Author's response to reviews

Title: Vaccination coverage for seasonal influenza among residents and health care workers in Norwegian nursing homes during the 2012/13 season, a cross-sectional study

Authors:

Horst Bentele (horst.bentele@fhi.no)
Marianne A Riise Bergsaker (Marianne.A.RiiseBergsaker@fhi.no)
Siri Helene Hauge (SiriHelene.Hauge@fhi.no)
Jørgen V Bjørnholt (Jorgen.Bjornholt@fhi.no)

Version: 3 Date: 10 April 2014

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

Thanks for reviewing our manuscript “Vaccination coverage for seasonal influenza among residents and health care workers in Norwegian nursing homes during the 2012/13 season, a cross-sectional study” with reference number “1771771171108952” and for the positive feedback that we got. We have now updated our manuscript according to your comments.

Reviewer one:

The typing error in page 7 is corrected.

1. You suggested to report a correlation coefficient and associated P-value and indicate which correlation coefficient was used:
   We added the correlation coefficient and the associated P-value in the results and indicated which correlation was used in the methods.

2. You suggested that we should show all the results of the Mann-Whitney test:
   We have inserted all the results and p value of the Mann-Whitney test.

3. You suggested to discuss the lower vaccination coverage in comparison with other interview modalities:
   The discussion suggested has been added in the discussion section. E-mail is fast and convenient and allows for the respondent to collect the necessary data asked for. However, the e-mail modality may lower response rate compared to a telephone modality interview as done in Venice. Further, the invitation had to be sent to the 429 municipalities in Norway, with the instruction to forward the e-mail to all the NHs located in the respective municipality, as we do not have access to direct telephone and e-mail lists.

Reviewer two:

1,1. The questionnaire distributed should be supplemented/ attached:
   A Copy of the questionnaire sent to the municipalities for distribution to all their nursing homes (NH) is attached, translated from the original Norwegian. The questionnaire is deliberately relatively short in order to secure a high response rate.

The reasons why the questionnaire was not sent directly to the NH:
Time and unavailability of direct e-mail addresses: We did not have much time to conduct the survey after the season 2012/2013, and with former experience on long and tiring waiting time of questionnaires by mail, we decided to send the questionnaire by e-mail. All official mail between state institutions and municipalities is obliged to be distributed by the official municipality e-mail account. Because we did not have an official e-mail address for each NH, we had to use the municipality e-mail account to reach all the NHs. This interview modality may have lowered the response rate as discussed.
2.2. The reviewer suggested to present the results by municipalities (small, medium and large?), and/ or NH (small, medium and large?) instead of by county.

As Norway is a little country we have several counties with only one or two NH. The current policy of the National Institute of Public Health is to ensure the anonymity of the single NH. We agree that it would be interesting to have the results presented by municipality, or NH level but as we promised in in the invitation, “Results will only be published on county and country level”, we can therefore not present the data on these levels. Furthermore it could also complicate the presentation changing units of analysis.

2.3. In the discussion, there is little mention of the background for vaccinating residents and HCW, only that it is recommended by the WHO. Furthermore, the findings should be presented one by one in a systematic manner: “we found, they found, conclusion”.

We have made some changes in the discussion reflecting the reviewers wishes although we admit that the changes are not completely systematic.

Specific changes in the manuscript:

**Methods:** “…. Further associations were examined by correlation analyses (Spearman rank test).”

**Results:** “…We did not find an association between the response rate by county and vaccination coverage among residents (Spearman rank test; rho 0.35; P = 0.15).”

“…The vaccination was free of charge in 143 (86.7%) NHs [median vaccination coverage for employees free of charge 3.6% (min 0, max 53.3%)] while in 22 NHs employees had to pay for their own influenza vaccination [median vaccination coverage for employees who had to pay 3.6% (min 0, max 13.3%; P = 0.47)].”

“…Our data showed no difference between the VC of residents in NHs with an annual vaccination campaign (median 72.4) and them without a vaccination campaign (median 68.5; P = 0.27).”

**Discussion:** “…. However, this Cochrane review did not take into consideration, influenza like illness (ILI) and all-cause mortality of residents. The impact of vaccinating HCWs has been discussed in several articles. Potter (13) and Carman (14) took in consideration ILI and found in their studies a significant association between HCWs’ vaccination against influenza and reduced rates of mortality in residents of NHs, which shows how important it is to vaccinate HCWs. HCWs work-time loss due to influenza illness is also an important point and has been studied by several authors (13, 15, 16, 17). In these studies it is shown that there is a reduction in work-
time lost due to illness among vaccinated HCWs. Also, unvaccinated HCWs with influenza, in all of these studies, still went to work while symptomatic and might have infected residents.”

“...We judge that our findings more likely reflect the actual VC among HCWs in NHs.”

“...In our case we intended to reach all NHs through the generic e-mail addresses of the municipalities, as we do not have access to direct telephone and e-mail lists. More than half of the NHs did not reply and therefore the generalization of the results should be interpreted with caution. The e-mail modality is fast and convenient and allow for the respondents to collect the necessary data asked for. However, the e-mail modality may lower response rate compared to a telephone modality interview as done in Venice (8, 27).”

We believe that our manuscript has improved after the implementation of your comments. I hope you agree.

On behalf of all authors

Sincerely

Horst Bentele