Reviewer's report

Title: Predictors of Knowledge of H1N1 Infection and Transmission in the U.S. Population

Version: 1 Date: 22 September 2011

Reviewer: James Cone

Reviewer's report:

Major compulsory Revisions

1. In the section on Methods: Data analysis, the authors describe their use of multivariate ordered logistic regression as the primary statistical method to assess the outcomes. However, the outcomes (knowledge about H1N1 transmission and knowledge about signs and symptoms of H1N1) are relatively common (44% checked both correct answers for H1N1 transmission and 69% checked all 3 correct answers for signs and symptoms). Although the authors are technically correct in that they always present the results as odds ratios or % increased odds, in my opinion, some readers may not be technically sophisticated and may mis-interpret these results as reflecting the relative risk. When the outcome of a study is relatively rare, e.g. <10%, the odds ratio tends to closely approximate the true relative risk. When the outcome of a study is relatively common, as in this study, this is no longer true. The odds ratios in this study likely significantly overestimate the true proportion ratios, prevalence ratios or relative risk. Especially since this is an article about public communication, it is essential that the authors present the results in the clearest possible fashion for the potential audience. Consultation with a statistician would be useful to determine the best statistical method for this data in addition to using logistic regression, to provide a more accurate estimate of the true relative risk. If this is not done, at a minimum, the discussion should emphasize that increased odds does not equal the same amount of increased risk.


“The use of odds ratios in cross-sectional studies, a common practice among epidemiologists, has been criticized because prevalence odds ratios are good estimates of prevalence ratios only under specific circumstances [12-14]. More recent studies examining the differences between OR and PR, according to variations in the prevalence of exposure and disease, have shown that differences between odds ratios and proportions ratios, relative risks or prevalence ratios increase with increasing disease frequency [15]. There are
several statistical models that can provide adjusted estimates for PR, including the logistic model, Poisson regression and log-binomial regression [3,10,16-18]. However, there is no consensus about the best approach to obtain the adjusted PR and these methods may lead to different conclusions. The main appeal of estimating PR as a measure of association is that PR is more easily interpreted than the OR in cross-sectional studies with common outcomes. For instance, a PR of 2 means that the proportion of cases among exposed is 2times higher than among unexposed subjects, while an OR of 2 does not necessarily have the same meaning.”

Minor Essential Revisions

The authors do not present the number of individuals invited to participate in this study, the overall response rate, or the final survey completion rate. This information is necessary, in my opinion, and would be useful to better interpret the generalizability of the results of the study.

Discretionary Revisions

In addition to using household income, another area-based socioeconomic indicator that may be useful for the authors to examine is the census tract level measure, “% of persons below poverty.” (Krieger et al. Race/Ethnicity, Gender and Monitoring Socioeconomic Gradients in Health: A comparison of Area-Based Socioeconomic Measures – The Public Health Disparities Geocoding Project. AJPH 2003;93:1655-1671.) It might be interesting to use this measure in a mixed model or multilevel analysis, assuming that the census tract of respondent’s residence is available to the authors.

Level of interest: An article of importance in its field

Quality of written English: Acceptable

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

Declaration of competing interests:

I declare that I have no competing interests.