Reviewer's report

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

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Reviewer: Mike Bradburn

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The manuscript is an interesting and all-too-rare example of research where methods developed in one academic discipline are transferred to another. Cluster-randomised community interventions typically use pre-existing boundaries as the units of randomisation; this study describes how approaches developed for geographical/demographic profiling can create units. I believe there appears much potential in this approach.

I had three comments/questions which I'd encourage the authors to address.

1) From the methods, it's clear the team have thought about the practicalities of how to apply the methodology. But I'm less sure that the methods are presented in enough detail for someone to apply in practice without additional pointers? It's a difficult balance - if an expository article is too technical it risks losing potentially interested readers, but too little detail means the method may stay as interest rather than as application. The authors might consider cross-referencing articles which provide more detailed description of the application.

2) As a trial statistician living in England I can't claim to know much about the geography or demographics of Minnesota! But there are clear problems when the state's two large conurbations are excluded (Minneapolis and Rochester: figures 1-4 and discussion paragraph 4): the limitations of this, particularly in terms of the generalisability of study findings, should be acknowledged. The difficulties of contamination in urban areas may mean this exclusion is unavoidable irrespective of how areas are divided - this too could be noted.

3) the results section is short (one paragraph) and could be better supplemented with a summary table rather than numbers. One suggestion would be to summarise important characteristics in a table.
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