Reviewer’s report

Title: Establishing spatially-enabled health registry systems using implicit spatial data pools: Case study – Uganda

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Reviewer: Shaun Grannis

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Using a case study format, the authors describe two prototype approaches for capturing and integrating geospatial information with clinical data. The first approach creatively involves leveraging pre-existing geospatial data generated by Uganda’s national water and sewage Corporation (NWSC), which geocodes the location of residential water meters, and can be linked to individual patients. Patients need only bring in their water meter number. The second approach allows an individual to select their residential location using a Maps Application. The user selects where they live on a map, and Geocodes are returned.

The value of adding geospatial data to clinical registry data is clear. The key hypothesis of the paper is that asking the patients to report their household NWSC meter numbers along with other personal details upon hospital admission will supply uniquely identifying spatial information. (p. 6, last paragraph)

The approaches described for capturing geocode data are creative; the mapping application seems to have interesting potential. I have a few questions, which I believe the authors should address prior to publication.

First, the manuscript does not make clear the degree to which this prototype has been deployed and evaluated. The authors should clarify whether they are describing a design-only, or whether the system has been developed, tested, and implemented. If the manuscript simply describes a proposed design (but not implemented), then its impact is reduced.

Second, they should comment on the degree to which the geocoded water meter approach is generalizable to other countries. Do other countries geocode their water meters? If so, then this represents a generalizable approach. If not, the authors should acknowledge such as a limitation, and describe what aspects of the water meter approach could be generalized to other countries in the absence of geocoded water meters.

Third, I would encourage the authors to comment on how willingly they think patients will identify their home location (is it viewed as an invasion of privacy?), and also how adding geospatial identification to the patient registration workflow will affect registration efficiency. How much would such a system slow registration, which is typically a high volume high throughput process.
Finally, while the manuscript is well-written and the benefits of a successful implementation of such technology are apparent, the degree to which this work substantially contributes to the body of medical informatics knowledge is not clear due to the lack of clarity regarding generalizability and maturity of the implementation. If limited in generalizability and deployment, I would advocate this work be re-positioned as a conference abstract or poster.

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?
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