Reviewer's report

Title: Cost-effectiveness of interventions for increasing the possession of functioning smoke alarms in households with pre-school children: a modelling study

Version: Date: 21 January 2014

Reviewer: Hazel Squires

Reviewer's report:

The paper is interesting and generally well written.

Major Compulsory Revisions

1) Many of the costs within the model are not recent. In particular, the PSSRU and NHS reference costs are from 2008; these should be updated using the latest publications. Similarly, the probabilities obtained from the Survey of English Housing 2004/5 should be updated with more recent data, or at least shown to be similar to more recent publications.

2) On page 10, point iii, the assumption that there are no benefits of a smoke alarm to others living in the same household seems to be unrealistic and either any evidence upon which this is based should be highlighted, the assumption should be tested within a sensitivity analysis, or the number of children per household should be increased from 1 to 1.8 for the base case analysis and the limitations of not including impacts upon others in the household should be highlighted within the discussion.

3) It is unexpected that the parameter shown within Table A1 of the probability of a fire is the same (0.001) irrespective of whether or not a functional smoke alarm is present. The parameter should be discussed within the paper to justify this.

Minor Essential Revisions

4) ‘Usual care’ should be defined within the paper.

5) Within the text on page 8 and at the top of Table A2, it is stated that costs are inflated to 2012 prices; however within the sources column of Table A2 it is stated that many of the costs have been updated to 2009 prices. Please make these consistent (see comment 1).

6) All of the mean QALYs included within Tables 1 and 2 are the same to 4 decimal places. The authors should increase these to sufficient decimal places in order to show differences between the interventions being compared.

7) In Table 1, ‘extended dominated’ should be ‘extendedly dominated’.

8) In Table A1, please delete ‘in’ from ‘probability a child aged 0-4 incurs (in) a minor, moderate or severe injury…’.

9) The reference number for Ginelly et al. within Table A2 should be changed from 12 to 13.
Discretionary Revisions

10) On page 8, ‘methodological assumptions’ rather than ‘characteristics’ would provide a better definition within the sentence ‘A summary of the base case characteristics is outlined in the Box below’.

11) The tables of parameters presented within Appendix A1 and A2 would be better in the main article, particularly since many of them are not discussed within the main article.

12) Within Figure 1, stage 1, should the arrow from ‘accept’ to ‘no/non-functioning smoke alarm’ exist?

13) It is unclear why some of the distributions within the PSA are fixed when there is uncertainty around the parameter value.

14) It would be helpful to include a comment about how relevant the parameters used for the deficit in utilities for injury are, given that they are based upon a Spanish source.

15) Within the discussion on page 14 it is stated that it is the first time that a mixed treatment comparison has been done within a Public Health study. This is potentially important; however more discussion should be added about the heterogeneity between the studies included within the MTC.

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