Reviewer's report

Title: Airport sentinel surveillance and entry quarantine for dengue infection following fever screening program in Taiwan

Version: 9 Date: 29 August 2011

Reviewer: Benjamin M. Althouse

Reviewer's report:

The current manuscript suffers from the quality of the writing. At present, I have a hard time deciphering what the manuscript is saying. I think it would benefit greatly from careful editing from a native English speaker. I have tried to understand what the manuscript has presented and my comments are below.

The authors of the current study report the results of a dengue screening program implemented in Taiwanese airports from 2003-2010. First they quantify the proportion of dengue-infected travelers accurately captured by the screening methods. Then, through regression and correlation methods they attempt to demonstrate an association between numbers of imported cases and the numbers of secondary or “indigenous” cases. They conclude that dengue screening in the airport does not capture all cases and that screening could delay dengue epidemics. I feel the results would be of interest to individuals working on dengue and screening in general if they were clearly presented. However, they are not, and as such, I cannot recommend publication unless major revisions are undertaken.

- Major Compulsory Revisions

Here is a list of major problems needing to be addressed:

# In the abstract what is “Fluctuating trend”? This is not mentioned in the rest of the paper.

# Page 4, second paragraph, “our closely related dengue virus serotypes have evolved rapidly”, dengue evolution is relatively slow, do the authors mean “evolution” or “spread”? “Evolved” is a poor word here unless they mean it in a Darwinian sense, if so, then they need a citation for the rate of evolution of dengue.

# The introduction needs more about screening. Where does the current study fall in the literature? A bit is said in the conclusion, but more is needed up front.

# As dengue is not endemic in Taiwan, I would change “indigenous cases” to “non-imported cases” or “secondary cases” (as that’s what they are) throughout the manuscript.

# Page 5, methods, first paragraph needs citations for the screening programs in place in the country.

# The methods section should include a clear and precise definition of
“indigenous” and imported cases and precisely how they differ.

# The statistical methods section is too vague. What exactly are being regressed or correlated? Why are the cases lagged, and how are the lags handled? Additionally, the statistical methods should correspond exactly to what is presented in the results, and as it stands, they do not.

# Are the cases detected in the airport removed from the pool identified as imported by the passive surveillance methods? I.e.: are the cases being double counted: at the airports and then at the hospitals? Be more specific about the calculation of the proportion of dengue cases identified by the airport screening.

# Page 7, first part of the results section: Why are airport-screened cases only analyzed from 2007 to 2010? Why not from 2003 to 2010?

# Table 1 shows no “indigenous” cases in northern Taiwan, so how then do the authors conclude (p. 10) “in northern Taiwan, in which A. albopictus is the only established mosquito species resulting in relatively sporadic indigenous cases, associations with the number of dengue cases were low and did not show statistical significance”? What association was being shown? Could lack of significance be due to small sample sizes?

# Tables 2 and 3: What are the interpretations of the regression coefficients? If they have no meaningful interpretation, why include them? The authors state (p. 11): “However, the slopes of the regression lines for the number of imported versus indigenous cases varied widely (i.e., 2.98–22.5) (Table 3). This indicated that once epidemics were induced by imported cases, the magnitude of the epidemics was then influenced by multiple factors, such as the ecological status i.e. interaction of humane and mosquito populations (8), meteorological factors (13) and the control interventions.” The large variation in estimates is likely due to small sample sizes, and this should be mentioned in addition to the factors listed above.

# Page 11: the authors say “Our results are consistent with other studies suggested that entry screening could not prevent the introduction of dengue but might contribute to delaying domestic dengue epidemics.” But further down in the same paragraph they also state: “targeting dengue-infected travelers on entry into a country has little effect on delaying the overall dengue epidemics (10)”. What are we to believe?

# Along the same lines, in the conclusion, (p. 13), the authors state: “by targeting dengue infection for quarantine might somewhat contribute to curtail local transmission and delaying or mitigating magnitude of upcoming domestic dengue epidemics in response of increasing alert”. There is no evidence for this statement in the paper as far as I can tell.

# The 3-d bar plot in Figure 2, is hard to read. I would make it a line graph like in Figure 1.

- Minor Essential Revisions

There are too many minor corrections to list here.
- Discretionary Revisions

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

**Quality of written English:** Not suitable for publication unless extensively edited

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

**Declaration of competing interests:**

I declare that I have no competing interests.