Reviewer's report

Title: Choice of relative or cause-specific approach to cancer survival analysis impacts estimates differentially by cancer type, population, and application: evidence from a Canadian population based cohort study

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Reviewer: Susanna Cramb

Reviewer's report:

This is a well-written paper considering practical differences between estimates of net survival. Although others have provided comparisons of survival measures before, this is nicely done and differentiates itself by focusing on ethnic disparities.

My suggestions are as follows:

1. One method of estimating relative survival is to explicitly exclude cancer-related deaths from the population life tables (some examples below). It would be interesting to see if this adjustment altered your findings. If you were willing to calculate this and include it, potentially it would be the 'gold standard' for comparison.


2. Might it be possible to include further details on the stpm2 models used (even as supplementary information), for instance the number of baseline knots, any time-varying components, goodness of fit checks, how age was included in the models (continuous? broad groups?) etc.
3. What age groups were used in your life tables? Perhaps on page 6, sentence 1, when it says age, sex, calendar time, province etc the number of groups/groupings could be spelt out in brackets beside each category (e.g. age (integer ages to 91+), sex (males, females), calendar time (2001,...2009), provinces (total of xx groups) etc). For the ethnic specific life tables, it sounds as though the years were aggregated over the time period - is that correct? Were the First Nations life table estimates stable for most age groups?

4. It would be helpful if the first sentence of most paragraphs in the results section pointed to the appropriate figure/table. (Many do, but there are multiple consecutive ones where no guidance was given.)

5. In Results page 7, lines 16-18, I am wary of the statement "CS-Broad underestimated survival compared to RS-ELT for...NHL in First Nations, and colorectal and breast cancer among non-Aboriginals." When looking at CIs, the estimates would seem quite similar. I am also rather dubious of the sentence immediately following it - perhaps differences should only be compared when they are significant. If you strongly feel it is important to comment on these differences, then the methods section should mention that significance is not considered - currently the first mention of the interpretation focusing on estimate size, rather than significance, is in the discussion (page 11).

6. In Table 1, a couple of the interquartile ranges were missing the one decimal point.

7. The tables have the same order of cancer types, but both figures have different orders - is consistency possible/desirable?

8. I found it difficult to determine which measure the symbol is relating to in Figure 1- perhaps they could be slightly larger, or use alternate colours/line styles?
9. I didn't notice any definition of the lines in Figures 1 and 2, although I assumed they were 95% CIs.

10. It would be great to have a table with the survival estimates and CIs in Figure 1 available (even if this is provided as supplementary information).

11. For Figure 2, which has the corresponding Table 2, it might not be necessary to include the estimate label on the graph - this makes the point estimate much larger, and more difficult to visually compare. (Also, there were a couple with only one decimal point, and I was unsure if this was because 2 decimal points would not fit.) You might like to consider having symbols/colours etc the same as for Figure 1, or even having colour coding representing significant differences.

12. In the introduction (page 4, lines 35-36), it sounds as though there are four permutations of each of the CS and RS approaches, whereas there are two.

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