Reviewer's report

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

Version: Date: 4 June 2007

Reviewer: Kenneth Mandl

Reviewer's report:

General

The authors describe the implementation of a syndromic surveillance system in Taiwan. The objective is to “share our experiences establishing an ED-SSS in a non-English-speaking country.” This is a laudable goal and overall, the authors should be congratulated for systematizing surveillance activities in Asia and for a successful technology transfer.

The paper, however, could be a bit more informative as I describe below. The authors would improve the paper if they structured and called out the lessons learned and highlighted what was *different* about this implementation compared with extensive prior descriptions of syndromic surveillance system implementations already in the literature.

I believe that the authors should be able to readily address most of my comments.

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Major Compulsory Revisions (that the author must respond to before a decision on publication can be reached)

**Is this paper a system implementation description, a system description, or system evaluation, or a report of findings from the system?**

The focus shifts back and forth among these three. It would be helpful to separate these out into sections, and may be wise to only focus on a subset of these sections, to avoid superficially treating any single topic. The tables mostly provide metrics for evaluation of system stability and use. For the evaluation section, I would strongly encourage reliance on a formalized evaluation framework, such as the CDC’s framework published in MMWR.

**What surveillance technology was, in fact, used?**

The authors are ambiguous about whether this paper is describing a RODS system implementation or a new system implementation accomplished in collaboration with the RODS team. On page 3 it states “and developed our own real-time syndromic surveillance system in collaboration with the Real-time Outbreak and Disease Surveillance (RODS) working group at the University of Pittsburgh. RODS.” But then the next sentence reads “The RODS system was introduced to Taiwan in August 2003.” On page 5, under Systems Overview, the authors indicate that the data are transmitted by the RODS system. This ambiguity should be addressed and remedied.

**What was composition of the Taiwanese team?**

What expertise was on the team and were they primarily governmental employees at the Taiwanese Center for Disease Control?

**What were the issues around technology transfer to non-English speaking country?**

The main goal of the paper communicating the issues of technology transfer to a non-English speaking country would be very useful to system implementers elsewhere. As written, however, the authors only deal with this issue when addressing the Chinese chief complaints, which were not used because of the language issue. If this is the goal of the paper, what other issues relating to the non-English language arose and how were they addressed?
**Are the multiple patterns of utilization described novel findings, or rather confirmatory?**

For example, on page 6, the authors report patterns of utilization (e.g., visit rates on Chinese New Year and weekends). Likewise they report that patients are more likely to seek care at district hospitals. The authors should state whether these patterns were previously known.

**The discussion section contains results and many claims in the discussion are not supported by the results.**

For example, an interesting finding of the paper is that “We quickly discovered that the variables we had chosen were not always captured in routine medical procedures. By modifying our parameters to match with medical information already being captured through the hospital system, we gained more cooperation from medical staff.” But this discussion point does not follow from the methods or results. This is another consequence of the loose structure of the paper.

“The ED-SSS can play an important role in detecting an outbreak involving possible human-to-human transmission even if the cluster size is small. It is not clear to me that this claim is supported.

On page 9, the authors describe the impact of two way communication. More detail about the impact of this would be warranted. Further, authors state, “It is evident that the timely reporting of the ED-SSS can help public health agencies to take disease control action earlier than was possible using previous infectious diseases surveillance systems which had only weekly summary data.” It would be very helpful to point to evidence for this from the results.

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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)

On page 3, the authors indicate that they reviewed the syndromic surveillance systems previously established in other countries, but provide only two citations out of a fairly extensive literature.

On page 4, the authors state that RODS “is the most commonly used and well-established syndromic surveillance system in the United States.” The references supporting the statement are several years old. The term “well-established” is vague and potentially controversial. Hence the term should not be used.

On page 4, it is indicated that the system “forwards” data to local public health agencies. What exactly is meant by this? On page 5, there is an extra word in “average the data of 7,378 2,893 data” Paragraph 2 under “data analysis” on page 5 is not very informative. The details provided about using SAS, Excel and MySQL are probably not necessary to describe simply how data were grouped into 11 syndromes across 4 regions.

On page 7, the statement “Since we had a nation-wide . . . “ should be changed to “Since Taiwan had a nation-wide”

The results section ends with “These algorithms will have many practical uses in monitoring daily changes of infectious diseases in Taiwan” which belongs in the discussion.

There are occasional problems with verb agreements.

Discretionary Revisions (which the author can choose to ignore)

**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:** 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’