

# The design of a survey questionnaire to measure perceptions and behaviour during an influenza pandemic: the Flu TELEphone Survey Template (FluTEST)

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## Scientific summary

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# Scientific summary

## Background

During a public health crisis, it is essential for policy-makers and public health experts to understand how members of the public are reacting. Having access to data on issues such as levels of worry among the community, the specific concerns or misperceptions that people have, the number of people who are aware of official recommendations and the number of people who are engaging in specific behaviours allows policy-makers to make evidence-based decisions, including what issues to focus on when communicating with the public and how best to frame their messages. During the 2009–10 influenza (flu) pandemic, surveys to assess behaviour among the general public were designed quickly and suffered from methodological deficits as a result.

## Objectives

To facilitate survey work in a future pandemic, we sought to (1) identify variables relating to behaviour, perceptions and presence of symptoms that are of relevance to policy-makers and other public health experts; (2) test and refine the wording of questions to measure these variables; (3) assess the reliability of responses to these questions; and (4) test whether non-response bias due to attrition might prevent the use of a longitudinal design for future pandemic-related surveys.

## Method

We identified variables via existing systematic reviews and through consultation with pandemic flu planners from Public Health England, the English Department of Health, their advisory groups and academic colleagues. To measure the selected variables, we adapted questions from existing scales or developed them afresh. Because telephone surveys usually last no longer than 15 minutes, we kept the number of items used for each variable to a minimum, using single items where possible. We tested the clarity of our items in three rounds of qualitative interviews with members of the public (total  $n = 78$ ). We reworded items identified as difficult to understand or answer by two or more participants, and retested them in a subsequent round of interviews. We used a random-digit dial telephone survey of adults from Great Britain ( $n = 1080$ ) to assess the internal reliability of scales. We used a follow-up survey 1–2 weeks later to assess the test–retest reliability of responses and the differences between responders ( $n = 621$ ) and non-responders ( $n = 459$ ). The telephone surveys were conducted between 16 and 30 January 2013. Proportional quota sampling ensured that respondents were demographically representative of the general population, with quotas derived from the most recent Census data and based on age, sex, work status, region and social grade. The design was identical to that used for the national surveys conducted by the Department of Health during the 2009–10 pandemic.

## Results

We identified seven core sets of outcome variables relating to the presence of flu-like illness and various protective behaviours, as well as a set of likely predictor variables for the behaviours. In brief, the priority outcomes were (1) preparatory behaviours (e.g. stocking up on over-the-counter medication or making plans); (2) the presence of flu-like symptoms among respondents; (3) the perceived presence of flu among respondents; (4) performance of respiratory, hand hygiene and avoidance behaviours; (5) intended and actual behaviours when ill, relating to health-care use or avoidance of other people; (6) intended and actual vaccine uptake for self and for any children; and (7) intended and actual antiviral use for self and for children.

We generated 208 items relating to these outcomes and potential predictors of them. Qualitative interviews identified multiple minor issues with our questions, most of which we resolved. Reliability of the items was largely satisfactory. Evidence of non-response bias due to attrition was found, with non-responders being younger and less well educated than responders, and differing on several flu-related variables.

## Conclusions

It would be ill-advised for public health bodies to enter the next pandemic without a plan for how to measure the public's behaviours and perceptions. The extensive set of items that we compiled as part of this work provides a good starting point for those who will need to make decisions on what data to collect in the next pandemic, and has the benefit of being evidence based, policy relevant and readily understood. Although choosing how to gather data is an area that still requires research, our items can be used with confidence as soon as the next pandemic begins.

The questions produced as a result of this work are freely available for anyone to use or adapt as they see fit, providing that appropriate reference is given to this paper. Within England, the questions will be kept under review and will be proposed for inclusion in any future survey work that is required during a flu pandemic or similar public health crisis. Funding and ethical approval is already in place for our team to assist with the analysis of any such surveys.

## Study registration

This trial is registered as ISRCTN40930724.

## Funding

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## This report

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