Author's response to reviews

Title: Cancer survival for Aboriginal and Torres Strait Islander Australians: a national study of survival rates and excess mortality.

Authors:

John R Condon (john.condon@menzies.edu.au)
Xiaohua Zhang (xiaohua.zhang@nt.gov.au)
Peter Baade (peterbaade@cancerqld.org.au)
Kalinda Griffiths (kalinda.griffiths@gmail.com)
Joan Cunningham (joan.cunningham@menzies.edu.au)
David M Roder (David.roder@unisa.edu.au)
Michael Coory (michael.coory@mcri.edu.au)
Paul Jelfs (paul.jelfs@abs.gov.au)
Tim Threlfall (tim.threlfall@health.wa.gov.au)

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Author’s response to reviews: see over
Dear Ms Muller

Re revised manuscript No 1303648844103196 ‘Cancer survival for Aboriginal and Torres Strait Islander Australians: a national study of survival rates and excess mortality’.

Attached is our revised manuscript. We have made the following changes in response to the reviewers’ comments and suggestions:

**Reviewer 1**

**Comment 1.1:** Discuss the assumption that relative survival is the ‘gold standard’.

- As stated in the paper, we have used relative survival as the preferred method because relative survival is the standard method used to calculate population-based cancer survival. We have not assumed that relative survival is the ‘gold standard’. We have used relative survival wherever possible to enable comparison with published Australian cancer survival data and to inform future publication of cancer survival statistics for Indigenous Australians from Australians cancer statistics agencies.
- In order to make this clearer, we have added a comments and a reference about the suitability and limitations of relative survival and cause-specific survival analysis (Introduction para 4 and ref 9; Discussion para 4).
- We agree that the data sources and analytical methods used to calculate life-tables for Indigenous Australians are important when assessing the reliability of relative survival rates, but we could not do justice to this issue in a brief comment in this paper. We have provided the most relevant reference to the extensive documentation about this issue produced by the Australian Bureau of Statistics, the Australian Government national statistics agency that produced these life tables. (Methods para 6 and ref 15)

**Comment 1.2:** Examine time-trends for five most prevalent sites for Indigenous population.

- We have added regression analysis of time-trends in two-year cause-specific death rates for the five most prevalent cancer groups in the Indigenous population: head and neck, colon and rectum, lung, breast (female only) and prostate (Methods para 11; Results para 7 and Table 6; Discussion para 12).

**Comment 1.3:** Include more interpretation of Table 5 in the Results section.

- We have added additional analyses of time-trends by remoteness category and specific cancer sites (see Comments 1.2 and 2.4), which expand on the results presented in Table 5.

**Reviewer 2**

**Comment 2.1:** Include the number of non-Indigenous cases in Table 2.

- We have added the number of non-Indigenous cases to Table 2.
Comment 2.2: Change the first sentence of the Conclusion in the Abstract.
- We have revised the Conclusion.

Comment 2.3: Illustrate the time trends in survival graphically.
- We have included a graph of two-year cause-specific all-cancers survival by year of diagnosis and Indigenous status, and by ARIA category for Indigenous cases only (Figure 2).

Comment 2.4: Have the changes in survival over time differed by remoteness?
- We have included analysis of time trends by remoteness (ARIA category) for two-year cause-specific survival by year of diagnosis and for regression analysis of cause-specific death rates (Methods para 11; Results para 6, Figure 2 and Additional Table 7; Discussion para 11).

Reviewer 3
Comment 3.1: Discuss the potential for bias because of misclassification of Indigenous status and differential identification of deaths for Indigenous cases.
- We have added comments about the proportion of Indigenous people in the Australian population aged 50 and over (Discussion para 6) and about the potential for bias because of identification of some Indigenous cases solely from death notifications (Discussion para 8).

Comment 3.2: Consider the possible effect on survival rates of differential over-diagnosis of cancer because of different participation of Indigenous and non-Indigenous populations in population screening, analyse breast, colorectal and prostate cancer survival separately to other cancers.
- We have included analysis of time trends in these three cancers (as per comment 1.2) and included comments about potential differential effect of over diagnosis on survival time trends (Discussion para 12.)

Comment 3.3: Modify the statement that “… but these factors do not fully explain their survival disadvantage…
- We have removed that sentence (as recommended by reviewer 2).

Comment 3.4: Discuss the finding that excess mortality for Indigenous cases was greatest in the first year after diagnosis (and whether this may indicate bias because of Indigenous identification from death notifications); and
Comment 3.8: Discuss the finding that there was no excess mortality for Indigenous cases in the 5th year after diagnosis.
- We have added comments about these issues (Discussion para 10).

Comment 3.5: Include the difference between cause specific and relative survival rates at one year and five years in the text of the Results section.
- We have included cause-specific and relative survival rates (and 95%CIs) at one year and five years in the text (Results para 3).

Comment 3.6: Include substantiation or a reference for the sentence “It is plausible that…”
- We have modified this sentence to make it clear that this is speculation about possible scenarios when discussing potential bias (Discussion para 6).

Comment 3.7: Change the title of Table 2 to “…five-year relative survival…”.
- We have changed the title of Table 2.
Comment 3.8: see above.

Comment 3.9: Discuss the large discrepancies between relative and cause-specific survival for some cancer sites.
- We have added comments about this issue (Discussion para 5)

John R Condon
15/11/2013