Response to Reviewer 1: Howard S. Burkom

Thanks again for reviewing the paper – we hope that our further revision addresses your points.

Responses to Major Compulsory Revisions

1. It was not our intention to imply that Buckeridge et al. proposes a deterministic model. Our apologies. We have amended the introduction on Page 6 and our discussion in this regard.

2. We have included references to the fixed-effect methods you mention, and now include an extra model comparison – see the bottom of Page 14 and the updated Figure 8. We hope this demonstrates the effectiveness of the random effects models that we use in the article.

3. We have worked hard to reduce the ambiguities over the implication of the word “detection” in our article, especially with regard to the definition of, e.g., sensitivity, and associated discussions. Our revised title also reflects this change.

4. We have enhanced our conclusions in the manner that you suggest. In the conclusions we now discuss the effect of the different filter across the different EDs.

Responses to Minor Essential Revisions

1. We have tried to clear up the language problems (requiring the reader to second guess the authors). We also include more references in the arguments we make (e.g., the definition of the SARIMA model in the Appendix).

2. We removed the colloquial language, and corrected the discussion of the filters.

3. We corrected the definition of the filters to match with the definition of the detection process on Page 20 (equation 8).

4. We have removed the extra set of figures.

5. We corrected the spelling of ‘nominal’ in Figure 6.