Reviewer’s report

Title: Radiation Exposure and Cancer Risks from CT Examinations in Japan

Version: 2 Date: 27 September 2010

Reviewer: amy berrington de gonzalez

Reviewer’s report:

The restriction to the survey data has improved the paper and made it more focused.

Minor essential revisions

Abstract Background – the aim of the study was to assess (rather than demonstrate)

Methods (p5) – “For each individual patient, organ doses were calculated” - this suggests that the dosimetry was patient specific where as it was generic for CT scanner rather than for a patient (ie actual technical parameters were not available for each CT scan taken neither was height and weight of the patient).

Methods (p5) – In the justification for extrapolating results from Gunma to the rest of Japan I would mention the other similarities in Table 3, not just the age distribution.

Methods (p7) – Although it was not possible to estimate organ doses for pediatric patients you could still present the data on CT scan frequency for this age-group. This is important data and if it was collected it should be published.

Discussion – this section would benefit from some re-organization as the logic of the structure is not clear. For example on page 12 and on page 10 there are explanations given for why the estimates in the current study may be lower than in the previous study in 2000.

Discussion (p13) – The large variation in doses based on the CT scanner protocols is an interesting finding. Please specify what factors were not clearly correlated with the dose levels. A recent study in the US also found wide variation in CT dose for the same scan across patients in 4 hospitals (Smith-Bindman et al, 2010). It would be interesting to compare the levels of variation with the current study.

Figure 3 and 4 – Difficult to interpret. Perhaps just the tables would be better. Please add the totals to the tables. Were the number of scans overall similar in men and women?

Discretionary
Abstract Results – “It was estimated that in Japan,…” this should go in the conclusion or at the end of the results section as this is the implications of the survey results for Gunma rather than an actual result of the study.

Results (p8) – “Thus, an estimated 29.9 million patients….” As in the abstract I would present the results of the extrapolation after you have presented all the results for Gunma.

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

Quality of written English: Needs some language corrections before being published

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

Declaration of competing interests:

I declare that I have no competing interests