Reviewer’s report

Title: Cigarette Smoking Prevalence in US Counties: 1996-2012

Version: 1 Date: 12 December 2013

Reviewer: Gary A Giovino

Reviewer’s report:

I view this paper first as an exercise in modeling to impute a massive amount of prevalence estimates. I also read it as someone who understands tobacco control.

It seems that the authors have adjusted reasonably well for the increasing use of mobile telephones in the USA.

I am not perfectly clear, however, about how they imputed data for every county. It seems as though they took whatever survey responses they have for each county and use those responses along with the demographics of the county and information about smoking in neighboring counties to estimate adult cigarette smoking prevalence and adult daily cigarette smoking prevalence for every county for every year from 1996 – 2012.

1. I would like to see a table of data that shows the number of responses they have for each county/year/gender cell. They could simply create a table shell similar to that of Appendix table 3 and then insert the number of observations for each cell.

2. I wonder about their use of the proportion of a given county’s population that is Native American Indian/Alaska Native as a control variable. There is considerable variability in cigarette smoking prevalence in Native American tribes depending on the region of the country. For example, smoking prevalence is extremely high in Northern Plains tribes and Alaska Natives and lower among Native Americans living in the Southwest. It appears that this model does not allow for such variation. If so, it is limited.

3. The authors compare their modeled trends for males and for females with those from the NHIS. I would like to see a line added to each graph in Figure 1 that presents the BRFSS data that CDC puts out each year for the US and DC. This would let the reader see how the modeled estimates differ from the actual estimates.

4. In Figure 1, it is clear for both men and women that the BRFSS estimates differ from those of the NHIS both in magnitude and slope. How do the authors account for this? It seems that their models would be more precise if they eliminated the 1996-2001 data.
5. The authors point out the large differences across counties in VA. It would support their cause if they provided some explanation. For example, were Falls Church City of high SES and Petersburg City and Buena Vista City low SES? Were either of the latter two areas where tobacco was grown? Or processed?

6. In the Discussion and Conclusions section, the authors state that self-reporting bias may vary by sex and age. The literature indicates that high demand for abstinence is the key driver of under-reporting. Is there a high demand for abstinence in the BRFSS? I don’t think so (as is typical of one-off prevalence surveys).

7. How do the estimates produced here compare with those of the County Health Rankings and Roadmaps project?

8. In several places the authors claim that their estimates should prove useful for planning of and evaluation of prevention programs. One example is the last sentence of the first paragraph of the Discussion and Conclusions. This suggested application is unreasonable and should be retracted. The data aren’t that trustworthy. I believe that no legitimate evaluator would adopt such a methodology and that no state public health worker will have confidence in such an application.

9. The last paragraph has multiple problems.
   a. First, why single out the 1990s? Actually, tobacco control expenditures were highest in 2002 and 2003.
   b. While it is troubling that prevalence hasn’t declined more rapidly, the authors seem unaware of the role of the tobacco industry in maintaining high smoking rates.
   c. They also do not list the evidence based tobacco control strategies that have been adopted to some extent (see the Community Guide to Preventive Services). If these were adopted by every state, then progress would accelerate. Instead, they suggest that county level programs are the answer, because “public health is local.” While local programs can work (e.g., New York City), state and national policies have been proven to be effective. We should encourage localities to adopt proven programs and policies in a strategic manner. Sometimes it is more cost-effective to work at the state level.

Level of interest: An article of limited interest

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