Reviewer's report

**Title:** Epidemic features affecting the performance of outbreak detection algorithms

**Version:** 1  **Date:** 7 April 2012

**Reviewer:** Jinfeng Wang

**Reviewer's report:**

The notifiable diseases system of China covers 95% population of the country, provides unparalleled spatiotemporal data sources of infectious diseases of the whole country. CIDARS, developed by China CDC using the data and alarm models, aiming at early detection of outbreaks of the infectious diseases. The performance of a outbreak detection system is usually measured by sensitivity, specification, and timeliness, same for the CIDARS.

There are several ways to check the performance: (1) compare the real outbreaks and outbreaks detected by CIDARS. Actually, when CIDARS pick up a potential outbreak, the control measures have to be conducted in the field so the potential outbreak has been removed before a real outbreak occurs. Therefore, theoretically, the performance can not be tested by this strategy; (2) Theoretical analysis of the models and data features, the results should be universal applicable. Unfortunately, there is few such studies; (3) Simulation, as this study. The conclusion should be applicable to the what data and models used, but has less ground to be applied to other data.

**Major Compulsory Revisions**

The authors take great efforts to simulate using observed and simulated data, 1. Are the results of the paper are applicable to new data different from their used, why ?

2. Can the authors or readers expect the performance (sensitivity, specification, timeliness) for a new data, based on the results of this study ?

The answers to the above two questions would justify the significance and applicability of this study. The arguments seemly should be theoretically grounded.

other questions:

1. What are disease features: infectiousness, spatial distribution, incubation, and others ?

2. Which the disease features effect the performance of a model(s), which not, why ?

**Level of interest:** An article of importance in its field
**Quality of written English:** Needs some language corrections before being published

**Statistical review:** Yes, and I have assessed the statistics in my report.

**Declaration of competing interests:**

I declare that I have no competing interests