Author’s response to reviews

Title: Seasonal influenza vaccination coverage and its determinants among nursing homes personnel in Western France.

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Author’s response to reviews:

Point by point response to the reviewers

Reviewer #1:

1) Overall this was a well conducted studies and though there are some limitations inherent in such surveys (for e.g. concerns around selection bias), the authors have acknowledged these. The paper is generally well written though there are a few typographical and grammatical errors that need correction before publication.

Thank you for your comment, we will make sure that no typographical or grammatical errors are left in the revised manuscript.
2) In the abstract, please clarify the full form of 'PR' when first used. The term 'antecedent of influenza' is not immediately clear so please rephrase this.

We modified the abstract to clarify the meaning of PR (Prevalence Ratio). We also replaced “Antecedent of influenza” by having previously experienced a “severe” influenza episode in the past.

3) In the methods please clarify whether any open response questions were included in the survey or were all questions closed with specified options for the interviewees to choose?

All questions were closed but interviewees were offered the possibility to give final comments or remarks. We added a sentence in the methods part to clarify this point.

4) In the discussion, on page 9 (paragraph 2) social influence has been mentioned with the last statement reporting findings from other studies on social closeness- the meaning is not entirely clear- can you please rephrase and explain this a bit more for e.g. what is meant by, 'vaccinated people were close to other people who agreed with vaccination’?

We clarified this sentence. It now reads: “Studies have found that having a relationship (being a colleague or relative) with people who get or recommend influenza vaccination is a factor associated to being vaccinated against influenza.”

5) In the discussion on page 11 it is mentioned that France temporarily made influenza vaccination compulsory for HCWs in 2006 but 'quickly cancelled' this policy. Can you please discuss this point further? Why was the policy cancelled? Did you have an opportunity to elicit views of interviewees on mandatory vaccination? Is this something that they would respond to favourably?

The sentence “In France, compulsory influenza vaccination for HCW was temporarily implemented by law in 2006, but quickly cancelled” has been removed from the manuscript. Our confusion came from the fact that according to the article L.3111-4 of the French Public Health Code, influenza vaccination was made mandatory for health care workers. However, the same article L.3111-4 stipulated that this statement was suspended. Hence, no compulsory vaccination has really been officially implemented in France. In our study, the concept of making influenza vaccination mandatory is one of the possible perspectives to improve the influenza vaccination coverage as mentioned in the discussion. However, no questions or discussions with the NH workers were directly focused on this point in our questionnaire.
6) In the results you state that about 17% stated financial barriers to vaccination. Can you discuss this further in the discussion? Are HCWs in NHs expected to pay for their own influenza vaccinations or would this be covered under occupational health services as it is recommended by their employer? Did you ask interviewees if they would be willing to receive influenza vaccination if it was provided for free under occupational health?

We added this point in the discussion and we clarify that influenza vaccination is actually free for the recommended population. This number reflects misinformation of the recommended population. Hence, we did not ask interviewees whether they would be willing to receive influenza vaccination if it was provided for free.

7) Finally, Table 5 is nicely laid out to represent various perceived barriers and benefits of vaccination; this potentially fits in well with behavioural models such as the Health Belief Model. Can you discuss your findings in the context of this model?

To explore the Health Belief Model, we added to the discussion part this following paragraph: “To our knowledge, perceived benefits and barriers are one of the modifying variables included in the Health Belief Model. Recently, Corace and al. concluded that behavioural changes are promising tools to increase influenza vaccination among HCW. However, the other variables of this model were not taken into consideration here and our study did not aimed to investigate this concept more deeply. Thus, future studies needs to be conducted to explore the outlooks regarding to perceived threats, self-efficacy as well as cues to actions in order to rise influenza vaccination uptake.”

Reviewer #2:

1) Seasonal influenza vaccination coverage and its determinants among nursing homes personnel in Western France.

This manuscripts describe the influenza vaccination coverage and predictors of influenza vaccine uptake among workers in Nursing homes in Ille et Vilaine in Brittany, France. The study findings report low coverage of influenza vaccination among NH workers and found that predictors of coverage were: age, occupation, prior severe influenza disease, knowledge of prevention tools, and individual perceptions of vaccination benefits. While the findings should be validated in larger studies including other areas in France, results highlight the importance of improving vaccination campaigns. The study however, is not clearly written and should be significantly revised prior to publication.
Thank you for your comments and careful review of our manuscript. We have tried to improve the clarity of the manuscript and address all of your questions.

2) The title and the rest of the paper states 'determinants among nursing homes personnel' but do not describe who the personnel are. NH personnel could be health care workers, administrative staff and others, and also residents. Only later in the paper is clear that NH personnel includes health care workers, administrative and logistics but the terms are confusing throughout the paper. Perhaps using NH workers is a better term.

NH personnel as well as the acronym NHP were replaced by NH workers throughout the manuscript. NH workers encompass health care workers as physicians, nurses, pharmacists, administrative staff, facilities and logistics staff. We now give more details about the NH workers’ professional occupation in the methods part.

3) Also, acronyms are not consistent throughout the manuscript. I suggest revision by an English native speaker if not done as there are minor grammatical errors in the document.

We revised acronyms throughout the manuscript. English native speakers have also reviewed the manuscript.

4) Abstract: The abstract does not clearly reflect the findings and conclusions. Please revise according to the comments to the other sections and in order to better state the study and findings.

We modified the abstract results and conclusion part to better stress the main messages.

5) Minor comments:

- Ille et Vilaine administrative district. Western France in the title, Brittany in other sections. The reader unlikely knows where Ille et Vilaine is and what an administrative district in France is.

This point has been clarified in every sections. In addition, we added figure 1 in the method part in order to show the localization of the studied nursing homes. We also renamed consequently the other figures in the legend and in the manuscript following to this adding.
- Permanent personnel: is this full time personnel? Permanent personnel appears to refer to the residents too.

Full time as well as part time were both included in our study. No distinction was made between the workers. Residents are not part of the study. More details were added in the method part regarding this aspect.

- Paradoxically? Why paradoxically?

The term paradoxically was removed from the abstract and replace by “however”. We wanted to highlight the gap between the low influenza vaccination coverage and the fact that NH workers were sufficiently informed regarding this aspect.

Background: needs to clarify personnel and region. And perhaps mention why it is important to do it in Brittany if the region is relevant.

As stated in the methods, this study was performed in collaboration with the regional health authority of Brittany and the French School of Public Health, both located in Ille-et-Vilaine. We now state that the study took place in Brittany for logistic reasons.

Methods: lacking of details of study design and assessments

- Why was two step randomization done? Please provide details on the randomization process.

We clarified the methods concerning this two-step approach and now give much more details about the randomization process.

- How were the questionnaire constructed and tested?

We now detail in the methods part how the questionnaires were constructed and pre-tested by adding this paragraph: “Questionnaire were prepared in workgroups over a two- day period where outcomes, analysis plan and variables were defined. Questions to NH managers and NH workers have been drafted and both questionnaires were tested on a sample of 1 NH manager and 5 NH workers (3 physicians and 2 nurses).”
Please provide definitions of IVC, type of personnel and other relevant data presented in the results section.

Type of personnel is now better described in the methodology section and influenza vaccination coverage has been defined.

Please provide a better description of the assessment tools. Consider including the questionnaires as supplementary data if permitted by the journal.

We added the questionnaires as supplementary materials and the following paragraphs in the method part: “Data were collected through two standardized and pre-tested questionnaires given as supplementary materials. Questionnaire were prepared in workgroups over a two-day period where outcomes, analysis plan and variables were defined. Questions to NH managers and NH workers were then drafted and both questionnaires were tested on a sample of 1 NH manager and 5 NH workers (3 physicians and 2 nurses). The first questionnaire was addressed to NH managers to get information about their establishment. We gathered NH status, size and information about vaccination (information or campaign) of the NH workers. The second questionnaire, targeting NH workers was divided in three main parts. The first part focused on socio-demographic items such as gender, age, occupation and experience in a NH. The second part questioned NH workers on influenza risk factors and IV history. Finally, the third part gathered information concerning knowledge about vaccination as well as the perceived benefits and barriers of influenza vaccination. The total duration of the survey lasted not more than five minutes. Both questionnaires were administered in their original language (French). All questions were closed but interviewees were offered the possibility to give final comments or remarks.”

Predictors of influenza uptake (Knowledge of prevention tools, information, perceptions,…) are important section in the results but not mentioned in the methods. Describe.

We have improved this part by describing the predictors in the method part.

IV is noted in the data collection section but should say IVC?

Acronyms have been clarified throughout the manuscript: IV stands now for Influenza Vaccination and IV coverage for Influenza Vaccination coverage. The first term refers to influenza vaccination only and the second focus on the proportion of individuals vaccinated.
- Acronyms mentioned EHESP and IDEA are not used elsewhere and can be omitted. Both acronyms were removed from the manuscript, however we kept IDEA, as a name, as it is the name of the field epidemiology training course.

- Typically, p values are given as 0.2 or 0.05, not in percentages. 
P values were replaced respectively by 0.2 and 0.05 instead of percentages in the methods part.

Results

- Tables: what are the p values for the multivariable analysis. Only p values are reported for bivariate.

We added p-values for the multivariable analysis in table 2 and 3.

- Table 5 does not include multivariable analysis although all ps are less than 0.05

We simplified and clarified table 5 as it was not showing a multivariable regression analysis.

- I suggest to label better the tables with a more descriptive title.

Titles of the tables and figures have been reworked.

Discussion

- First paragraph: our study does not show such difference. I assume is by private/public sector but it is not clearly stated.

We clarified the sentence to ensure no potential confusion.

- Second paragraph: randomized personnel? Is this study participants?

To avoid any confusion in the discussion, “randomized personnel” was replaced by NH workers.
- Third paragraph states that motivated NH directors and doctors had a positive impact but nothing about NH directors or doctors is mentioned in the results.

We cannot add results about directors and doctors influence because no questions were directly asked to assess their motivation. This point is now discussed in light of Looijmans, Corace and Takayanagi studies.

- I suggest to better organize the discussion according to the findings and then list the limitations.

We re-organized the discussion following the reviewer’s suggestion. Results are now discussed first, followed by limitations. The discussion part then ends with a discussion on possible recommendations.