Reviewer's report

Title: Did a quality improvement collaborative make stroke care better? A cluster randomised trial

Version: 3 Date: 6 November 2013

Reviewer: Alicia O'Cathain

Reviewer's report:

This is a rare thing to see – an RCT of a collaborative initiative. Well done for deciding to use an RCT.

Major compulsory:

1. I have concerns about measurement error in that the collaborative collected data before and after for controls and before for interventions but hospitals collected their own data in the after period of the intervention group. Surely findings are due to differences in who took the measurements? If you can't explain why this is not a problem then you need to be much more circumspect in the conclusions you draw in the abstract and main paper.

2. You need to attend to the CONSORT statement. You have not actually included some of the information required by CONSORT e.g. p8 How did random allocation take place? Can you return to CONSORT and check that you have reported exactly what is required.

3. It is unclear whether the primary outcome measured was based on National Audit data or the 20 patients per month. It is not clear that 20 patients per month were measured in both arms of the trial. Much more clarity is needed on how measurements were taken.

Minor essential:

1. This intervention is evaluated by the intervention lead and some attention needs to be given to this in the discussion regarding potentially having a strong desire for a positive outcome.

2. Was a process evaluation undertaken? If it exists then there should be some reference to it and its findings so readers can link these two parts of the same story.

3. An explanation for the large improvement in controls over time is given in the discussion. Does this temper the conclusion you can make? The context is a major national focus on stroke improvement so did your collaborative get its positive results because of the context? How would it have fared in a low priority for stroke environment?

4. There are lots of typos – it needs a good sub edit.

5. In the abstract
• What is an ‘indicator of care’?
• ‘Bundle compliance’ is hard to understand as shorthand.
• Revisit conclusions. I know you say the effectiveness is still ‘uncertain’ but it's not clear why.

6. p8 Sub heading ‘interventions’ but you talk about power calculation – this is confusing.

7. p8 The power calculation is not specific enough. What about statistical power? Alpha? What about clinically significant change rather than what occurred in pilot?

8. p10 You must draw attention to differences in exclusion rates between groups.

9. p11 I don’t understand what is written under the sub heading ‘primary measures’ – did controls improve in bundle 1? This is a key part of the paper and very difficult to understand.

10. p14 What does ‘wicked’ mean?

11. p14 I’d like a sub heading to draw attention to strengths and limitations for the reader. I would like attention paid to the variable drop out rates in arms and what direction bias might be operating in. You must point out and discuss the measurement error.

12. p15 The final sentence of the paper seems to pop out of nowhere and is not appropriate as an ending for this paper.

13. Figure 2 shows why some hospitals dropped out or were not included but is there no intention to treat analysis because data on primary outcomes was missing (reason for exclusion?) p11 you say this was in the protocol but what is the justification for it?

14. Table 4 is unhelpful and is not your trial data. The only relevant info is 2008 compliance and this could be incorporated into your discussion.

**Level of interest:** An article of importance in its field

**Quality of written English:** Needs some language corrections before being published

**Statistical review:** Yes, but I do not feel adequately qualified to assess the statistics.

**Declaration of competing interests:**

I declare that I have no competing interests