Reviewer’s report

Title: A Randomized Trial of Decision Support for Tobacco Dependence Treatment in an Inpatient Electronic Medical Record: Clinical Results

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Reviewer: Russell Glasgow

Reviewer’s report:

This article evaluating the implementation and effectiveness of a decision support tool and program integrated into the electronic medical record to enhance tobacco cessation activities by hospitalists reports on a well-designed and executed Type 1 hybrid cluster randomized study. The article is well written, relatively succinct and presents both implementation process and smoking cessation outcomes.

The paper has a number of strengths including the cluster randomized design, a large number of physicians and smokers, a 12-month validated smoking cessation measure, a pragmatic intervention, appropriate analyses and interpretations. The inclusion of both implementation and effectiveness outcomes is a strength, as is the analyses analyzing (and failing to find) relationships between process and outcome. Limitations and opportunities to improve the manuscript as noted below include: the inclusion of only a single teaching hospital (acknowledged by the authors), absence of information of several factors and additional analyses that could enhance understanding and guide future research. These include reporting on details of exclusions and participation issues, more analyses of mediator and moderator effects, and some interpretations of results. More specific and detailed comments follow:

There are relatively few references cited. The study could be placed in better context with discussion both in the introduction and discussion of the body of evidence on hospital smoking cessation- not just the citation to systematic reviews and meta-analyses.

Why were so many- over 10% of the potentially eligible smokers excluded?

What was the participation rate among physicians and different types of physicians? How many and what types of physicians declined to participate and why?

Are any data available on baseline levels of smoking cessation activities among participating physicians- e.g., baseline levels of referrals, documentation in problem lists, prescription of smoking cessation medications? If so, did these moderate outcomes?

Greater explanation of the choice of control condition, and why they decided not to use more of a component control condition(s)- e.g., referral to quit line alone based on previous research would be helpful.
There is a missed opportunity to conduct and report on mediator and moderator effects which could help with interpretation of results—e.g., what physician characteristics were associated with higher implementation rates; what smoker characteristics were associated with higher cessation rates and did these interact with intervention condition or other factors?

There was an attempt at what the authors term dose-response analyses, but these were not detailed and seemed to assume a simple linear relationship between number of intervention components and outcomes. Behavioral interventions are not like a drug in that more is always better regardless of the person, their needs or other characteristics and more nuanced analyses could help understanding of the results (e.g., was there a subset of activities that were associated with outcomes; was there a threshold effect; did 'dose effects' interact with smoker type or history?).

Were only physicians informed of the EHR prompts and were they expected to do all the intervention without involvement or support of the other team of professionals? The smoking literature (albeit most of it admittedly in primary care) shows that a team based approach is superior to physician only interventions.

The assumption that all smokers lost to follow-up were smoking has been challenged and many methodologists prefer imputation of missingness based on other information. This issue should at least be addressed and justified; otherwise additional imputation analyses should be reported.

The discussion does a reasonable job of discussing implications, potential limitations and reasons for the failure to find differences in cessation. Given the points above, the authors might also consider additional issues pending the results of participation, attrition, mediator and moderator analyses. In addition, the general absence of follow-up contact and support, and lack of connection across opportunities and time (e.g., pharmacy, primary care, nursing contacts, telephone follow-up) and a full systems approach to cessation may have also contributed to the null results on cessation outcomes.

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