Reviewer's report

Title: Detecting type 2 diabetes and prediabetes among asymptomatic adults in the United States: modeling American Diabetes Association versus US Preventive Services Task Force diabetes screening guidelines

Version: Date: 22 January 2014

Reviewer: Lawrence Barker

Reviewer's report:

Major Compulsory Revisions

I find the definition ‘any of their lab tests were in the diabetes range’ potentially quite problematic. FPG is highly variable, and a single test doesn’t necessarily mean much. It is well known that there are people who are diagnosed as having diabetes by one or more but not all these criteria. Therefore, the definition used results in the largest number of cases of diabetes possible. Both ADA and IDF agree that diagnosis should be based on A1c. At a minimum, the authors need to redo the analysis using only A1c as the definition of diabetes. Those results can be described as a ‘sensitivity analysis’ if the authors prefer.

When ‘smoking’ is used as a covariate, the authors need to make it clear if they mean ‘current smoking’ or ‘ever smoked’. These mean very different things, since many smokers stop smoking because of poor health.

“In any screening or other preventive service, efficiency is most often a secondary goal to effectiveness.” I challenge this statement. What could possibly be more effective than ‘screen everybody’ (for diabetes or any other condition)? We don’t do universal screening for diabetes because it is extremely cost ineffective – that is, the resources spent per case detected is very high. If the authors want to make claims about effectiveness and efficiency, they need to also discuss cost effectiveness.

Resources are limited. In the real world, decisions are made cognizant of limitations on resources. I find it hard to recommend one standard over the other without an economic analysis of the alternatives. While I accept that such an analysis is beyond the scope of this paper, the authors should mention that as a limitation. That also plays into the conclusions – while ADA guidelines identify more people, they might or might not be preferable, depending on cost and benefit of the competing standards.

Minor Essential Revisions

Table 1: Tables should stand alone. Include the definition of the weight categories in terms of body mass index (not ‘body weight index’) as a footnote.

Table 2: (1) The authors assume a linear effect of income on the odds ratio of the
outcome discussed. This is a big assumption. Was this assumption tested? If so and the data support it, we should be told. If it was not tested, it should be. (2) Fleiss’ kappa would provide more information that ‘percent concordant’ does not. That information should be included. (3) When the authors say ‘normal logistic regression’, I believe they mean ‘usual’. The term ‘normal’ could be misread to mean probit regression.

Page 4: ‘high-risk ethnic population’: It should read ‘racial/ethnic population’. There is a difference between race and ethnicity.

Page 4: There are two commas between ‘inactivity’ and ‘high’.

Page 10: ‘In rank order’ is actually in rank order of estimated probabilities. Estimating actual rank is a very difficult problem and, since the authors did not undertake that, they should change the text to make clear that they are ranking by estimates, not estimating ranks.

Discretionary Revisions

The change in font between text and references is simply distracting. It obviously isn’t wrong, but it should be changed.

**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