Author's response to reviews

Title: Factors Associated with Maintenance of Antibody Responses to Influenza Vaccine in Older, Community-Dwelling Adults

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Author's response to reviews:

Dear Ms. Ramos,

We are delighted to respond to the reviewer's and editor's comments.

Reviewer #2

A) RESULTS

1) It would be more interessant (sic) to provide the data for the whole population in table and not only whose who exhibit seroconversion, or with High Antibody titers.

We note the editor's comments: “For the remark on table 1, I do not agree with the reviewer, I understood the authors have shown the whole population with the rate of those with a titer >1:40 at baseline, then those at S2 and finally those at S3. The results at S2 and 3 are not the results of patients with a baseline level of antibodies > 1:40”

Hence we will leave the results as previously presented.

2) The H1N1 titers are very astonishing, because there are very few seroconversions. It could be important to discuss this point.

We have added the following to the discussion section of the manuscript: “Both sites had very low seroconversion rates to H1N1 and overall low seroprotection. Goodwin et al summarized results from 31 studies of influenza vaccine responses in elderly adults 1986—2002, and reported an average seroconversion rate of 42% and a 69% seroprotection rate to H1N1 viruses. However, there is considerable year to year variability, and a seroprotection rate of 11% was reported in a study done during the 1993-1994 season among adults..."
#65 years of age when the H1N1 vaccine strain was A/Texas/36/91.”

3) The difference in between sites is of interest and needs further explanation. Did the authors look after problems with the vaccine use in the first site?? Can the authors give more explanations?

We appreciate the editor’s comments: “I do not think the authors could be able to give more explanation, but it must be mentioned that these results due to these differences from one site to another one cannot be generalized.”

Agree. We discuss this: “It is possible that differences in vaccination or prior influenza disease not reflected in baseline S1 were responsible for difference observed. Differences were unlikely due to vaccination in the prior year since >97% had received influenza vaccine in the year prior. Other explanations are differences in the specific vaccines administered or methods of administration, chance, or some other unmeasured factor.

B) Methods

1) The choice of 250 days (8 months) post-vaccination (S3) is controversial. There is no benefit to keep High antibody titer in July. It could have been more relevant to measure antibody at month 4, 5 or 6 time of late flu season regarding the date of vaccination. If the choice of the S3 is related to know if there is continuous high antibody titers to give an idea of future efficacy of vaccination next year, it would have been of interest to Choose the S3 just before the next vaccination time (id est 1 year later.). The following sentence was added to the methods section: We chose the post-influenza season blood draw to be 8 months following S1 since this is likely to be the maximal duration of needed protection for a given influenza season. In the US, some influenza shots are now being given in August, and it is not unusual for the influenza season to extend into March and April.

2) The population is not very old; this needs to be emphasized regarding good results for some strains of the vaccine.

This comment is correct. We have added the following sentence to the Discussion section: “The results of this study may not be generalizable to very old adults since the mean age was only 64 years of age and participants were generally healthy with 90.6% classified as not vulnerable.”

3) The populations is not well defined at functional and nutrition levels; this may change the level of immune capacities to react to a vaccine; it should be discussed by the authors. We note the editor’s comments: “For the functional status due to the relatively young age of the population I’m not sure it is possible and the functional status was not in the population description.”

We appreciate the reviewer’s comments and agree that nutritional and functional status would be very helpful. We did not collect data on nutritional status but we did collect data on vulnerability. The following was added to the Methods section: “Study participants completed the Vulnerable Elders Survey (VES-13) which is a series of questions to determine risk for health deterioration. The scale ranges
from 0 to 10, where a participant with a score of 3 or greater is considered vulnerable and with 10 being most vulnerable”; the following was added to the Results Section: “The participants were very functional with only 9.4% with some degree of vulnerability.“ and the following to the discussion: “The results of this study may not be generalizable to very old adults since the mean age was only 64 years of age and participants were generally healthy with 90.6% classified as not vulnerable.”