Reviewer's report

Title: Use of a Geographic Information System to create treatment groups for group-randomized community trials: The Minnesota Heart Health Program

Version: 0 Date: 06 Nov 2018

Reviewer: Nuria Perez-Alvarez

Reviewer's report:

Very interesting paper that can improve the performance of trials improving their power to compare different outcomes. By using your experience-experiment, I would like to see in the report some quantification about the situation you describe. See next some comments and questions, mainly concerning the quantification issue.

The exclusion of some area can result in lack of representativity, as the case described in 133, …, 137. Please, can you think and try to describe how this lack of really be encompassed in the design of the study? May these regions be included and some adjustment may be applied in the data analysis.

Line 176 can you be more precise about the meaning of "negligible"? Any quantification can be displayed or a numerical comparison with what is done commonly.

Line 183 some adjusting can be including or stratification in this tool? These could prevent confounding.

Please use always the same notation. Mean (SD), not mean+-SD. Lines 201, 209, 201, 211, 212, 213, 214.

Line 235 the bias is minimized. Any numbers?

Line 243 the level of complexity you add is manageable statistically in the analysis but it may be difficult to manage in the application of health policies. Any thought?

Line 251 I advise you to do search in how the treatment/conditions of grow allocation is done in agriculture research. It may be interesting to comment on it.

At figure 1, I cannot see the label of the 24 area.
**Level of interest**
Please indicate how interesting you found the manuscript:

An article of importance in its field

**Quality of written English**
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Acceptable

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Is it essential that this manuscript is seen by an expert statistician? If so, please give your reasons in your report.

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