Reviewer's report

Title: The Health Fair Effect: Bias in Screening for Thyroid Disease

Version: 1 Date: 3 December 2012

Reviewer: Kevin Deane

Reviewer's report:

The authors are to be commended for this effort to improve health care. Overall article is well-written, and has the potential to make an important contribution. However, there are several areas that need to be addressed. These are addressed below.

Major compulsory revisions

It isn't clear why the authors included subjects with known thyroid disease in this project, and it seems that a health-fair that seeks to identify subjects with undiagnosed disease would potentially be more valuable than one that seeks to determine how well currently diagnosed disease is being managed. Also, it isn't clear how much the subjects with a prior diagnosis of thyroid disease are driving reported symptoms. To help reader understand how this approach may identify undiagnosed thyroid disease, authors should report the symptoms/findings in those with no prior history of thyroid disease separately from those who had a prior diagnosis.

Related to the above points, the term 'health-fair effect' needs more explanation. The authors seem to mean that health-fair subjects are enriched for disease in general, and specifically thyroid disease. But, because of the way that this study was designed and implemented which seems to be a very focal project on thyroid disease (part of thyroid awareness week, etc), it is not clear that this is true "health fair effect" versus just an effect of a focused screen for thyroid disease especially since it is not clear that anyone was screened for other diseases besides thyroid at this health-fair. What do the authors think their results would have been in they performed this screening/case identification in a group of people that came to a health fair for a variety of concerns?

Because the term 'health-fair effect' seems incompletely defined, the authors should consider revising their title to be more descriptive of the project rather than a statement about a new idea regarding health fairs, and results obtained from health fairs.

Please report the funding source for the study - was it all through Boots Pharmaceuticals? How much did the $5 that each subject paid contribute to the overall costs?

Minor essential revisions

- Background - authors state in paragraph 1 line 1 'our evolving health care' -
please define 'our' - assume they mean USA but needs to be clarified

please provide the specific wording used to attract subjects to this screening/case-identification process - did it focus mainly on hypothyroid symptoms? do the authors think that by altering their promotional process that they could alter the screening results? also, please provide the thyroid symptom questionnaire that was used.

if known, please report the degree to which subjects seen had health insurance, or primary care providers. did people with thyroid disease treat this 'screen' as a way to get their thyroid checked at low-cost because they couldn't see their normal providers?

what advice was given to the subjects regarding their results? were the participants provided their results?

was there any concern about identifying a 'preexisting condition' that might have led to difficulty for the subject getting insurance/health-care after this process?

why was a p value of 0.01 picked for multiple comparisons? why not use an approach like bonferroni where the p-value is reflected by the specific number of tests performed (e.g if 10 tests, then the p-value = 0.05/10 = 0.005)?

how long did the entire health-fair process take - including questionnaires, consent and blood draw?

weight gain or loss are often thought of by lay people as a symptom of thyroid disease. also, some medically-based thyroid questionnaires include weight issues. based on this, it is possible that weight issues drove people to participate. however, the paper doesn't mention assessing weight as part of the process, or assessing weight issues on the questionnaire. what do the authors think the impact of weight issues was on their project? how might they address that in the future?

Level of interest: An article of importance in its field

Quality of written English: Acceptable

Statistical review: No, the manuscript does not need to be seen by a statistician.

Declaration of competing interests:

I have no competing interests