Reviewer's report

Title: Cancer burden in China: a Bayesian approach

Version: 2 Date: 25 April 2013

Reviewer: Ramon Cleries

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This paper presents an estimate of the cancer burden in China through a Bayesian approach making use of national death survey (NDS) data and cancer registration data. The estimates of cancer incidence were calculated combining incidence and mortality data from cancer registries with data from the NDS. Cancer registries represent only 5% of the China's population and authors note that most are of the cancer registries are located in eastern China which is more developed economically than the west. A Bayesian modeling of the Mortality to incidence (MI) ratios were used to estimate cancer incidence. They made a sensitivity analysis in order to assess their results.

Major compulsory revisions:

1) Although Figures 1 and 2 shows MI ratios and age standardized rates by age group, do authors include childhood cancers in the fitting of the models? Therefore, which age groups were included in the analysis?

2) Following 1), although the approach to smooth model parameters is based on splines and it differs to that of Baker & Bray 2005 and Cleries et al 2013, these authors note that the use of younger age groups affect parameter estimates when these are smoothed. In this line, the use of younger age groups in the spline modeling may affect the performance of the model? Did authors try to obtain estimates of cancer incidence excluding these age groups?

3) Authors provide overall MI ratios (Table 1). However, when inspecting age-specific MI ratios in Figure 1, they should note in the discussion that MI ratios are closer or higher than 1 for certain cancer sites in certain age-groups or depending of rural-urban area (see Table 1 and discussion in page 14). In the case of liver, for example, this is an indicator of high lethality or poor diagnosis (See Bosch et al 2004). Do authors have information about differences in these MI ratios between Chinese cancer registries?

4) Globocan estimates of cancer incidence in China for 2008 (last accessed April 20th, 2013) was N= 2817210. The number of cancer cases of cancer incidence provided by the authors are 2,96 million for 2005, whereas Ren et al provided 2,58 million. Authors should mention these differences. Since incidence estimates are based on data from cancer registries covering 5% of Chinese population, and these data belong to regions located in eastern China which is
more developed economically than the west, authors should provide evidence about differences between these eastern and other Chinese regions in terms of cancer burden. In this line, could authors show a comparison of cancer mortality between eastern and other regions (Supplementary table)? If they find huge differences in certain cancer sites, they might assess differences in cancer incidence between areas and how it affects global estimates for China.

5) Discussion: Authors should mention that when incidence and mortality data is available in certain regions and these data will be used to estimate incidence in other regions, Bayesian modeling of the difference between incidence and mortality rates might be better than MI when estimating cancer incidence for certain cancer sites with low incidence (Clèries et al 2012).

6) Discussion: It would be interesting to assess if recent cancer incidence is rising or decreasing for certain cancer sites based on aggregated data from the registries. This information might be incorporated in the discussion.

Supplementary file:

S1) When assessing the burden of Cancer, it would be valuable to provide estimates (number of cases) for selected age-groups based on the shapes of the age-specific incidence rates (Figure 2): as example younger than 35, 35-64 and older than 65. This could be provided as a Supplementary table.

S2) Authors should provide the WinBUGS code used to carry out the estimation process.

Minor Essential Revisions:

Page 7 last paragraph:
“it got…” please check this paragraph, capital letters might be required or some part of the paragraph is missing.

References

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

Quality of written English: Acceptable

Statistical review: Yes, and I have assessed the statistics in my report.

Declaration of competing interests:
I declare that I have no competing interests