Reviewer's report

Title: Vitamin D Status of Older Adults of Diverse Ancestry Living in the Greater Toronto Area

Version: 1 Date: 29 April 2013

Reviewer: Robyn Lucas

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Major compulsory revisions

1. The paper needs to be made more concise, with removal of repetition, including citing the numbers in the text that are available in the Tables. The text can be used to interpret, rather than repeat, what is in the tables.

2. There is a lack of clarity in the timing of the blood-taking through the manuscript. The Background notes "wintertime", the Methods Apr-May. This needs to be consistent and explicit, since it is so important to 25(OH)D levels and their interpretation.

3. Make the abstract and main text consistent in terms of the placement of the comparisons with other studies being part of the results or the discussion (I recommend as part of the Discussion).

4. Biochemical analysis: there is some evidence that the location from which the punch is taken in the blood spot affects the results – were the punches taken in a consistent spot in each blood spot, or was any attention paid to this?

5. The Bland Altman plot not only indicates a mean difference of 10nmol/L, but suggests that that difference increases with increasing 25(OH)D level. It is unfortunate that only 10 samples were compared by the two methods. The discrepancies for the absolute values are actually quite large – in Figure 1, a serum reading of 80nmol/L is around 110nmol/L from the blood spot. The whole analysis rests on the accuracy of these blood spot results – and there is not convincing evidence here, mainly due to the small number of samples tested by both methods, that the absolute values are accurate.

6. Concordance: only one blood spot was tested for concordance, with what appear to be quite disappointing results – a difference of 7.5nmol/L from the highest to the lowest.

7. Please provide the age breakdown of the population. All participants were >60 years, but more information is required, particularly in order to compare the results to other surveys of older adults.

8. In the limitations section, discuss the effect of having a volunteer population, selected from a community organization, i.e. probably more mobile and healthier than the general older adult population of the region. The volunteers may have a particular interest in being involved in vitamin D research and this may account for the high proportion on supplementation. It is worth considering this, so that
the reader can see that the finding of mean levels of >80nmol/L may not be
generalisable to the older population of this region, it does not affect the
association between higher levels of supplementation and less vitamin D
deficiency.

Minor essential revisions

9. Data collection: exposure to UVB was measured. How was this done, what
was the specific information sought? Was this time outdoors, time in the sun (i.e.
self-report), or actually measured exposure to this specific wavelength? It would
be unlikely that participants could report their exposure to UVB.

10. Statistical analysis: p is usually <0.05, rather than #0.05

11. There is quite a lot of repetitiveness in the results section. Page 5: “the only
variable that showed a significant difference…” is followed by “The remaining
variables did not differ significantly”. These say the same thing and the latter
sentence could be deleted.

12. Comparison with previous study. This section and the next may well be better
placed in the discussion. The similarities and particularly differences between the
two studies need to be discussed in conjunction with these results, particularly
those factors that may make a critical difference to the comparison. For example:
the different time of the year for sampling (Apr-May here, compared to Jan-Feb
for the younger group); different samples (well elderly attending a community
group, so presumably healthy and outgoing; compared to University of Toronto
students who may well be largely indoor living with limited leisure time); different
sex ratios. It is interesting to note the difference in supplement use, but they are
also very non-comparable populations.

13. No use appears to be made of the reporting of exposure to UVB.

14. Page 9: “25(OH)D levels in ….older adults……are substantially higher…than
a similar sample of young adults, and this can be explained by the higher vitamin
D supplementation” – I would qualify this with “partly explained”, since there are
so many differences between the samples (as noted above) that this is likely to
be only one part of the explanation.

Discretionary revisions

15. Provide an exact p-value for the comparison between males and females in
the abstract

16. Provide the abbreviation for 25-hydroxyvitamin D in the last sentence of the
first paragraph of the Background

17. Page 4: “the option to receive their circulating 25(OH)D levels was provided”.
This may be better written: “the option to receive the results of their…”

18. “A contingency table analysis…was statistically significant” This is a rather
odd way of reporting that there was a significant difference in the proportion who
were vitamin D deficient, according to any cut-off, in the <800IU/day compared to
the #800IU/day supplement groups.

19. In the comparisons with Canadian health surveys, it would be useful, in view
of the known differences in different 25(OH)D assays, to note that assay type for the cited studies.

20. There is a call (page 10) for more “studies to explore the extent of differences in vitamin D supplementation between community dwelling older adults and long term care residents, and how this influences vitamin D status”. But there are already many studies showing the effect of supplementation on vitamin D status. It would be important to note that any studies examining the differences in prevalence of vitamin D supplementation use in community dwelling adults and long term care residents would need to use random samples of both, to ensure that the results were a valid reflection of what was occurring in the population.

**Level of interest:** An article whose findings are important to those with closely related research interests

**Quality of written English:** Acceptable

**Statistical review:** No, the manuscript does not need to be seen by a statistician.

**Declaration of competing interests:**

'I declare that I have no competing interests'