Author’s response to reviews

Title: A feasibility study to investigate Post-Operative Oxygen Consumption (POpOC) after colorectal surgery requiring bowel resection

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Pilot and Feasibility Studies
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Re: "A feasibility study to investigate Post-Operative Oxygen Consumption (POpOC) after colorectal surgery requiring bowel resection" (PAFS-D-19-00036)

Thank you for your comments and review of our manuscript. The authors have addressed the individual points below:

1. Abstract: The statement '12 participants completed the protocol perhaps belong in the results section, rather than in the methods section.
   a. The above statement has been moved to the results section as requested

2. Background (Page 4): The authors state that 'Perioperative complications occur when tissue metabolic demands are unable to be met'. This overarching affirmation may not be
true for several complications that are not precipitated by elevated oxygen consumption, e.g., those caused by intraoperative technical errors or resulting from specific postoperative interventions (i.e. prolonged ileus due to opioid analgesia).

a. The above statement has been clarified to indicate that some perioperative complications may be increased by tissue hypoxia, such as wound infections, anastomotic leaks, respiratory and cardiac complications. A reference has been added to further support the statement.

3. Background (Page 4): The study aim ("to determine the feasibility of recruiting participants and undertaking relevant data collection to inform future studies assessing the extent and duration of increased oxygen consumption and post-operative complications after major abdominal surgery") should be revised for clarity. [For guidance, see Mayo et al (J Rehabil Med. 2013 Jun; 45(6): 513-8)].

a. Aim has been revised “to determine the feasibility of recruiting participants and undertaking relevant data collection to assess the extent and duration of increased oxygen consumption and post-operative complications after major abdominal surgery”

4. Methods (Page 5): I encourage the authors to describe information regarding the number of patients recruited and who completed data collection in the results section, rather than in the methods section.

a. The relevant section has been moved to the results section as requested.

5. Methods (Page 5): Were patients treated within a care pathway (e.g. enhanced recovery)? I encourage the authors to describe the context of perioperative care where the study was conducted. Specific perioperative interventions (e.g. preoperative carbohydrates, fluid therapy approach, early feeding) may have an important influence on the variables of interest in the study (i.e. oxygen consumption, postoperative complications).

a. We have clarified that there was no care pathway or enhanced recovery program at our hospital at the time the study was conducted.

6. Methods (Page 5): The expected enrolment rate of 10% seem remarkably low and should be thoroughly justified by the authors. Enrolling only 10% of a study's population of interest will invariably impact the generalizability of results.
a. The modest recruitment target of 10% of patients attending the colorectal preadmission clinic was chosen due to the heterogeneous make up of patients attending this clinic. Many patients who attend this clinic are not scheduled for bowel resection procedures, and include those scheduled for procedures such as perianal procedures, endoscopy, hernia repairs and reversal procedures. The authors feel that this information provides useful data for future investigators faced with a similar patient population for screening and recruitment. We acknowledge the recruitment target may have been better expressed as number of eligible patients/ recruited patients but we were interested in pragmatic feasibility at our institution.

b. A paragraph has been added to provide clarity about the patients assessed for suitability and the justification for the low recruitment target

c. We acknowledge the reviewer’s comments about generalisability of the results but would like to draw the attention to the recruitment rate of 16 of 23 patients who met the eligibility criteria, a recruitment rate of 70%

7. Methods (Page 6): POMS was originally developed to be used as a dichotomous measure (yes/no; accounting for overall morbidity or for specific morbidity domains). It is not clear why and how the authors converted POMS data into a continuous measure.

a. The relevant data has been revised to show ranges rather than interquartile ranges to address this

8. Results (Figure 1): A large number of patients did not meet eligibility criteria (n=58). The authors should consider describing the number of patients who fulfilled each specific exclusion criteria so that readers can better characterize the study population.

a. A sentence clarifying why so many patients did not meet inclusion criteria has been added. As stated above, this was primarily due to patients attending the colorectal clinic who weren’t scheduled for a bowel resection procedure

9. Conclusion (Page 13): Due to the low recruitment rate (only 16 patients consented participation, out of 100 patients approached), I wonder if the study's feasibility results are not being overstated by the authors.

a. We believe that the feasibility results are not being overstated, owing to the fact that 16 patients of 23 approached were recruited as stated in the results section
Editor's comments:

Overall, the report seems well written. However, there are few details missing:

1. The criteria for success of feasibility seem unusually low for some feasibility outcomes. Some justification is required
   a. We acknowledge the comments and have sought to address this under points 6 and 8 above

2. The sample size justification is missing. This needs to be based on the primary feasibility objective and corresponding outcome.
   a. We chose a recruitment rate of 10% of the 100 patients screened, which would provide a convenience sample of >10 patients. Given the age of the existing data as well as the small sample sizes used in these studies, we deemed that this would be adequate to test our feasibility objectives

3. The description should include the analysis of feasibility outcomes and the reporting should include 95% CIs for the estimates.
   a. This has been added to the manuscript

4. The analysis for secondary objective "to assess the influence of time-dependent confounding variables, we used a random effects linear regression model" seems like beyond the scope of the study given the limited sample size. This should be deleted.
   a. This sentence has been deleted as requested

5. Report the unit of Age is table 1.
   a. ‘Years’ has been added as the unit