Reviewer's report

Title: Effectiveness of accelerated perioperative care and rehabilitation intervention compared to current intervention after hip and knee arthroplasty. A before-after trial of 258 patients with a 3-month follow-up

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Reviewer: Liz A Lingard

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Review of Effectiveness of accelerated perioperative care and rehabilitation intervention compared to current intervention after hip and knee arthroplasty. 

This paper aims to determine if implementation of accelerated perioperative care and rehabilitation after hip and knee arthroplasty can reduce length of stay in a normal health care setting and match the results they have found in a previous RCT. The only outcome measures used for this study are length of acute hospital stay and readmissions within 30 days and mortality within 3-months. The authors indeed do show a dramatic reduction in length of stay but there are certain limitations to this work, some of which may be able to be addressed by the authors with additional data and clarification. If they are not able to be addressed than these limitations must be acknowledged by the authors and the implications these limitations pose for interpretation of their findings.

Major Compulsory Revisions

1. It is inappropriate for the authors to include UKA patients in the post-implementation phase of this study and these cases must be deleted.

2. Prospective before-after studies are difficult as other factors may influence process of care such as changes in clinical staff (affecting expertise as well as patient-staff ratios) and changes in financial pressures which may put pressure on hospitals to discharge patients earlier. To limit these potential confounding variables or at least assure the reader that these factors did not play a part in affecting the results can the authors provide the following information:
   a. confirm how many surgeons participated during each phase of the study and provide numbers of cases per surgeon at each time
   b. any changes in anaesthetic management use of epidurals vs. GA vs. blocks etc
   c. use of PCA post-operatively and if this changed during the study
   d. use of CPM post-operatively and if this changed over the study
   e. number of nurses, physiotherapists working on the orthopaedic wards and staff-patient ratios and if this changed over the period of the study
f. any financial targets / waiting list initiative work that may have created pressure to discharge patients earlier to increase beds available to accommodate extra operating time

g. changes to the working week e.g. increase from 5-day to 7-day service, weekend cover

3. Page 7, Authors refer to information focused on partial goals please clarify what this means.

4. Page 7, delivering of means of an aid does this mean you provided them with a walking aid?

5. Page 8, 8 hours of mobilisation per day needs definition in the manuscript authors need to state approximately what proportion of this time is spent walking, exercising, using CPM etc.

6. There is a major bias in the discharge criteria. In the first phase TKA patients had to achieve 90° flexion but not in the second phase can authors state what the average LOS for TKA patients in the first phase would have been if they were discharged when they met the other 11 criteria? It is possible that this may have really biased the study as patients may not have been mobilised on the stairs until they had almost regained 90° flexion in preparation for discharge.

7. Can authors confirm that all patients met the discharge criteria and if not what proportion did not? Please report any perioperative complications that delayed discharge. These patients should potentially be removed as outliers.

8. Can authors comment on post-discharge management? Did patients go to in-patient rehabilitation centres, have home therapy or attend out-patients. The early discharge potentially resulted in a greater use of these services and this needs to be reported for each phase of the study to put complication and mortality rates into perspective as well as overall health care costs.

9. Can authors provide information or comment on complications that may not have resulted in a readmission but may have incurred additional investigations and/or visits to family doctors, emergency room, physiotherapist such as wound infections, suspected DVT/PE, swelling, pain, stiffness, instability etc.?

10. Page 11, Table 1 delete UKA patients and report this data by THA / TKA as well as for entire group. Add patients per surgeon as well.

11. Limitations to this study need to include that there is no clinical assessments (including functional performance tests) or patient-reported outcome data available to evaluate the effectiveness of accelerated perioperative care and rehabilitation on these outcomes.

At present I am unable to decide on acceptance or rejection until the authors have responded to the major compulsory revisions listed above. I believe that this article is of interest to those with closely related research interests and would only warrant publication if the authors were able to address the concerns listed
above.

The quality of English is acceptable but requires some minor corrections which could be listed when the authors resubmit their revised manuscript.

I would value the opinion of a statistician for the statistics presented in this paper as I am unfamiliar with the method they describe for comparison of LOS between this study and their previous publication. As the previous publication is not currently available it is difficult to assess the contribution of that study to this current paper.

Declaration of competing interests
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I declare that I have no competing interests.