Author's response to reviews

Title: Can opportunities be enhanced for vaccinating children in home visiting programs? A population-based cohort study.

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Author's response to reviews: see over
Dear Dr. Pafitis,

Thank you for providing peer-reviewed feedback for the manuscript, “Can opportunities be enhanced for vaccinating children in home visiting programs? A population-based cohort study” Please see below for a point-by-point response to suggestions for revision by the referees.

Do not hesitate to contact me if you require additional information. My e-mail address is Michael.Isaac@gov.mb.ca and my phone number is (204) 612-8145.

Sincerely,

Michael Isaac MD, MPH, FRCPC

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Referee #1

No revisions suggested.

Referee #2

1. Please rephrase line 5, 6 Pg. 15 “This outcome did not hold for having at least one vaccination”

Authors response: This sentence was rephrased to “There were no significant differences between the groups for having at least one vaccination from birth to age one”
1. I suggest to add few line to explain the weighting procedure and its meaning line 11 page 14.

Authors: The weighting procedure is explained in the methods section on Pg. 11 lines 1 to 11. This now reads:
“Three treatment effects were of interest: the average treatment effect (ATE), the average treatment effect on the treated (ATT), and the average treatment effect on the untreated (ATU). The ATE is the effect of the Families First program on vaccination among the entire eligible population. The ATT is the average effect of the program on vaccination among those who actually received the Families First intervention. The ATU is the anticipated effect of the program on vaccination if the comparison group had instead received the Families First program. These concepts are explained in significant detail, elsewhere. [28, 29]
The propensity scores were used to create three sets of inverse-probability-of-treatment weights (IPTWs), each set corresponding to the three treatment effects of interest as described above. IPTWs were applied to the models to balance differences between the intervention and comparison groups’ potential confounders; this is one method for adjusting for measured confounding. [28]”

2. Line 21 Pg. 15 for consistency I suggest to use the same terminology to refer to the program “(home visiting program)” and “Families first program” currently both terms are used in different sections of the text.

Authors response: The term home visiting program was changed to Families First program and the manuscript was scanned for similar discrepancies elsewhere and changed as needed.

3. It is unclear where analysis discussed in line 2 pg 16 is presented

Authors response: The income quintile analysis is discussed in the methods section on Pg. 12 lines 4 to 10. The results were not presented in either text or table format due to the very large number of non-significant outcomes, which did not enhance the value of this manuscript. As well, we write on page 13, lines 11-13:
“When an interaction term (program x income quintiles) was added to the model for both rural and urban areas, it was not statistically significant. There was no evidence that the program effect differed by income quintile for any of the vaccination outcomes tested.”

4. Line 13-4 pg 16 I would add that these results are from a previous study, this paragraphs seems to contradict the one above (3-12) where the results of your study
are presented, the connection between the paragraphs is not clear. I suggest to rephrase.

Authors response: These lines were rephrased to more clearly outline the position that the magnitude of change in vaccination rates in our study was moderate when compared to other studies examining home visiting programs that attempt to increase vaccination rates. The wording was changed to “The magnitude of the improvement in complete vaccination rates for those enrolled in the Families First program (a range of 6-11% higher) is consistent with, albeit slightly lower than, other studies examining vaccination rates for home visiting programs. [35]” See Pg. 14, lines 13-15.

Tables

5. Table 3 I would add a footnote to briefly explain the meaning of weighted

Authors response: A footnote was added as requested: “Weighting refers to the use of inverse-probability-of-treatment weights to adjust for potential confounders”

6. Table 4 I suggest to rephrase the title of table 4 to something similar to “Table 4: standardized differences between Families Enrolled (Treated Group) Versus Families Eligible for First Program But Not Enrolled (Untreated Group) “

Authors response: The title of the table was changed, clarifying the intervention and comparison groups. It reads, “Standardized Differences* Between Families Enrolled (Intervention Group) Versus Families Eligible For Program But Not Enrolled (Comparison group) Prior-to and After Weighting** (n=4562 in Families First program; n=5184 not in Families First program)”

7. It is not clear what standardize difference refers to, I suggest to add explanation of standardized differences in table 4 and line 14. How this standardized difference was calculated?

Authors response: Further explanation of standardized differences was added in the Methods section Pg. 11, lines 12-18, which now reads, “Standardized differences were calculated prior to and after the weighting procedure for both the Families First group and those who were eligible but not enrolled in the Families First program to assess the effect of the weighting procedure between groups. Standardized differences measure effect sizes between two groups and are independent of the sample size, which makes them valuable in comparing baseline covariates for studies that use propensity scoring. [30] A standardized difference of less than 10% is generally accepted as being satisfactory with respect to homogeneity between intervention and control groups for a given covariate. [31].” A footnote was also added to table 4 as suggested. Calculation of standardized differences is found in reference #32.
8. There is not table of baseline characteristics of the population and maybe an overall idea of the population covered would help the reader to understand the context of this research.

Authors response: Table 3 presents baseline characteristics for those enrolled, and those not enrolled, both before and after application of inverse-probability-of-treatment weights.

Referee #3

1. Introduction Aim of the study: it would be useful to provide a brief description of the available vaccination coverage data.

Authors response: Vaccination coverage data was added on page 5, line 22 – 23 which now reads, “The number of children in Manitoba having a full series of vaccinations is variable, however recent data have approximated rates of complete vaccination for age 1 and 2 to be 78% and 60% respectively. [15]”

2. The first three lines of the last paragraph sound more as a comment than as an aim.

Authors response: The wording was changed to more specifically address the aims of the study- see Pg. 6 lines 1-4 which now state, “This study aims to fill a gap in the literature by analyzing a large and representative sample of at-risk children (n= 9,745). It also aims to comprehensively address potential confounders by linking multiple databases with Families First home visiting data, thereby providing a large number of covariates to use in the statistical analysis.”

3. Results First paragraph: it’s quite strange reading some citations here.

Authors response: The sentences citing the literature base justifying the use of standardized differences were moved to the methods section Pg. 11 lines 14-18.

4. Few data are reported, I don’t like so much to read that most findings are in the tables.

Authors response: The use of IPTW during statistical analysis, combined with the number of outcomes studied, created several categories of results which we feel are better suited to presentation in a table for quick viewing, versus presenting in the text which may lengthen the manuscript considerably.

5. Again a strange way to arrange the MS, in the last paragraph the authors made some comments.
Authors response: This paragraph was shortened, see Pg. 13 lines 14-19 which now reads, “Gamma sensitivity analyses suggested that our results – (a) one year complete vaccination, (b) one year partial vaccination results, (c) two year complete vaccination, and (d) two year partial vaccination – were each likely robust to unmeasured confounding. For each set of results, there would need to be an unmeasured confounder that both (a) perfectly predicted exposure to the Families First program and (b) accounted for over 50% of the association between the program and these four sets of results, which is very unlikely.”