Author's response to reviews

Title: Did the pandemic have an impact on influenza vaccination attitude? A survey among health care workers

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Author's response to reviews: see over
Dear Editor,

Thank you for your interest and quick processing. Below you will find our point-by-point responses to the concerns pointed out in referees’ reports and editorial requests, which you will find with ‘tracked changes’ after each comment.

Yours sincerely,
Raika Durusoy

Reviewer's report – Referee 3

Title: Did the pandemic have an impact on influenza vaccination attitude? A survey among health care workers

Version: 1 Date: 17 September 2010

Reviewer: Udo Buchholz

Reviewer's report:

An interesting study which contains a few interesting details, which are to my taste too much hidden in the text. Much of the information provided is not really new or surprising. Interesting elements include the younger age of those willing to be vaccinated, the large proportion of those undecided, and the description of the conflicting media and political messages during the vaccination campaign. Authors refer to a few countries, their vaccination rates and approaches to promote (or not) vaccination among HCW. I would encourage the authors to try to strengthen this part, and try to look more systematically for data from other countries, including perhaps a brief interview with a key public health person from the respective country who could explain why vaccination rates have turned the way it did. This would be very interesting information for the readers.

Interviews with key persons from different countries is an interesting idea but that seems to be out of the scope of this study and could be a another study per se.

Major compulsory revisions:

- Authors should state more clearly how the "sample" was chosen, how HCW were approached, if possible do a non-responder analysis (is there a systematic difference between non-responders and responders? e.g. regarding age or type

The sentences on sampling were explained in more detail and a non-responder analysis was conducted: "Due to time restrictions to collect data before the start of vaccination, researchers visited the different departments of the hospital and applied convenience sampling there and in the refectory. A total of 810 HCWs could be contacted and only three of them refused to participate, thus 91.3% (n=807) of the sample size was covered. A non-responder analysis was conducted. There was no significant difference in the distribution of profession and departments among responders and non-responders (p=0.249 and 0.123, respectively)."

of profession). Also some of the information seems conflicting/confusing: e.g. in Methods, page 5 it says: 91% "coverage rate", but in Results it says: only three

Thank you for elaborating these misleading insufficient expressions. We added a sentence to Page 5 to explain in more detail: 'Due to time restrictions to collect data before the start of vaccination, 810 HCWs could be contacted and only three of them refused to participate, thus 91.3% (n=807) of the sample size was covered.’ And thus removed the sentence on refusals in Results.

HCW refused to participate, and on page 6 it says that a sample size of 745 was
As this number is not our real sample size, it was again our misleading expression to say ‘our sample size of 745’ so we changed that sentence as: ‘we achieved 97% power’ instead of ‘our sample size of 745 achieved 97% power’. Thank you. Note: The number of participants that were included in that analysis was smaller since we learned about their actual vaccination status later on, from official vaccination lists, and we could not match some of the participants’ vaccination status since they had not provided their open names in the questionnaire. A sentence in Results, Page 8 gives the number of participants with matching vaccination status data: ‘Among participants, 92.8% (n=749) had provided their open names on their questionnaires, thus their vaccination status could be tracked.’

were both HCW AND medical students targeted? Which variable was used for the sample size calculation? (vaccination rate?)

Yes, vaccination rate was the variable used for the sample size calculation. To clarify, we added ‘prevalence 50% for unknown vaccination rate’.

Minor essential revisions:
- Abstract: please state, when the pandemic wave hit the country, when the vaccine was available and when the survey was conducted. These three dates were added to the abstract.
- Abstract: please state briefly the type of questions asked The term “which included 12 structured questions” was added to describe the questionnaire.
- Abstract: please give not only %, but numbers (n of N) (please do so throughout the manuscript: "n (%) of N...") n’s were added both to the abstract and the text of the Results section.
- Abstract: 30% vacc rate cannot be followed from the numbers given. approx 12% among those willing to be vaccinated, approx 4% among those unwilling, so the rest must be among those undecided. please state the numbers. The numbers were added. Here, the remainder are the ones who are not vaccinated; that is, 70% in total were not vaccinated and among the categories of attitude prior the implementation of vaccination: 40% of those willing were not vaccinated, 63% of those undecided and 88% of those unwilling were not vaccinated.
- Abstract: are there numbers about the proportion of HCW who - during seasonal influenza - are hesitant regarding vaccination, or the average age? If available, these numbers should be contrasted with the numbers during pandemic influenza (which would make it more interesting) Unfortunately we do not have such data for seasonal influenza vaccination.
- Abstract: the middle sentence is not supported from the evidence. (for example: authors should say something in the background about the media coverage) The sentence “Despite efforts of NGOs, the attitudes of the media and politicians were mostly negative.” was added to the Background of the abstract. We do not have evidence from our study about the effect of mass media and politicians, but the disagreement between the minister of health promoting vaccination and the prime minister declaring that he, personally would not be vaccinated, reverberated and took much place in the media, leading to many discussions and uncertainties.
- Background: consider saying some words about how the pandemic and the vaccine was presented in the public, how it was presented by medical specialty associations, the media, politicians, etc.
The sentence “Despite efforts of the academics and National Medical Associations, the propaganda carried out by the media and the Prime Minister about vaccination and pandemic was mostly negative” was added. More detailed information is available in the Discussion.

- Methods: how were vacc rates retrieved?

*It is described on Methods, Page 6, as:* ‘On December 1, official vaccination lists were obtained from the managers of the hospital and actual vaccination status were matched with questionnaires using the names provided on questionnaires.’

- page 6: analysis of profession on vacc status is not clearly described; the same is the case for the description of the development of the multivariate model (forward, backward, ...?, what the criteria of inclusion of variables?)

The description of the statistical analysis was completely changed, and the required descriptions and criteria were added: “A multivariate stepwise logistic regression (selection method ‘Enter’) was performed with the variables that were found significant in univariate analysis, with the exception of ever vaccination against seasonal influenza in the past five years, which was correlated with vaccination in the last year.”

- p.8: confounding effect of gender on profession is not sufficiently explained

*The expression was clarified as:* “To explore possible confounding by profession, a stratified analysis was done and it was found that among female participants, only 7.0% of nurses were willing to be vaccinated vs. 20.6% among females with other professions ($\chi^2=21.211, p<0.001$).”

- p.10: 8th line from the bottom: I suppose you mean "pandemic vaccination estimates" and not "seasonal vaccination estimates"?

*We actually meant “seasonal”, In the original reference, it is said “Seasonal vaccination estimates for this group were higher at 61.9%, above the typical seasonal vaccination rates”. So no change was done.*

- p.11, second paragraph: comparing attitudes with the situation in a different population at a different time is not adequate, because differences may be due to either.

The afore mentioned comparisons were removed from the text and the relevant paragraph was shortened as: “The most important reason of unwillingness or hesitation against H1N1 vaccine were vaccine safety issues. The same reason was the most prominent for rejection of the pandemic vaccine in the U.S. and Greece too [4,5]. We think that several additional factors might have played role in the highly negative rated aspects to the pandemic influenza vaccination...”.

**Level of interest:** An article whose findings are important to those with closely related research interests

**Quality of written English:** Needs some language corrections before being published

**Statistical review:** No, the manuscript does not need to be seen by a statistician.

**Declaration of competing interests:**
I declare that I have no competing interests

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**Reviewer’s report – Referee 2**
**Title:** Did the pandemic have an impact on influenza vaccination attitude? A survey among health care workers

**Version:** 1  **Date:** 9 September 2010
**Reviewer:** Giuseppe La Torre

**Reviewer’s report:**
Revision
Did the pandemic have an impact on influenza vaccination attitude? A survey among health care workers
The manuscript is well written and covers a very important public health issue. The following compulsory revisions are requested in order to let the manuscript suitable for publication on the Journal.

Background

Two references were added and the end of the first paragraph of the introduction was changed as follows: “Uncertainties about the disease’s severity and its mortality had caused wide panic and worry, but anxiety declined as worse scenarios did not come true [1]. The social impact of the pandemic was also of concern [2].”


- The authors stated that “The under-vaccination of health care workers to seasonal influenza is a well studied topic.”. Please provide some useful reference. As an example, it could be useful to cite Lam PP, Chambers LW, Macdougall DM, McCarthy AE. Seasonal influenza vaccination campaigns for health care personnel: systematic review. CMAJ. 2010 Sep 7;182(12):E542-8. Epub 2010 Jul 19.

The suggested reference has been added.

Methods
- In the setting paragraph, the authors stated “HCWs’ vaccinations are organized by hospital infection control committee and applied in relevant departments.”, but they did not indicate which are these relevant departments. Please provide details

Suggested details are provided
- In the statistical paragraph, the authors need to indicate the statistical package and the level of statistical significance they used.

The sentences “The level of statistical significance was p<0.05. Analyses were performed with SPSS 15.0.” were added to the section “Statistical analysis”.

Results
- At page 8, line 9 and at page 9, line 8, there are two errors in reporting chi-square. Please correct

The errors are corrected.
- The main results presented in table 6 need to be described in the results section.

The main results are described in the manuscript.

Discussion
- In the last section the authors should report the use of media campaigns or non-profit organizations that might or might not push politicians and physicians to take action to address a perceived health problem via a vaccine. A useful reference for this is La Torre G. Value in assessing new vaccines. Ital J Public
Reviewer's report – Referee 1
Title: Did the pandemic have an impact on influenza vaccination attitude? A survey among health care workers
Version: 1 Date: 31 August 2010
Reviewer: Helen Maltezou
Reviewer's report:
The paper is too long (especially the discussion), please make it shorter.

The paper was shortened, especially the discussion. A paragraph was entirely removed from the discussion: the paragraph on the effect of previous seasonal influenza vaccination (“Past seasonal influenza vaccination, and especially vaccination in the last season, was a strong predictor of both attitude and uptake of vaccination against H1N1. In a review on influenza vaccination of HCWs in hospitals, five out of 13 studies identified previous receipt of influenza vaccine as a predictive factor for influenza vaccination [12]. Thus we might expect that some of the same factors influencing seasonal influenza vaccine uptake are operating for H1N1 vaccination as well. It was interesting to note that in our study group, HCWs who received seasonal influenza vaccine in the last year were distributed evenly to the three different categories of attitude, with around 30% in each category (willing/unwilling/undecided).”), and the paragraph on comparisons between the difference of reasons for unwillingness among different populations was considerably shortened as: “The most important reason of unwillingness or hesitation against H1N1 vaccine were vaccine safety issues. The same reason was the most prominent for rejection of the pandemic vaccine in the U.S. and Greece too [4,5]. We think that several additional factors might have played role in the highly negative rated aspects to the pandemic influenza vaccination:...”

Abstract, background, first line: please replace the word notoriously.
As suggested, it has been corrected.

Abstract, results, second line: please add the phrase “2009-2010” (correct to: previous 2009-2010 season).
As suggested, it has been added.

Background, page 4, first line: please delete the phrase “swine flu”.
As suggested, it has been deleted.

Background, page 4, second paragraph, third line: please replace the word epidemic with the word seasonal.
As suggested, it has been replaced.

You are advised to use the review article:
Nosocomial influenza: NEW CONCEPTS AND practice, Curr Opin Infect Dis (2008, Maltezou), as a reference in this paragraph. You may use it as a reference in the first paragraph of the Conclusions section (page 14).
As suggested, the reference has been added and used.

Methods, page 5, second line: please use Izmir instead of Aegean Region (or vice versa), in order to be compatible with the abstract.
Suggested change is made (added “Aegean Region” instead of Izmir in the abstract). Data management and statistics; too long (page 6), make it shorter. That section was shortened to 165 words (from 260 words) and its title changed as “Statistical analysis”.

Results, page 7: do not use the word "children" for young people up to 24 years old! It has been changed as “offspring”.

Discussion: need to discuss the fact that the facility where the study took place is a large one. There is one published study (J Hosp Infect 2007, Maltezou et al), where it was found that large hospitals tend to have lower rates of vaccination, most probably because of difficulties to organize vaccination campaigns. The suggested comment and reference have been added.

It would be better to present within the text (Results section), the results of the Multivariate statistical analysis (in the last paragraph of this section, page 10- at least provide the statistically significant, odd ratios, and confident intervals). The results of the multivariate analysis were presented as “According to the multivariate logistic regression including the variables age, HCWs aged <50 years, HCWs perceiving a higher risk of pandemic H1N1, and HCWs vaccinated against seasonal influenza last year were significantly more likely to get vaccinated, while being not a doctor but nurse or health technician and working in a surgical department were significant variables associated with non-vaccination. Odds ratios and 95% confidence intervals are shown in Table 6” in the last paragraph of the Results section.

Discussion, page 10, second paragraph: the rate "22%" refers to intention to get the pandemic vaccine among HCWs, and not to real vaccination. As suggested, it has been corrected.

Discussion, page 11: The sentence presenting the two studies (from US and Greece respectively) is too complicated. Please use two sentences instead. Those sentences are divided and shortened as suggested.

Discussion, page 11, third paragraph, first sentence: please rephrase the sentence "Hard discussion ....... 2009.”, it does not make sense. We changed it too "mediatic”

Discussion, page 11, last paragraph: Izmir is the most important among the rare cities. What does rare city mean? It has been clarified as “Izmir is the most important and crowded city among 13 cities that did not give majority support to the political party…”

Discussion: please discuss the possibility of having a mandatory policy for HCWs vaccination. In the conclusion, mandatory vaccination was added among the suggestions as: “Studies regarding how to increase vaccination rates suggest that free of charge vaccines, vaccination in 24 h open vaccination centres, mobile vaccination cards, administrative emphasis and support, education, signed declination forms and use of media campaigns or non-profit organizations that might push politicians and physicians to take further action or mandatory vaccination may be suitable interventions [19,20,23,26]”, with the addition of the reference: “Babcock HM, Gemeinhart N, Jones M, Dunagan WC, Woeltje KF. Mandatory influenza vaccination of health care workers: translating policy to practice. Clin Infect Dis 2010, 50:459–464.”

Discussion: pages 11 and 12: the discussion is too political.
We agree that the discussion is political but the high rates of respondents stating that they do not trust Ministry of Health’s practices supports this point.

Please use the phrase "negative attitudes" instead of propaganda (page 12). 
As suggested, it has been changed.

You need to discuss the fact that large hospitals tend to have lower vaccination rates (please see Maltezou. Nosocomial Influenza: new concepts and practice, Curr Opin Infect Dis 2008).
The suggested point and reference is added

Discussion, page 12, last paragraph: please do not compare statistically significant results by ORs!
The afore mentioned sentence was removed from the text ("However, participants perceiving a high likelihood for acquiring influenza were 4.8 times more likely to be vaccinated while in our own study group, they were only 1.6 times more likely to be vaccinated [14].").

Level of interest: An article of limited interest
Quality of written English: Acceptable
Statistical review: Yes, but I do not feel adequately qualified to assess the statistics.

Declaration of competing interests:
I declare I have no competing interests.

Editorial Requests:
- Experimental research that is reported in the manuscript must have been performed with the approval of an appropriate ethics committee. Research carried out on humans must be in compliance with the Helsinki Declaration (http://www.wma.net/e/policy/b3.htm), and any experimental research on animals must follow internationally recognized guidelines. A statement to this effect must appear in the Methods section of the manuscript, including the name of the body which gave approval, with a reference number where appropriate.
As this is not an experimental research, an ethical committee approval was not required and not mentioned.
- We recommend that you copyedit the paper to improve the style of written English. If this is not possible, you may need to use a professional copyediting service. Examples are those provided by the Manuscript Presentation Service (www.biomedes.co.uk), International Science Editing (http://www.internationalscienceediting.com/) and English Manager Science Editing (http://www.sciencemanager.com/). BioMed Central has no first-hand experience of these companies and can take no responsibility for the quality of their service. 
The paper was copyedited and the quality of written English was improved.