Reviewer’s report

Title: When are clinical trials registered?: an analysis of prospective versus retrospective registration

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Reviewer: Rob JPM Scholten

Reviewer's report:

This is a descriptive study about registration of studies after enrollment of the first patient in a sample of related journals with a straightforward methodology. I have the following suggestions.

1. The results of this study stroke me and made me somewhat depressed. Of course, I was aware of retrospectively registered studies, but in this sample the percentage of retrospective registration is large. This may be due to the sample that has been drawn from a series of related journals that may have a joint policy (which they obviously have in view of the large number of studies that reported their trial registration ID). The authors could elaborate more on this potential source of bias (or 'non-representativeness').

2. I agree that not publishing results may be a bad idea, but the authors seem to deal quite lightheartedly with this challenge. As a systematic reviewer I check whether the study was registered and if yes, whether the authors have done what they promised to do in order to assess possible selective publication, secondary outcomes becoming primary, etc. With these journals' (and others') policy it means that we should also look carefully at the date or timing of registration.

To be honest: I'm quite annoyed by this policy. We put lots of effort and resources in (prospective) trial registration, but registration has become useless if it was after the first enrollment, and one cannot trust the retrospectively registered data. To me, retrospective registration can only be allowed if there are clear indications that authors had not realized that there 'trial' should also have been registered (which may, indeed, apply predominantly to authors of non-RCTs).

I propose the authors discuss the various options in more detail. One can either not ask for retrospective registration and just publish the results (with the danger that this will cause a drop
Another and maybe better option could be to flag studies that were retrospectively registered. This may also cause a drop in registrations, but such a flag at least may warn the end-user, may give a somewhat negative image to the study and alerts people to carefully consider the credibility of the results.

3. Study selection was based on the word 'trial'. I tend to avoid the use of 'trial' and use 'study' instead. Could that have led to having missed studies? If so, I don't expect a major risk of bias, though.

4. Would it be possible to present also some potential determinants (or associations) of retrospective registration: distribution of registration types amongst

- studies that were done by authors who may have an interest in the results (compared to independent authors).

- RCTs and non-RCTs

- the various trial registers

There may be other factors of interest.

5. I would also like to see whether there's a difference between pro- and retrospectively registered studies in the percentage of studies that had significant results.

6. The authors may wish to add (row) percentages to the cells of Figure 1.
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