Reviewer's report

Title: Effect of meteorological variables on the incidence of Hand, foot, and mouth disease in children: a time-series analysis in Guangzhou, China

Version: 2 Date: 19 December 2012

Reviewer: Edmond Ma

Reviewer's report:

Major Compulsory Revisions
This study provides further evidence showing that HFMD activities are associated meteorological factors, in particular temperature and relative humidity. This is consistent with the other studies’ findings. The current study adds merits to the current knowledge by quantifying the associations, which are not very well documented. However, the speculations that such association will be differ in different age group is not clearly explained. Is this due to chance or there is a genuine biological mechanism that could account for this results. In fact the results shown are actually not conclusive. This differential association is observed for temperature but not humidity. An one percent of incase in temperature may lead to rise of HFMD cases by 1.9% to 2.4% among different age group. However, 1% increase in relative humidity may only lead to an increase of 1.7% - 1.8% of HFMD cases among different age group. The authors need either deleting this part of subgroup analysis or providing stronger argument for conducting this analysis and revise the relevant results and discussion part to better reflect what have been found.

Minor Essential Revisions

Abstract
Background
“..(HFMD) outbreaks that occurred predominantly…” should write as “ (HFMD) outbreaks that occurred predominantly…”

“This study aims to quantify..” should write as “This study aims at quantifying..”

Results
“Temperature and relative humidity had the high effects on …” should write as “Temperature and relative humidity have large effect on …”

“A 1%..” should write as “An one percent…”

Introduction
1st para: replace “locations” by “countries”
1st para: “Among these countries,..” instead of “Of these,..”
1st para: better say “there is no vaccine or effective curative treatment available”.
4th para: regarding the surveillance data, what’s mean by the reported accuracy rate? Is this sensitivity or specificity?
The authors may need to explain more on why they suspect the association between HFMD and meteorological factors would vary at different age groups, or such difference in association has any clinical or public health importance.

Materials and Methods
Surveillance data of HFMD
1st para: cross out “In which”

Results
6th para: the authors reported that the relations between HFMD incidence and temperature rose relatively flat at temperature above 25 °C but a linear model is adopted in the subsequent calculations. The authors may either reconsider a non-linear model for a better estimation of the association or stating the linear relationship may apply up to 25°C.

Last para: Judging from the results shown in Table 2, I don’t agree with the sentence “the effects of temperature and relatively humidity on HFMD incidence were strongest in children 0-2 years, and progressively decreased with age.” Contrast to lag 1 model, the effect of temperature on HFMD incidence appears to be increasing with age in lag 2 model. The effect of humidity on HFMD among different age group is not very conclusive.

Discussion
3rd para: “Furthermore, the findings that EV71…” complicated sentence and wrong gramma. Please rewrite.
3rd para: please change “physical activities” to “change of human contact”
3rd para: change “this may lead to more contact in the child” to “this may lead to increase in contact among children”

4th para: It is well known in the literature that HFMD affects young children, especially those under 5 years old. It is also well documented in the literature that antibody against the enteroviruses decline with age, what the authors also quote. But this does not explain the difference in the association between HFMD and meteorological variables among different age groups, if such difference does exist.

6th para: Consider deleting the sentence “Although the research in Hong Kong…” and “Morover”.

Last para: Please delete “Rainstorms and floods…this can increase the risk of household water contamination”. This is irrelevant since HFMD is NOT a food or water-borne disease!

Reference
Reference no. 31: please check proper citation. If this is online data, please use proper format, e.g. access on xx (date), cited xx (date).

**Table and Figure**
Table 2 and Figure 2-4. No need breakdown into different age group.

**Level of interest:** An article of importance in its field

**Quality of written English:** Needs some language corrections before being published

**Statistical review:** Yes, but I do not feel adequately qualified to assess the statistics.