Author's response to reviews

Title: The demonstration of a theory based approach to the design of localised patient safety interventions

Authors:

Natalie J Taylor (natalie.taylor@bthft.nhs.uk)
Rebecca J Lawton (r.j.lawton@leeds.ac.uk)
Beverley Slater (beverley.slater@bthft.nhs.uk)
Robbie Foy (r.foy@leeds.ac.uk)

Version: 3 Date: 5 September 2013

Author's response to reviews: see over
Dear Editor,

Thank you for your letter regarding our manuscript ‘The demonstration of a theory based approach to the design of localised patient safety interventions’ (Manuscript ID: 1942384121102510) submitted to *Implementation Science*. We are pleased to submit a further version of this manuscript revised to address the comments from you. Below we set out how we have attempted to address those comments (response highlighted in light blue). Should you require any further details please do not hesitate to contact us. We look forward to receiving your decision on this manuscript.

Yours sincerely,

Natalie Taylor
Reviewer's report

Title: The demonstration of a theory based approach to the design of localised patient safety interventions

Version: 2 Date: 26 August 2013

Reviewer: Jill Francis

This research is different from many other implementation studies in the following respects:

• The implementation problem to be addressed was selected by the participating hospitals

• The approach to change was managed by a clinically led interdisciplinary team rather than a research team

• The ‘implementation problem’ was assessed through a local audit of patient notes which also identified the specific behaviours to be targeted for change.

• Barriers to change were assessed first by using a validated instrument based on the TDF: the Influences on Patient Safety Behaviours Questionnaire (IPSBQ)

• Focus groups with clinical staff were used to interpret the IPSBQ findings and to design the intervention

• Following a time trend audit, hospitals were asked to assess the clinical significance of the observed change in practice.

The features of the research, listed above, are impressive. To me, this study stands out as a model of implementation research and practice that is systematic, collaborative and contextualised. Although the approach has limitations, these are well articulated and I agree with the authors that future research could be designed to address these. I think this paper would be of great interest to the readers of Implementation Science. Thank you for asking me to review this excellent paper.

We thank the reviewer for her positive comments on our manuscript.

Minor Essential Revisions

1. Delete Reference 2 (duplicates Reference 3).

We thank the reviewer for pointing this out and have removed the reference:

- Page 3, line 15

2. Typo in Reference 8 – Runciman
Enquiries on this matter should be made to Natalie Taylor, Australian Institute of Health Innovation, Faculty of Medicine, AGSM Building Level 1, University of New South Wales, Sydney, NSW, 2052. natalie.taylor@unsw.edu.au; Tel: +61 938 53861

We thank the reviewer for pointing this out and have amended the reference:

- **Page 20, line 22**

3. On Page 4, the list of theoretical domains includes “behavioural regulation” whereas in on Page 3 of the Focus group topic guide it is labelled “action planning”. The correct label is behavioural regulation.

We thank the reviewer for pointing this out and have amended the focus group topic guide:

- **Additional file 2**

4. End of Method section: analysis of the “Reflective log”. It would be helpful identify, at this point, which research question this analysis addressed.

We have amended this section:

- **Page 9, line 22 to page 10, line 2**: A reflective log was recorded to capture the challenges presented and solutions generated throughout this process in order to provide an insight into the feasibility and acceptability of the TDF Implementation Approach. The solutions were themed according to the ten implementation principles stated in the introduction and mapped against each implementation step.

- **Page 13, line 19 and page 31, line 1**: Matrix of the TDF Implementation Approach

5. The 11 (domains) x 3 (sites) MANOVA tested two main effects. I am not clear that the interpretation is clearer?

We have double checked the analysis and can confirm that there is one main effect to observe. We have added additional information about the nature of the differences between hospitals to make this section clearer:

**Page 11, lines 3-11**: An 11 (barrier type) x 3 (Trust) MANOVA indicated that there was a main effect of hospital on the strength of barrier types reported $F(2, 224) = 2.88, p < .001, d = .77$. Between subjects effects demonstrated significant differences between organisations for three of the 11 barrier types: ‘knowledge’ $F(2, 224) = 4.59, p < .05, d = .40$, ‘skills’ $F(2, 224) = 4.17, p < .05, d = .39$, and ‘emotion’ $F(2, 224) = 9.79, p < .001, d = .59$. Further inspection of pairwise comparisons indicated that significant differences were found between H1 and H2 for ‘knowledge’ (mean diff = .304, $p < .05$) and ‘skills’ (mean diff = .274, $p < .05$), and between H1 and H2 (mean diff = .402, $p < .05$) for ‘emotion’. No significant differences between organisations were found for the other reported barrier types.

6. At the top of page 12, I could not follow the place of Table 6 in the intervention development process.

We noticed that Tables five and six were incorrectly labelled and have amended this:
7. I am also unclear about the table numbering on page 13.

   - Please see response to comment above

Discretionary Revisions

   Thank you for pointing this out. We have amended this:
   - Page 9, Line 13

9. Results, page 10: At “questionnaire data were collected from 227 across each hospital”, I think you mean “across the three hospitals”, not 227 at each (which would be 681 in all).

   Thank you for pointing this out. We have amended this:
   - Page 10, Line 14: across the three hospitals

10. At “combined mean barrier scores at each hospital were calculated”, it would be clearer to say “combined mean domain scores (assessing barriers) were calculated separately for each hospital”.

   We have amended this:
   - Page 10, lines 16-17: Combined mean domain scores (assessing barriers) were calculated separately for each hospital (Table 3).

11. Table 1, Point 6. Should this be “...complexity of changing the behaviour...”?

   We have amended this:
   - Page 25, Table 1: complexity of changing behaviour in practice.

12. Page 13, line 7: I am not clear about the meaning of the proposed benefit of this approach, “expanding impact”. Does this mean that the intervention continues to improve practice? If so, how does this differ from sustainability?

   What we were trying to summarise here was the perception from participants that there was more high level support, meaning they were able to have a bigger impact on the organisation in comparison to other safety initiatives or audits they have previously been involved in (this is demonstrated by the quotation in Table 6). We have amended the wording in the main body of text to make it clear that what we are describing is not the same as sustainability:
Reviewer: Judith Dyson

The question posed is novel and highly relevant. The authors identify key publications that support their six step approach in the background section. The methods demonstrate a substantial and thorough piece of research. The time trend audit demonstrates positive shifts in behaviour in one trust (use of pH rather than x-ray) following interventions. Of particular interest (as a healthcare practitioner) is that these changes were considered by the trust as clinically significant. I was interested to see interview results as to the perceived strengths, weaknesses and sustainability of such an approach. The discussion is well balanced and supported by the data included.

We thank the reviewer for her positive comments on our manuscript.

I have no compulsory revisions to suggest to the authors. However:

I request they check for a possible typographical error on table 3 – is the mean of all hospitals really 4.42 with regard to motivation and goals. This does not seem to fit with numbers for individual hospitals.

Thank you for pointing this out. We have amended the table.

Also, to be left to the authors discretion, I would have found it useful to know the range of the IPSBQ (I found the paper referenced and find it is 1 to 5). The authors say that barrier scores were low (they were between 2 and 3 in most or all cases). I would have found it useful to know whether 3 on the IPSBQ was considered a neutral value (as the options were strongly agree to strongly disagree). Does this potentially mean that there were no perceived barriers to practice?

We have provided the range for the IPSBQ:

A value of three represented ‘neither agree nor disagree’. We have attempted to provide an explanation for the low scoring barriers, despite poor compliance with the associated target behaviour:

For all hospitals, the mean scores for barriers were low, despite poor compliance with recommendations in practice – this could represent a tendency for staff to underestimate the barriers to behavior change, or to respond in a socially desirable way; nonetheless, the relative values between each domain within each organisation demonstrate differences in perceptions of barriers, which is important for the purpose of tailoring interventions.