Reviewer's report

Title: A Dynamic Estimation of the Daily Cumulative Cases in Infectious Disease Surveillance: an Application in Dengue Fever

Version: 3 Date: 4 January 2010

Reviewer: Hirofumi Ishikawa

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Title: A Dynamic Estimation of the Daily Cumulative Cases in Infectious Disease Surveillance: an Application in Dengue Fever

The authors proposed a statistical model to estimate the number of daily new dengue cases based on the number of daily suspect cases, which may provide a useful tool for disease control. There are some questions from a viewpoint of statistical modeling.

Major compulsory revisions:

1. The profile of the surveillance of dengue in 2005-7 should be mentioned in “Materials and Methods” section; also the outline should be mentioned in “Background”. The description in page 11, lines 4-13, 14-16 and Figure 1 which are not the results should be moved to “Materials and Methods”.

2. Figure 2 is lacking. The reviewer could not appreciate the description in page 12, lines 4-10.

3. The authors should give a deliberate discussion about the comparison of their method with the previous methods such as CuSum [9, 10], ARIMA [11-15] from a viewpoint of accuracy.

4. The figures of alpha, beta for positive and negative should be expressed (page 9, lines 10-11).

5. The authors should describe the formulation of an empirical model clearly (page 9, lines 11-12).

6. The authors should express the definition of the datasets clearly. All datasets seem to consist of the same 841+2360 cases (page 10, lines 10-13).

7. The derivation should be treated with discretion. OC-time should be positive, but 14.9-20.3, 33.1-38.3 turn to negative days (page 11, lines 6-9).

8. The author should express “a valid estimation” under the evidenced or statistical base (page 14, lines 3-5).

9. What does the limitation (2) target (page 15, lines 12-15)? If (2) targets HIV/AIDS, that has a long incubation period.
10. The readers cannot understand the relation between “since the probability \( P_i(c) \) was hardly changed at the end of the season” and “When missing diagnosis dates exist, the estimated curve by the empirical method cannot converge to the final status curve” (page 15, lines below 4-2).

11. There are some trivial descriptions repetitiously in page 12, lines 7-8, 10-11, below 2-1, page 13, line below 1-page 14, line 1. The underestimation in (2) or actual daily number would be derived from the definitions.

Minor essential revisions:

12. The symbol “T” should be replaced as “\( T_i \)” because it depends on i-th case as same as “\( Y_i \)” (page 8, line 8).

13. “C” should be written by small letter “c” (page 8, line 12).

14. The symbol “\( P(\cdots) \)” should be replaced as “\( P(\cdots) \)” in the right hand of (2) (page 8).

15. “y” should be written by capital letter “Y” in (2) (page 8).

Discretionary revisions:

16. The formula (1) should be written simply as “\( E_i(c) = Y_i \) if \( D_i > c \), \( P_i(c) \) if \( D_i \leq c \)”, because “\( I_i \)” is not used anywhere (page 7).

**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.