Reviewer’s report

Title: Distance decay and persistent health care disparities in South Africa

Version: 1 Date: 31 March 2014

Reviewer: Abraham Herbst

Reviewer’s report:

Major Compulsory Revisions

1. In the second paragraph, the authors state that their approach allows them to ‘compare potential access to actual use’. I am not sure that this is the case as their data are based on respondent reported use of a particular facility rather than actual attendance data from the health facility in question.

2. Whereas the location data used to determine the location of the health care facility used is clearly described, the same is not true of the household location. Is this based on a measure coordinate of the household during data collection, or an address of the household? How accurate/precise were these measurements?

3. It is not completely clear to exactly which health care facility the distances were measured and which measurement was used in a particular analysis: There are potential two distance measurements involved:
   a. the distance from the respondent household to the closest health care facility (private/public?); and
   b. the distance from the respondents household to the health care facility they reported to have used most recently.

4. The above problem is compounded by the statement: “We define the nearest facility as one that is no more than 0.5km from the nearest facility”. I do not understand this definition.

5. Figures 2 & 3 could benefit from confidence bands around the curve to visually assess the statistical significance of the trends presented.

Minor Essential Revisions

None

Discretionary Revisions

1. Although the use of Euclidian distance is acceptable for this analysis, an analysis using closest distance by road, although computationally more demanding, might be more insightful, especially in rural areas where access to the nearest health care facilities may be compromised by natural barriers or transport costs due to circuitous routes. The necessary information (road network data) are available in the public domain or from the same providers used for the health care facility location data.

Level of interest: An article whose findings are important to those with closely
related research interests

Quality of written English: Acceptable

Statistical review: Yes, but I do not feel adequately qualified to assess the statistics.

Declaration of competing interests:

I declare that I have no competing interests.