Author’s response to reviews

**Title:** Nutritional Quality of Regular and Pureed Menus in Canadian Long Term Care Homes: An Analysis of the Making the Most of Mealtimes (M3) Project

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Order of Authors:

The authorship order is not the same for the "NUTN-D-17-00073” PDF file. Keller was put as first author as this was the only option for the submitting author.

The order of the authors SHOULD BE:

“Vanessa Vucea; Heather Keller; Jill Morrison; Alison Duncan; Lisa Duizer; Natalie Carrier; Christina Lengyel; Susan Slaughter” like the manuscript draft.
Editor Comments:

Judi Porter (Reviewer 1): This is an impressive and highly valuable observational study. It is large and complex whilst using methods that have been well-considered. The results were unnecessarily long towards the end, particularly the description of the Canadian provinces. Similarly for the discussion which would benefit from considerable culling. I suggest that authors consider presenting the broader data set in this manuscript and discussing within the context of the international literature (references line 334) as this is presently missing. This will help to define how this research should inform future practice for the readership of this journal. Perhaps some of the regional specific data could be discussed in a separate manuscript or solely kept in the online supplementary section (eg. vitamin differences lines 302-309)? Otherwise it is a highly professional work and needed for progressing menu development for long term care settings.

The text on specific provinces was reduced and the Discussion condensed. Further, how this work relates to the international literature with respect to best practices has now been presented in the Discussion.

Olivia Farrer (Reviewer 2): Overall I feel that the paper would be of interest to other dietitians or people working within food service/aged care sector but I believe the paper requires clarification or modification in some areas. Please find some comments below:

Background information
- line 20 - is it dietitians that use these guidelines to plan the menus? If so why are they still lacking - is it an issue with dietitian expertise or the guidelines not being appropriate to older adults

More detail on menu planning and the variability among provinces is now provided to justify this study.

- Lines 34 - 49 - consider reworking the paragraph as some swapping back and forth between discussing commercial and in house prepared MTF’s which affects readability - also need to
clarify that you are referring specifically to smooth puree diets (which are referenced later in the results)

This section has been modified.

- Why would you expect to see such variation between provinces if the same guidelines are being used - this needs clarifying? For non-Canadian readers it may be useful to highlight what differences the provinces might present - e.g. socioeconomic

The Introduction now provides more detail on the lack of standardization among provinces with respect to menu planning. The Discussion highlights better practices as identified in the provinces with the best menus which can be translated to non-Canadian audiences.

Methods

- study aim and goal in lines 64-71 are different to the title and the research questions outlined at the end of the introduction - the paper title and intro suggest this is about interpretation of the guidelines and varying nutritional composition of menus/MTF

This manuscript is a secondary data analysis of the M3 study, so the aim/goal of the M3 study differs from the title/research questions of this study/manuscript; the aims of the main M3 study have been removed to avoid confusion. A sentence has been added to the beginning of the Methods indicating this is a secondary data analysis of the M3 study.

- The data collection statement suggests that a wealth of data was collected with the intention of writing several papers - I would suggest limiting discussing of data collection to those measures pertinent to this one research paper i.e. remove mealtime experience/meal access info or alter the background info and study aim?
This section has been reduced to focus on those variables and analysis relevant to this manuscript.

- Lacking in detail regarding recruitment - was it a convenience sample? How were RAC approached?

A phrase has been added that long term care homes were purposively recruited.

- Were the menus supplied with standard recipes for each menu item?

Yes this is noted in the Nutrient Analysis section.

- Lines 200-203 - repetition of 'differences' and could this be elaborated on? Regional differences in how a meal was prepared?

Elaborated on differences.

- Why are there references throughout the methods section? Ref 20 cited a number of times without relevancy?

Referencing of the protocol has been reduced considerably.

Results -

- Line 253-255 - are you saying the same thing - less than six months prior to the study vs data collection?
Yes, this has been clarified.

- I think fully discussing Table 1 and then going into correlations and Table 2 findings would present the findings in a more logical manner

This has been changed with Table 1 discussed first then Table 2 findings.

- I'd be interested to know how long homes were leaving between menu reviews rather than when the last one had been performed? Are they regular? Is this mandated and are the guidelines mandated and widely used? Who reviewed the menus - a dietitian? Are they employed by the homes or contracted specifically for this role?

More of these details are now provided in the introduction and discussion. Data on how long homes were leaving between menu reviews/are they regular/mandated guideline was not collected, however we do know when the last menu revision was completed. We have added in further details on regularity of review based on data collected, if this is mandatory and whom is to complete.

- Lines 271- 274 - I don't understand this sentence but seems like repetition without clarity of the key finding

This sentence is speaking to the significant main effects (province and menu) and the significant interaction effect between province and menu. The main effects need to be interpreted with caution when there is a significant interaction effect present. We have attempted to clarify this section.

- I'm struggling to understand why the provinces are being examined for relationships in diet - if they are all following the same guidelines for menu development is it not more to do with the profit status of the home/dollars per head for food/cooking system and availability of food or the input of an auditor/dietitian that will mostly influence the nutritional content of the menu and there may be subsequent patterns in the provinces?
The provinces are examined for provincial differences because each province (and home) has diverse policies (funding, councils, dietitian to review menus) and proportion of profit status; this was added in the background section and already described in the discussion. For example, Ontario spends more and requires a dietitian to review menus.

- Table 1 - I'm not sure how you can have 100% of homes using menu planning based on Canada's food guide but also percentages based on other guidelines?

All eight homes in each of the four provinces used Canada’s food guide to plan menus, plus a few homes in each province used other guidelines in addition to Canada’s food guide to plan menus. This has been clarified in a footnote below table 1.

- raw food cost - is this $ per head/day?

Yes. This is has been added to the manuscript text and tables.

- Table 3 - is there a reason for not presenting the mean (SD) in one column for easier comparison and reduce business of the table?

This has been changed to mean (SD) in one column.

Discussion

- comments regarding the types of foods purchased contributing to nutrient composition of the menus not discussed in the results.

Analysis specific to which foods contributed to micronutrient content was not completed. We do know however if purchased food was associated with energy and protein intake, and this has been presented.
- Discussion of why differences in menus across provinces not well explained, it is not clear whether 100% recipes were provided for analysis

This has been clarified in the methods.

In summary I think the paper has merit and would generate interest, but currently the paper does not convey key messages clearly or discuss the expected and observed differences across provinces of Canada in a way that would be relatable to international readers. There is no background on what is mandatory in aged care food service in Canada or sociodemographic/population differences between the provinces. Finally the paper does not relate the variances in menu content to issues such as malnutrition rates etc.. which is alluded to in the introduction.

The text on specific provinces was reduced and best practices provided in the Discussion to make the findings relatable to international audiences. A section in the Background regarding what is mandatory in long term care homes in Canada has been provided. Sociodemographic/population differences are believed to be irrelevant to this menu planning analysis as gender, age differences and other key characteristics of residents were nominal across provinces. Subsequent papers from this study will examine predictors of malnutrition; as the authors believe that understanding menu differences alone has merit, this manuscript has been designed to focus on this aspect.