Reviewer’s report

Title: Adequacy of public health communications on H7N9 and MERS in Singapore: insights from a community based cross-sectional study

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Reviewer: Julie Leask

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Adequacy of public health communications on H7N9 and MERS in Singapore: insights from a community based cross-sectional study

This study examines the associations between certain demographic factors and modes of information transmission on awareness and knowledge of MERS and H7N9 in Singapore.

Singapore is known for high quality risk communication during emerging infectious diseases incidents and so this study is both welcome and of interest. The paper is well written and the analysis hard to fault. The introduction is appropriate. The abstract needs to reflect the sample base.

The sample are taken from participants in existing study cohorts and their household contacts. Appropriately, the authors adjust for clustering in their analysis. The sample itself is both a strength and weakness. As a study of prevalence (for example, of use of certain modes of information transmission), it is difficult to know whether the findings generalize to the wider population, notwithstanding the reasonably large sample size of just under 3,000. A strength of the sample is the focus on diabetics (at greater risk of influenza virus) and diverse ethnic backgrounds. The latter enables government to identify differences between ethnic groups and establish possible audiences for segmentation.

No justification is given for the sample size and there is a risk of type 1 error. The analysis found many significant differences in association with demographics. Some of these differences were not that marked (eg, 10% for awareness between groups). Therefore, I would expect a discussion about the meaningfulness of the differences. What is the public health significance of a limited percentage of people being aware of these viruses in 2013 at the start of detection? Would it make a difference to outbreak responses? How would such knowledge change in an individual motivated during the emergent epidemic?

Studies have found that knowledge often does not predict behavior. It would be useful to see the authors make stronger case for the importance of knowledge in this particular situation. Here the authors could reflect more critically on how the knowledge at that time, which was quite limited,
affected management and communication. This is possible to do, but needs to deal with the question of how relevant knowledge is if action is the outcome of interest. It is likely that certain types of knowledge are very important and other less so.

The development of the survey involved limited pre-testing. How this was done was not described and it wasn't done in the target population. There was no process of formal validation of survey items.

The analysis methods appear appropriate and well described. The tabulated results are clear. I am not a statistician but wondered about the necessity of p-values when CIs are provided for OR and AOR.

Delineation between private and other housing seems invalid - a private residence may also have 4 rooms. This needs clarification.

What is the reference group for preferred source of information?

Analysis enabled authors to determine key difference between demographic groups but any more nuanced audience breakdown would be more difficult without a qualitative study. The authors rightly point out the potential value here. Hence the study could be strengthened by adding this element. This would not have been difficult to do since interviews were face to face and a sub-sample could have been approached for a longer interview.

The authors indicate, "Future health communication strategies for emerging infectious diseases should consider audience segmentation and the most suitable media channels for disseminating risk information across various socio-demographic groups." However, this sort of audience segmentation would be reasonably superficial and lack understanding of localized communities, their way of sharing and acting on information. As such a large quant- survey provides a very broad brush baseline set of data and applies categories (education, gender etc) based on pre-conceived notions of what is relevant, but is not sufficient to assist EID risk communication planning unless it understands local social networks and how they communicate, act and who the key influencers are. I think the authors have done a very reasonable job with the study and the data are compelling, in part, but it would be good to see slightly stronger justification, perhaps including examples. Ebola's eventual containment required changing knowledge (or cultural practices that could be measured using 'knowledge') around burial practices. Alternatively, what did it mean during SARS to have poor knowledge and did that predict clinically or psychosocially important outcomes?

Overall, the paper could be strengthened by giving the discussion section a much stronger implementation focus in relation to what governments might do to better prepare.
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.

Unable to assess

Are the conclusions drawn adequately supported by the data shown?
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