Reviewer's report

Title: Automated Real Time Constant-Specificity Surveillance for Outbreaks

Version: 1 Date: 2 March 2007

Reviewer: Duncan Cooper

Reviewer's report:

General

This is a useful paper that deals with a problem pertinent to syndromic surveillance; that of temporal variation in the specificity of surveillance alarms. The authors achieve their aims by characterising the variation in specificity seen in four existing time series methods, before deriving a novel method for achieving constant specificity.

The following suggestions are made to clarify parts of the text and assist public health practitioners wishing to adopt this methodology.

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

1. To put the study in context the results section would benefit from a few lines of description of the 12 years training/test data, e.g what was the mean, maximum, minimum and variance of daily respiratory complaints over the 12 year period; & approximate population served by the hospital.

2. It would also be useful to have some thought on what type of syndromes the expectation variance model is most suitable for monitoring, i.e. for common seasonal syndromes (e.g respiratory complaints) or rare more specific syndromes (e.g encephalitis)?

3. “With constant specificity, public health practitioners can better evaluate cost effectiveness of surveillance systems.” This statement is made as the last line of the abstract but is not mentioned or discussed explicitly in the main body of text. I think this conclusion is valid but needs to be backed up in the discussion.

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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)

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Discretionary Revisions (which the author can choose to ignore)

What are the resource implications for Public Health Departments to implement this methodology? Will this method require additional time, expertise, hardware/software to implement?

The summary of the type of variation in specificity (i.e. by day, month, year…) for each of the 4 existing methods is a useful one (Results: Paragraph 1). Could the authors summarise this in a table (e.g. for each method when is highest, mean, lowest specificity observed . Or alternatively merely add the results for the ‘trimmed seasonal’ and ‘wavelet’ approach to Figure 2 to complete the picture.

What next?: Accept after minor essential revisions

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

Quality of written English: Acceptable
Statistical review: Yes, but I do not feel adequately qualified to assess the statistics.

Declaration of competing interests:

I declare that I have no competing interests.