting and worry might reflect the changing severity of the outbreak.
- *Study 2* assessed Objectives 2 and 3, with analyses for Objective 2 using data from five surveys ($n = 5175$, data collection from 14 August to 13 September) and analyses for Objective 3 using data from 20 surveys ($n = 20{,}999$, 8 May to 13 September). All data were collected prior to the start of the swine flu vaccination campaign. Participants were asked how likely, if at all, they were to take up a swine flu vaccination if offered it, and whether, as a result of swine flu, they were now more likely to get the seasonal flu vaccination. Possible predictors included demographic variables, worry about the possibility of oneself or one's child catching swine flu, perceiving that too much fuss had been made about the risk of swine flu, perceptions of government preparedness, amount of information heard about swine flu in the past week, level of satisfaction with the information available and specific aspects of information that had been heard.
- *Study 3* assessed Objectives 4 and 5, using data from the first five surveys ($n = 5419$, 1–17 May). Participants were asked whether they had carried tissues with them, bought sanitising hand gel or avoided using public transport since the beginning of the outbreak. Carrying tissues and using hand gel were behaviours endorsed by the government. Avoiding public transport was not endorsed by the government. Participants were also asked whether they had been to see a general practitioner (GP), visited a hospital or telephoned NHS Direct in the past 2 weeks because of flu-related reasons. As levels of flu in the community were low at the time of these surveys, participants responding 'yes' to these questions were unlikely to have had flu. Predictor variables for these four outcomes were demographic variables, self-reported exposure to media coverage or advertising relating to swine flu, knowledge about swine flu, perceptions of the information available, worry about the possibility of catching swine flu, and perceptions of the efficacy of hygiene-related behaviours or avoidance of other people as ways of preventing the spread of swine flu.

Results

Study 1: The influence of the media on levels of worry in the community

The percentage of people who were satisfied with the amount of information available or who thought that the government was well prepared for a pandemic ranged from 77.6% to 88.4% and from 66.4% to 81.7% respectively. Levels of worry about the possibility of catching swine flu showed larger fluctuations in the first half of the data collection period, rising from initially low levels (9.6–16.6% during May) to 19.3% in mid-June following the declaration of a full pandemic by the World Health Organization, with a second peak of 32.9% in mid-July at the height of the summer wave of the outbreak. Following the summer wave, levels of worry then remained more stable from the end of August onwards, although smaller increases coinciding with the start of the winter wave of the outbreak and the start of the vaccination campaign were observed. Reports of the amount heard about swine flu showed the most dramatic changes, from initially high levels, with over 90% of respondents reporting that they had heard 'a lot' or a 'a moderate amount', dropping to 11.4% having heard 'a great deal' or 'a fair amount' by early January 2010.

Across the whole pandemic, the percentage of people reporting worry about the possibility of catching swine flu correlated with the number of hospitalisations recorded that week [likelihood ratio test: $\chi^2(1) = 8.2$, $p = 0.004$] and the total volume of reporting relating to swine flu, after

adjusting for hospitalisations [$\chi^2(1) = 6.6$, $p = 0.010$]. The relationship between reporting and worry changed over time. Prior to community transmission of swine flu becoming established in the UK, very high levels of media reporting about the disease were observed but these were accompanied by low levels of worry. During the summer wave of swine flu, an association appeared between levels of reporting and worry [$\chi^2(1) = 6.8$, $p = 0.009$]. This relationship was not observed in the second (winter) wave of the outbreak. Adjusting for hospitalisations and for the total amount of reporting about swine flu, the amount of reporting about deaths from swine flu or about children and swine flu was not associated with any of the survey variables.

Study 2: Factors predicting likely acceptance of vaccination against swine or seasonal flu

A total of 31.7% of respondents reported being very likely to accept the swine flu vaccine if offered it, 24.4% were fairly likely, 19.4% were not very likely, 20.8% were very unlikely and 3.7% said they did not know. Overall, 16.7% of respondents strongly agreed that as a result of swine flu they were now more likely to get the seasonal flu vaccine – 12.9% tended to agree, 15.3% neither agreed nor disagreed, 27.9% tended to disagree, 26.1% strongly disagreed and 1.1% did not know.

Controlling for personal and health-related factors, the following variables were associated with being very or fairly likely to accept the swine flu vaccine: having higher levels of worry about the possibility of one's child catching swine flu [adjusted odds ratio (aOR) 8.0, 95% confidence interval (CI) 4.6 to 13.9]; having higher levels of worry about the possibility of personally catching swine flu (aOR 4.7, 95% CI 3.2 to 7.0); disagreeing that too much fuss had been made about the risk of swine flu (aOR 2.2, 95% CI 1.9 to 2.7); perceiving the government to be well prepared for swine flu (aOR 1.6, 95% CI 1.3 to 1.8); and knowing someone who had had swine flu (aOR 1.2, 95% CI 1.0 to 1.3). All of these variables, except for perceptions about government preparedness and knowing someone who had had swine flu, were also associated with being more likely to accept the seasonal flu vaccine as a result of swine flu.

Only two out of eight information-related variables that were available in the relevant surveys were associated with being more likely to accept the swine flu vaccine if offered it: being satisfied with the amount of information available about swine flu (aOR 1.5, 95% CI 1.2 to 1.9) and having recently heard that the number of deaths from swine flu had increased (aOR 1.3, 95% CI 1.0 to 1.6). Eleven information-related variables were available in the surveys which included likelihood of having the seasonal flu vaccine as an outcome. Of these, only satisfaction with the amount of information available about swine flu (aOR 1.5, 95% CI 1.1 to 2.0) and believing, incorrectly, that the seasonal flu vaccine would protect against swine flu (aOR 2.4, 95% CI 2.1 to 2.7) were associated with being more likely to get the seasonal flu vaccine as a result of swine flu.

Study 3: The effects of advertising and media coverage on behavioural change during the early stages of the swine flu outbreak

In total, 33.1% of respondents reported carrying tissues with them, 9.5% reported having bought sanitising gel, 2.0% reported avoiding public transport and 1.6% reported having visited a GP or hospital or phoning NHS Direct for flu-related reasons. Path analyses demonstrated that exposure to media reporting or advertising coverage was associated with greater likelihood of carrying tissues or buying sanitising gel, and lower likelihood of avoiding public transport or using NHS services. These effects occurred mainly because media or advertising exposure increased variables associated with perceived knowledge about swine flu, increased the perceived efficacy of hygiene strategies and decreased the perceived efficacy of avoidance strategies. Exposure to advertising or media reporting also tended to reduce levels of worry about the possibility of catching swine flu, which also helped to reduce avoidance of public transport and use of NHS services.

Conclusions

Implications for practice

1. Uptake of recommended behaviours during the swine flu outbreak was low. Maximising the impact of communications campaigns that promote protective behaviours during future pandemics is therefore important. Our results show that psychological processes are important to consider when designing these campaigns.

2. Rapid-turnaround surveys can be useful as part of a public health response to evaluate whether communications campaigns have had an effect on behaviour and to identify what factors mediated this process. However, in order to get the most out of analysing such data, it is important that the most appropriate constructs are measured using wording and response options that maximise reliability and validity of measurement. This is true both of psychological predictors and of self-report measures of behaviour. Seeking early advice from behavioural scientists on these issues is recommended in any future outbreak. It is also recommended that a model template for such a survey be designed in advance of a future pandemic.
3. During a future outbreak, raising levels of worry about the possibility of catching a disease from low levels is likely to increase uptake of behavioural recommendations. However, it is also likely to increase uptake of non-recommended behaviours. Conversely, attempts to reassure the public about their chances of becoming ill during a future infectious disease outbreak are likely to reduce rates of behaviour change. How to steer the best course in the face of these conflicting influences requires the application of general principles to the specifics of any particular situation.
4. Emphasising the efficacy of recommended behaviours in any future campaign should help to maximise the campaign's impact on those behaviours. Importantly, although increasing levels of worry might increase rates of all protective behaviours, regardless of whether they had been recommended or not, our results suggest that communicating the efficacy of a specific behaviour may have an impact on that behaviour alone.

Research recommendations

1. While our results suggest that successfully communicating information about the efficacy of protective behaviours will increase the uptake of these behaviours, we are unable to specify the best techniques for providing information about efficacy. Additional research on this topic would help to guide future communications campaigns.
2. Across all of the behavioural outcomes that we assessed, there was evidence that people from particular demographic groups were more inclined to engage in behavioural change. Our results showed that ethnicity, age, household size, health status, socioeconomic status and gender all played a role in determining whether someone engaged in a given behaviour or not. The mechanisms underlying these effects are likely to be complex and may have important implications for the way in which messages for these groups should be framed. Additional research to understand the reasons for and implications of these effects would be of value.
3. Since the cross-sectional analyses reported in studies 2 and 3 were completed, additional data from the surveys have become available. These include potential outcome variables such as hand-washing data and actual, rather than intended, vaccine uptake. We recommend further analysis of this data set, focusing on these variables. Similarly, the database would also allow a more detailed analysis of the content of media reporting to be used as a predictor of worry during the outbreak.
4. The perception that too much fuss was being made about the risk of swine flu was high throughout the outbreak, and was associated with reduced uptake of recommended behaviours. It is unclear how people's experiences during the swine flu outbreak have affected their perceptions of health warnings produced by scientists, the media or the government, what impact this might have on their response to future warnings about a potentially more severe pandemic or how best to ameliorate any scepticism. Additional research addressing these areas is warranted, informed by evidence-based theories of behaviour change.
5. For the foreseeable future, telephone surveys are likely to remain the only pragmatic way to obtain rapid, quantitative data with which to inform policy decisions during public health incidents. Additional research to improve the validity of this technique is therefore warranted. As a first step, testing the validity of self-report measures of different types of behaviour would be of value.

Publication

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This themed issue of the *Health Technology Assessment* journal series contains a collection of research commissioned by the NIHR as part of the Department of Health's (DH) response to the H1N1 swine flu pandemic. The NIHR through the NIHR Evaluation Trials and Studies Coordinating Centre (NETSCC) commissioned a number of research projects looking into the treatment and management of H1N1 influenza.

NETSCC managed the pandemic flu research over a very short timescale in two ways. Firstly, it responded to urgent national research priority areas identified by the Scientific Advisory Group in Emergencies (SAGE). Secondly, a call for research proposals to inform policy and patient care in the current influenza pandemic was issued in June 2009. All research proposals went through a process of academic peer review by clinicians and methodologists as well as being reviewed by a specially convened NIHR Flu Commissioning Board.

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The research reports in this themed issue were funded through the Cochrane Collaboration; the Health Services Research programme (HSR); the Health Technology Assessment programme (HTA); the Policy Research Programme (PRP); and the Service Delivery and Organisation Programme (SDO).

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The authors have been wholly responsible for all data collection, analysis and interpretation, and for writing up their work. The HTA editors and publisher have tried to ensure the accuracy of the authors' report and would like to thank the referees for their constructive comments on the draft document. However, they do not accept liability for damages or losses arising from material published in this report. The views expressed in this publication are those of the authors and not necessarily those of the NIHR or the Department of Health.

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