Author's response to reviews

Title: The incidence of varicella and herpes zoster in Massachusetts as measured by the Behavioral Risk Factor Surveillance System (BRFSS) during a period of increasing varicella vaccine coverage, 1998-2003

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Author's response to reviews: see over
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Dear Editorial Team of BMC Public Health,

Thank you for your e-mail of April 8 about “The incidence of varicella and herpes zoster in Massachusetts as measured by the Behavioral Risk Factor Surveillance System during a period of increasing varicella vaccine coverage, 1998-2003.” We have revised the manuscript in accordance with the reviewers’ comments.

Reviewer Sara Thomas commented (in Discretionary Revision 1) that the tables were hard to read, the layout hampering comparisons among years. We agree and would request that the editors consider pivoting the tables to landscape orientation with years displayed horizontally. We will upload an Excel file with the tables oriented in this fashion.

Below is a point-by-point description of the changes made (or reasons no changes were made):

**Reviewer Anne Gershon**

Point: Zoster was not laboratory-confirmed. If people have become more aware of zoster than in the early years of the survey, there may have been more of a tendency recently to attribute rash illness to zoster, which might explain the observed increase.

Response: We added a paragraph to the limitations, p. 15, addressing this point. (However, as stated in that paragraph, we do not think awareness of zoster has changed in the U.S. over the period of this study and therefore doubt that the lack of laboratory diagnosis contributed to the observed trend.)

**Reviewer Sara Thomas**

**Major Compulsory Revisions**

1. As suggested in Discretionary Revision 2, we redid the age standardization using finer age groups—14 age groups of mostly 5 years in breadth—and now supply the 95% CIs for the age-adjusted overall incidence estimates in Table 2. In the Results section, p. 10, we now make it clear that the highly significant increasing trend applies to age-adjusted (as well as crude) rates.

**Minor Essential Revisions**

1. The decrease in overall zoster incidence between 2002 and 2003 was not statistically significant for either the crude or the age-adjusted estimates. We put a statement about the (non-significant) upturn in varicella incidence between 2002 and 2003 into the Results section, as suggested, kept a mention of it in the Discussion section (p.
11), and added (to the paragraph in the Discussion section) a parenthetical remark about zoster incidence decreasing, albeit not significantly, over the same period.

2. We have added a short explanation of coding changes introduced in 2002 (Results, p. 9), which were associated with an apparent increase in response rate. (This was obtained from a personal communication. Please check that the format of that “pers. comm.” mention meets the journal’s standards.)

3. In footnotes to the tables we now report the number of subjects excluded due to missing age or missing responses to varicella or herpes zoster questions.

4. We have corrected “4.6” to “4.8” in the Background section, p. 5. (We left the age-adjusted estimate derived from Chidiac et al. (reference 13) as is on p. 11, so the unadjusted reported on p. 5 is now 4.8/1,000 and the adjusted on p. 11 is still 4.55/1,000.)

5. We appreciated learning of Fleming et al.’s more detailed analysis and removed mention of the UK general practice data from our discussion of past studies noting an increase in zoster incidence, p. 13.

Discretionary Revisions

1. We agree and much prefer the layout in our Excel tables, with years displayed horizontally, to the format used in order to fit the tables into the Word document. We will upload these Excel tables separately so the editors can consider whether to use them in that format. The suggestion of putting numerators and denominators together, e.g. 4/144, would not be ideal, because weighting causes such fractions not to equal the incidences listed.

2. As mentioned in our response to Major Compulsory Revision 1, we did adjust more finely for age, using 14 mostly 5-year age groups.

3. We have revised the relevant paragraph of the Discussion, p. 15, to reflect this point.

4. The survey did not collect data on respondents’ month of birth, only age in years.

5. Not being aware of a change in herpes simplex epidemiology, we think it unlikely that misdiagnosis of herpes simplex as herpes zoster would have led to an increase in observed incidence of herpes zoster.

Thank you very much for your consideration.

W. Katherine Yih