Reviewer’s report

Title: Rotavirus vaccine impact and socioeconomic deprivation: an interrupted time-series analysis of gastrointestinal disease outcomes across primary and secondary care in the UK.

Version: 0 Date: 25 Oct 2017

Reviewer: Eyal Leshem

Reviewer's report:

This is a well designed analysis looking at the impact of rotavirus vaccine introduction on healthcare utilization for acute gastroenteritis in the UK. An important and novel part of the study assesses vaccine coverage, and impact by socioeconomic status and estimates the expected benefit from increasing vaccine utilization in the most deprived population.

Below are several comments and suggestions:

L149-150: Would be informative to further explain (quantitatively) how different is the study population (Merseyside) from the general population in the UK and why this led the researchers to combine Categories 4/5.

L198-217: Because rotavirus vaccine coverage rates tend to be unstable during early post-introduction period, most vaccine impact evaluations describe annual declines in post-introduction years. In the present study it seems like vaccine uptake was rapid and high coverage was rapidly obtained among vaccine eligible children (figure 1). The authors used the interrupted time-series design and report proportional reductions for the entire post-introduction period. It might be beneficial to report annual pre- and post- introduction rates and rate reductions as well (perhaps add an appendix). Providing the reader with these data would make it easier to compare these data to other studies assessing rotavirus vaccine impact in similar settings.

L285: This is indeed a pioneer study in several aspects but not the first to look at rotavirus vaccine impact in a defined geographic area or across all levels of healthcare settings.

Table 1: Hospital episode statistics - admitted patient care. Did the authors attempt to extract rotavirus-coded hospitalizations by ICD10 code? Seems like rota confirmed hospitalizations were extracted based on lab data (Alder Hey Children’s NHS Foundation Trust). If these lab data capture all lab confirmed rota hospitalizations I may have missed this part in the methods section.

Are the methods appropriate and well described?
If not, please specify what is required in your comments to the authors.

Yes
Does the work include the necessary controls?  
If not, please specify which controls are required in your comments to the authors.

Yes

Are the conclusions drawn adequately supported by the data shown?  
If not, please explain in your comments to the authors.

Yes

Are you able to assess any statistics in the manuscript or would you recommend an additional statistical review?  
If an additional statistical review is recommended, please specify what aspects require further assessment in your comments to the editors.

I recommend additional statistical review

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Please indicate the quality of language in the manuscript:

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