Reviewer’s report

Title: Fish oil supplementation in chronic obstructive pulmonary disease: feasibility of conducting a randomised controlled trial

Version: 0 Date: 26 Jul 2017

Reviewer: Sandra Eldridge

Reviewer’s report:

This is a useful paper describing a randomised feasibility study on people with COPD. That it concludes that a main trial cannot be conducted with a similar design to the feasibility study makes it particularly useful for the relevant research community. I have a number of suggestions for improvement.

1. Objectives. Table 1 is useful in providing a clear list of measures used to assess objectives and associated progression criteria but the division into process and scientific outcomes is confusing and appears inconsistent with the text at the top of page 6 where feasibility and scientific outcomes seem to be mutually exclusive? The text and table need to be made consistent and clearer. I could not see objectives actually listed on page 4 as suggested by the CONSORT checklist and there isn't any explanation as to why some of the objectives are considered "key" and therefore described in the abstract while others are not. It would also be useful to put some confidence intervals around some of the rates calculated.

2. Sample size. I wasn't convinced by the rationale for the sample size based on the Lancaster or Browne papers. I don't think the intention in the Lancaster paper is to suggest a specific sample size to be used in a study to estimate parameters for a sample size calculation, and there are a number of papers on the subject more recent than the Browne paper.

3. Statistical significance tests. These are not appropriate in a feasibility study since the study will not be powered to detect differences. They should be removed from the paper. If effect sizes are to be presented or discussed, confidence intervals should also be presented.

4. At the top of page 8 the sentence beginning "Of the 27 participants consented to participate ..." does not make sense.

5. I expected the results section to be structured according to the objectives and think it would be clearer if it was. In particular, retention and inputs for sample size calculation for a larger study are not mentioned. The latter is mentioned in the discussion but as per comment 2, I think the rationale given needs to be rethought.

6. The last column in table 2 should be removed. Because of the small sample size it would be surprising if there weren't some differences between the groups and highlighting them in this way doesn't really serve any purpose.
7. I liked some of the suggestions for improving recruitment. Later in the discussion other research is mentioned; some of the studies reached their target recruitment, others did not. I would have been interested in knowing whether there are lessons to be learnt from these studies about strategies to improve recruitment in a future study. Can something on this be included?

8. On page 14 the authors suggest that: "It is recommended that the primary outcome be chosen based on outcomes that are most likely to be affected by the intervention". If this stays in the paper, can the authors provide a reference for this statement? However, it wasn't clear how the following discussion related to the work contained in the paper and therefore whether it was relevant here?

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