Reviewer's report

Title: Surveillance of Febrile Patients in a District and Evaluation of Their Spatiotemporal Associations: a Pilot Study

Version: 1 Date: 21 August 2009

Reviewer: Julie A Pavlin

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Minor Essential Revisions

Bottom of page 6 – correct to say lasted for an average (or median) of 3 days.

Table 1A – Can you separate it by a bolder line or something when you get to the number of clusters detected so that the reader can quickly determine that the denominator has changed?

The # footnote marker doesn’t have a footnote associated with it.

1B – Add the number of patients with fever and normal temperature under those respective headers.

1C – Same as above, and I believe the header is incorrect – it should state Cluster and Non-cluster.

Reference number 7 - should be EWORS, I believe, not EWORDS

Discretionary revisions

In the introduction, it would be nice to have a very short description of what normal living conditions are in this region of Hong Kong. I assume that most people live in apartment buildings, but I’m not sure of this. How many single family homes? How many units per apartment building? That kind of thing so the reader can get an idea of the potential for infectious pathogens to spread.

In the methods, explain a little on the provisional diagnosis that is provided – later we see that you are classifying them by infections or not, but how is that derived? Would a wound infection be classified the same (infection yes or no) as influenza? Is it a text field and you go through them by hand and make a decision or is there something in the provisional diagnosis that automatically categorizes something as an infection? What would be very nice is to have a table of the top 5 or 10 diagnoses of those that had a fever and those that don’t, so that the reader can get an idea of the type of illnesses being seen, and an additional table separating out the top diagnoses for those in RCHE.

The information on destined ward – was that only for outbreak investigation and hospital infection control, or does it matter for severity, type of illness, etc. the ward the patient goes to (ie, does it help ascertain whether the clinician thought
this to be a contagious disease or not)?

Of the 1,066 patient episodes, how many of them were repeat visits? Given the short time of this study (1 month), and the fact that you only looked at those admitted, it is possible that anyone re-admitted within a month may be suffering from the same illness. In these cases, were any of them associated with a cluster – and did this change from the first admission to the second (or possibly third)? This could be of interest as if it was the same infection, over time you would expect more people to contract it and it might lend more support to your hypotheses.

The clusters having a median of 3 and range of 3-8. Obviously, most clusters had 3 people, but it would be nice to know a little more about the distribution of cluster size. A simple histogram showing the number of clusters having 3, 4, 5, 6, 7 and 8 members – and even extend that to show how many had 1 and 2 for comparison – would be very helpful.

While your explanation is good for why you chose only admitted patients, an equal argument could be made that anyone who goes to an emergency room has a significant illness and you could detect a cluster earlier if you also looked at those not admitted. In addition, you are more likely to skew your results towards the elderly because of their underlying co-morbidities and lower threshold for admission. Is it possible to do a similar analysis for those not admitted and compare them by age, etc. and to look for clusters?

I agree with your assumptions on cluster size and radius, but it would be nice to see how things change if you expand your radius to 100-200 meters. This is especially true for differences between elderly and younger patients, who attend work and school in the region and intermingle further afield. Is this possible? Wouldn’t need to show more graphics, but a short explanation of how many more you found and any differences in age breakdown would be interesting.

In my experience, there is often criticism that if there is an outbreak in a closed community, such as RCHE, it will already be known before a system like this can detect it. However, we find that is not often the case due to different health care providers taking care of different patients. You may want to add this to your discussion.

Please note when the normal influenza (and other resp virus) season is in Hong Kong – would you expect your results to change if you did or did not analyze this data during the flu season. It would be best, of course, to actually do this analysis if you can, but at least hypothesize in your discussion.

Please add to the discussion section your take on analyses that have already been published on the use of spatial methods to detect outbreaks (search SatScan - plus there are others), and how your study agrees or disagrees with their conclusions and how some of these detection systems could augment (or not) your system.
Level of interest: An article whose findings are important to those with closely related research interests

Quality of written English: Acceptable

Statistical review: No, the manuscript does not need to be seen by a statistician.

Declaration of competing interests:
I declare that I have no competing interests.