Reviewer's report

Title: Assessing smoking status in disadvantaged populations: is computer administered self report an accurate and acceptable measure?

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Bryant et al, Assessing smoking status in disadvantaged populations: is computer administered self report an accurate and acceptable measure?

The purpose of this study is to compare breath carbon monoxide levels against self report of smoking in 330 human subjects. The novel component of this study was the use of a touch screen computer for the self report information in a community health care setting. The authors contend that information gathered in this manner has the potential to identify smokers and increase provision of support and referral in a community setting. Presumably, smoking status information collected at the same time as other health information could be used for epidemiological or introduction to treatment purposes. Overall, the manuscript is well written and a useful discussion of the results is presented. The questionnaire administered with the computer provides appropriate information to assess current and recent smoking behavior. The incorporation of breath carbon monoxide levels as the gold standard is adequate. 330 subjects with BCO and self report data provided an adequate number for statistical purposes. I like the idea of community health care settings in which patients or clients can be made aware of ways to improve their health.

A few comments about the manuscript.

The use of a BCO cutoff of 6 ppm proved the point of the authors that computer assisted identification of smokers worked. However, I think the authors should provide a better justification for choosing a BCO cutoff of 6 ppm. The authors stated that the cutoff was recommended in ref 24 but did not explain the population that was used to establish the cutoff and how it might affect their conclusions. Another recent paper that demonstrated higher accuracy at a lower BCO cutoff was published in 2005 by Javors et al [Addiction 100 (2005) 159].

For future studies, the authors should consider measurement of saliva cotinine. The collection of the saliva takes about a minute using Salivette tubes in a non-invasive manner. The cost of the assays is higher, but perhaps a subset of subjects could be studied. Saliva cotinine would be more sensitive in smokers who only smoked occasionally.

The authors clearly discover that a high percentage of smokers can be identified by computer assisted interview as validated with BCO levels. A high correlation between self report and BCO levels is expected because most smokers do not deny smoking [see Javors et al, Drug and Alcohol Dependence 113 (2011) 242].
The small percentage of smokers that deny smoking for whatever reason are difficult to identify without using a lab test as the authors point out (BCO levels or saliva cotinine). The small number who denied smoking but had levels above 6 ppm (false negatives; 9 subjects or 3.3% of total sample, see page ???) in this study by Bryant and colleagues might be the only ones who denied smoking. If the health care organization wanted to also approach these individuals for treatment purposes, lab tests would have to be employed. The computer assisted self report alone will not identify those smokers UNLESS a BCO level or saliva cotinine level is determined.

On the false positive side of things, the authors should also discuss the possibility of elevated BCO levels without positive self report by use of marijuana or smoking other illegal drugs such as crack cocaine, working as a welder, etc.