Reviewer's report

Title: Establishing a Nationwide Emergency Department-based Syndromic Surveillance System for Better Public Health Responses in Taiwan

Version: 4 Date: 8 June 2007

Reviewer: Julie A Pavlin

Reviewer's report:

General
This manuscript is a very nice report on extensive work that has been done in Taiwan to develop a syndromic surveillance system linking 189 hospital emergency departments throughout Taiwan. While the concept is not new, and the authors explain this, it is the first report from Asia that explains the work done to create such a major system.

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Major Compulsory Revisions (that the author must respond to before a decision on publication can be reached)
1) It is difficult to see the same correlations the authors report between ILI and respiratory syndrome and the differences with asthma. The weekly time series reports for respiratory and asthma look identical. Please create another graph that plots the three together so that differences are apparent - ILI can be on a different scale so that it still can be compared. Please do correlation analyses (R) between them.
2) The most interesting of the data analysis is the enterovirus syndrome peaks. Please describe what ICD9 codes were used to create this syndrome. Since enteroviruses can cause nonspecific febrile illnesses, respiratory illnesses and meningitis, it is unusual that the fever, resp and neurologic syndrome groups did not have these same peaks. Also please describe if any laboratory confirmation was done during these peaks (whether from detection by the SSS or not) to help support the enterovirus theory.
3) All of the graphs have a sharp increase over the first month. Is this because of an increase in the number of hospitals participating or stabilization of data transfer? Need to explain.

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Minor Essential Revisions (such as missing labels on figures, or the wrong use of a term, which the author can be trusted to correct)
1) With data cleansing, please clarify whether the cases with chief complaint or ICD-9 codes missing are deleted or they are only deleted if BOTH are missing - currently it appears that if either is missing the whole record is deleted.
2) Are all the hospitals set up to enter and transmit chief complaint data and 50% of them aren't doing it or is this something new that they were asked to do for the system and they generally didn't do it?
3) Figure 1 isn't mentioned in the text.
4) D is missing in Figures 4 and 5 - skipped that letter but still refer to it in the text.
5) Table 1 - please clarify that you use up to 4 ICD9 codes per patient (I think that is what the XML tag is demonstrating) and provide a better description of "major diagnostic category." Is this the same as syndrome group? If not, please list in the text what they are.
6) Figure 2 - what do the %ages mean? Do they represent the % of hospitals in the region that are participating?
7) Please describe what made up the spike in severe syndrome - the one very early. Or just say it was an obvious error in coding, etc.

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Discretionary Revisions (which the author can choose to ignore)
1) Are there any privacy regulations (similar to HIPAA in the US) that Taiwan imposes on the use and transfer of medical information and how were these regulations satisfied with the SSS?
2) For Table 2, do you know the general age distribution of Taiwan and can you use this to compare with people who use the emergency rooms?
3) Are there any laboratory data to verify influenza timing during this year to generally compare to the syndromic data?
4) Can you describe a little more what happens during Chinese New Year to explain the spike? More
socializing and therefore more spread of disease? Do non-communicable illnesses and injuries also increase during this time? More time off so people go to the doctor?

5) The statement that Taiwanese use the medical centers more - could this simply be that they provide coverage for more of the population?

6) Third paragraph of the discussion, a system with high sensitivity and one that has few false positives. These are attributes that are stated as requested by public health officials. They can want both, but there is no discussion in the manuscript how these two attributes are almost impossible to have together and how to decide the balance.

What next?: Unable to decide on acceptance or rejection until the authors have responded to the major compulsory revisions

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

Quality of written English: Needs some language corrections before being published

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.