PEER REVIEW HISTORY

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ARTICLE DETAILS

TITLE (PROVISIONAL)	Effectiveness of pre-anaesthetic assessment clinic: A systematic review of randomised and non-randomised prospective controlled studies
AUTHORS	Kristoffersen, Eirunn; Opsal, Anne; Tveit, Tor; Berg, Rigmor C; Fossum, Mariann

VERSION 1 – REVIEW

REVIEWER	Leonardsen, Ann- Chatrin Østfold University College
REVIEW RETURNED	22-Jul-2021

GENERAL COMMENTS	Review of manuscript: The effect of pre-anaesthetic assessment clinic: a systematic review of randomised and non-randomised prospective controlled studies Thank you for the opportunity to review this interesting manuscript. Here are my comments: Abstract: I can not see how databases could be systematically searched from 1996 to 2021? With five authors, I can not see why the screening and synthesis process was conducted and checked by two and two authors only? Were this the same two authors? I think this should be specified. What do the authors mean by that "Seven prospective controlled studies were conducted"? Can the results be trusted when all of the studies had a high risk of bias? Moreover, I do not think the abstract mirrors the research/review questions on line 116? Introduction: I can not see the relevance of including historical information (from 1949, or "over the past 50 years")? Many sentences are very long, and should be shortened. I think the introduction should be more specific regarding what is done in a PAC, whether the PAC is an international phenomenon, and when the patients attend the PAC before the day of surgery. I think this differs a lot between loactions? The end of the introduction section overlaps with the start of the methods section. Methods: I would like an overview of search words in the text. I wonder if "effectiveness" (as in inclusion criterion) are similar to "effect on" in the review aims? I think the PRISMA flow chart should include information about which database the articles were found in. I think it should be clearer to the reader whether all authors took part in the screening and synthesis process?

	Results: The authors state that “The QoR measure is the patients' health-related quality of life”. This is not correct- the quality of recovery tool measures recovery and not health related quality of life? And only one study included “satisfaction” and “mortality” respectively, as outcome? Two of the studies including anxiety had small sample sizes. How do the “cost and willingness to pay” relate to a PAC assessment? How can a PAC lead du reduced costs? (without measuring cancellation rate e.g.) Discussion: due to the low quality/high risk of bias of articles identified, and also small sample sizes, studies conducted on various diagnoses and in various countries with very different healthcare service organization I am not convinced that the discussion of concrete results from single studies is appropriate. I think the main finding of the literature search may be that studies are missing, not the actual findings of the studies identified? This also goes for the conclusion: I do not think the authors can conclude on such weak basis. I think the authors have conducted an interesting review. However, I am not sure whether the results and conclusion can stand as they now do, because the studies are old, have high risk of bias, and are heterogeneous.

REVIEWER	Karim, Habib All India Institute of Medical Sciences, Anaesthesiology and Critical Care None. Although I am mostly working in the area of preoperative assessment and optimization, I do not have any connection to the manuscript, nor, I suggest citing any of my articles.
REVIEW RETURNED	03-Nov-2021

GENERAL COMMENTS	Greetings I read your manuscript with interest. Your manuscript addresses a very pertinent question, the methodology followed is good, study inclusion criteria are robust and presented nicely. The language and grammar are also excellent in my opinion. While I do not have any major issues while accepting the conclusion drawn, I would like to draw your attention to a fact which probably is better to address in the discussion section. While PAC reduces the number of tests and visits to the hospital is acceptable, it is crucial to comply with the protocolized PAC where an evidence-based practice (guided by different guidelines) is followed. There are instances where PAC is existent but the number of unnecessary tests done is still high as these guidelines are not followed. Most of the time, the surgeon already asks for a battery of laboratory tests in the name of ‘routine preoperative testing' making the value of PAC to reduce the number of tests futile. Therefore, it is essential to follow a protocol (which can be individualized based on the evidence and local law), and both the surgeon and anesthesiologists need to adhere with it. Please refer to the https://dx.doi.org/10.4103%2F0019-5049.187783 and https://discoveriesjournals.org/discoveries/D.2021.02.OA-Karim.pdf (Please note- both the studies are done by me, and please feel free to take your own decision whether to include in discussion / cite or not; I would rather say, please cite alternatives).

	Best of luck

VERSION 1 – AUTHOR RESPONSE

Reviewer 1:
Thank you for the opportunity to review this interesting manuscript.
Abstract
4. I can not see how databases could be systematically searched from 1996 to 2021?
Answer:
4. We agree and have included the full search strategy (1996 to 2021) with all the included databases from 2018, 2020, and 2021 as Attachment 1.
Reviewer 1:
5. With five authors, I can not see why the screening and synthesis process was conducted and checked by two and two authors only? Were this the same two authors? I think this should be specified.
Answer:
5. We agree that the text is unclear and have revised the text page 2, 6, and 7.
Reviewer 1:
6. What do the authors mean by that "Seven prospective controlled studies were conducted"?
Answer:
6. Thank you for noticing this typo, and we have corrected the text, page 2.
Reviewer 1:
7. Can the results be trusted when all of the studies had a high risk of bias?
Answer:
7. Thank you for the comment. We agree and have revised the abstract, page 2.
Reviewer 1:
8. I do not think the abstract mirrors the research/review questions on line 116?
Answer:
8. Thank you for your comment. The research questions are changed on page 5.
Reviewer 1:
Introduction
9.I can not see the relevance of including historical information (from 1949, or "over the past 50 years")?
Answer:
9. We agree and the sentence is deleted.
Reviewer 1:
10. Many sentences are very long, and should be shortened.
Answer:
10. Thank you for your comment. The manuscript is reviewed by a professional language editor.
Reviewer 1:
11. I think the introduction should be more specific regarding what is done in a PAC, whether the PAC is an international phenomenon, and when the patients attend the PAC before the day of surgery. I think this differs a lot between loactions?
Answer:
11. We agree and have revised this section and included a new reference: Gupta A, Gupta N. Setting up and functioning of a preanaesthetic clinic, 2010, page 4.
Reviewer 1:
12. The end of the introduction section overlaps with the start of the methods section.
Answer:
12. We agree and have deleted the last sentence in the introduction section. In addition, we have moved the first sentence in the methods section to the introduction section.
Reviewer 1:
Methods
13. I would like an overview of search words in the text.
Answer:
13. Search words have been added in the text, page 5.
Reviewer 1:

14. I wonder if "effectiveness" (as in inclusion criterion) are similar to "effect on" in the review aims?
Answer:
14. We agree and have changed the review questions, page 5.
Reviewer 1:
15. I think the PRISMA flow chart should include information about which database the articles were found in.
Answer:
15. We apologize that we had uploaded the old PRISMA Flow Diagram. The updated PRISMA Flow Diagram is uploaded.
Reviewer 1:
16. I think it should be clearer to the reader whether all authors took part in the screening and synthesis process?
Answer:
16. We agree, and have described who did what in the study selection, quality assessment, data extraction, and analysis, page 6 and 7.
Reviewer 1:
Results
17. The authors state that "The QoR measure is the patients' health-related quality of life". This is not correct- the quality of recovery tool measures recovery and not health related quality of life.
Answer:
17. We agree and have changed this text, page 13.
Reviewer 1:
18. And only one study included "satisfaction" and "mortality" respectively, as outcome?
Answer:
18. Yes, only one study included «satisfaction» (Lee,2012), and "mortality" as an outcome (Kamal, 2011).
Reviewer 1:
19. Two of the studies including anxiety had small sample sizes.
Answer:
19. Yes, both Kamau, 2017 (n=51) and Klopfenstein, 2000 (n=40) had small sample sizes.
Reviewer 1:
20. How do the "cost and willingness to pay" relate to a PAC assessment? How can a PAC lead to reduced costs? (without measuring cancellation rate e.g.)
Answer:
20. Thank you for pointing out this important question. Measuring cost will only be calculated based on measures of cancellation rate or length of stay, cancellation rate, and/or reduced number of tests. "Is PAC effective in reducing cancellation rate, cost, and improving efficiency?" was one of the review questions. However, only one study included calculated costs.
Reviewer 1:
Discussion
21. Due to the low quality/high risk of bias of articles identified, and also small sample sizes, studies conducted on various diagnoses and in various countries with very different healthcare service organization I am not convined that the discussion of concreate results from single studies is appropriate.
Answer:
21. We agree and have changed the text in the discussion and the conclusion to highlight the main findings of this systematic review. The effectiveness of PAC is unclear, and more research is needed.
Reviewer 1:
22. I think the main finding of the literature search may be that studies are missing, not the actual findings of the studies identified?
Answer:
22. We understand that this search strategy is unclear in the manuscript and have included search words in the text (page 5) and Appendix 1 with the searches.
Reviewer 1:
Conclusion
23. This also goes for the conclusion: I do not think the authors can conclude on such weak basis.
Answer:
23. We agree, and have modified the conclusion, page 20.
Reviewer 2:
I read your manuscript with interest. Your manuscript addresses a very pertinent question, the

methodology followed is good, study inclusion criteria are robust and presented nicely. The language and grammar are also excellent in my opinion. While I do not have any major issues while accepting the conclusion drawn, I would like to draw your attention to a fact which probably is better to address in the discussion section.
24. While PAC reduces the number of tests and visits to the hospital is acceptable, it is crucial to comply with the protocolized PAC where an evidence-based practice (guided by different guidelines) is followed. There are instances where PAC is existent but the number of unnecessary tests done is still high as these guidelines are not followed. Most of the time, the surgeon already asks for a battery of laboratory tests in the name of 'routine preoperative testing' making the value of PAC to reduce the number of tests futile. Therefore, it is essential to follow a protocol (which can be individualized based on the evidence and local law), and both the surgeon and anesthesiologists need to adhere with it. Please refer to the https://dx.doi.org/10.4103%2F0019-5049.187783 and https://discoveriesjournals.org/discoveries/D.2021.02.OA-Karim.pdf (Please note- both the studies are done by me, and please feel free to take your own decision whether to include in discussion / cite or not; I would rather say, please cite alternatives).
Answer:
24. You have raised an important question in the anaesthesia field and we have read your articles with great interest. We have used your expertise in the manuscript and have discussed the topic in relation to PAC, page 17 and 18.

VERSION 2 – REVIEW

REVIEWER	Leonardsen, Ann- Chatrin Østfold University College
REVIEW RETURNED	09-Dec-2021

GENERAL COMMENTS	Review of manuscript Thank you for the opportunity to review this paper once more. Initial comments The manuscript needs to be proof-read, due to several semantic errors throughout the manuscript. Abstract Data sources: The data search period should be the time-frame for the search, not the inclusion criteria for articles published within a time periode. Eligibility criteria: these should include the actual inclusion criteria, not the aim of the review Introduction The introduction gives an overview of the thematic area. However, is it possible to replace some of the old references (e.g. no 6, from 2000) with more updated references? Methods Information about the analysis process is lacking. How was the narrative analysis conducted? Results I suggest re-structuring the presentation, including information about

	participants, gender, age, and surgical procedure first, then intervention, and outcomes? Discussion I suggest to re-structure the discussion section according to the structure of the research questions 1-2 and the results section. I also suggest to re-structure sections, starting with review findings first- then discussion/comparison to existing research/theory?

VERSION 2 – AUTHOR RESPONSE

Reviewer Comments	**Answers to reviewer questions and changes in the manuscript**
Reviewer: 1 Thank you for the opportunity to review this paper once more.	
1. Initial comments The manuscript needs to be proof-read, due to several semantic errors throughout the manuscript.	1. Thank you for your comment. The manuscript is proof- read once more by a professional language editor from www.editage.com and revised in accordance with the suggested changes.
1. Abstract Data sources: The data search period should be the time-frame for the search, not the inclusion criteria for articles published within a time periode.	1. We agree and have changed the following sentence in the abstract: The electronic databases CINAHL Plus with Full Text (EBSCOhost), Medline, and Embase (OvidSP) were systematically searched on 11 September 2018 and updated on 3 February 2020 and 4 February 2021.
1. Eligibility criteria: these should include the actual inclusion criteria, not the aim of the review	**1.** Thank you! We found your comment helpful and have revised the eligibility criteria in the abstract accordingly: **Eligibility criteria:** The inclusion criteria for this study were studies published in English or Scandinavian language and scientific original research that included

	randomised or non-randomised prospective controlled studies. Additionally, studies that reported the outcomes from a PAC consultation with the patient present were included.
1. Introduction The introduction gives an overview of the thematic area. However, is it possible to replace some of the old references (e.g. no 6, from 2000) with more updated references?	1. We agree that som of the references re old. We have changed five references and have deleted one. Old reference [6]: Kluger MT, Tham EJ, Coleman NA, et al. Inadequate pre [7] operative evaluation and preparation: a review of 197 reports from the Australian Incident Monitoring Study. *Anaesthesia* 2000;**55**:1173–78. doi: 10.1046/j.1365-2044.2000.01725.x. New reference [6]: Herman AD, Jaruzel CB, Lawton S, et al. Morbidity, mortality, and systems safety in non-operating room anaesthesia: a narrative review. *Br J Anaesth* 2021;**127**:729-44. doi: 10.1016/j.bja.2021.07.007 Old reference [7] : Hove LD, Steinmetz J, Christoffersen JK, et al. Analysis of deaths related to anesthesia in the period 1996–2004 from closed claims registered by the Danish Patient Insurance Association. *Anesthesiology* 2007;**106**:675–80. doi: 10.1097/01.anes.0000264749.86145.e5 [Published online first: 2007/04/07]. New Reference [7]: Whitlock EL, Feiner JR, Chen LL. Perioperative mortality, 2010 to 2014: a retrospective cohort study using the National anesthesia clinical outcomes registry. Anesthesiology 2015; 123: 1312-21 PubMed . doi: 10.1097/ALN.0000000000000882 Page 17 in discussion section: A narrative review found higher rates of morbidity and mortality in non-operating room anaesthesia and one main reason were associated with limited preoperative evaluation. [7] Old reference [8]: De Hert S, Imberger G, Carlisle J, et al. Preoperative

	evaluation of the adult patient undergoing non-cardiac surgery: guidelines from the European Society of Anaesthesiology. *Eur J Anaesthesiol* 2011;**28**:684–722. doi: 10.1097/EJA.0b013e3283499e3b. New reference [8]: De Hert S, Staender S, Fritsch G, et al. Pre-operative evaluation of adults undergoing elective noncardiac surgery: Updated guideline from the European Society of Anaesthesiology. *Eur J Anaesthesiol,* 2018;35:407-65. doi: 10.1097/EJA.0000000000000817 Old reference [13]: Schmiesing CA, Brodsky JB. The preoperative anesthesia evaluation. *Thorac Surg Clin* 2005;**15**:305–15. doi: 10.1016/j.thorsurg.2005.02.006. New reference [12]: Goldenberg E, Saffary R, Schmiesing C. New role for the anesthesia preoperative clinic: helping to ensure that surgery is the right choice for patients with serious illness. *Anesth Analg 2019;***129**:311-15. doi: 10.1213/ANE.0000000000004178 Old reference [14]: Lew E, Pavlin DJ, Amundsen L. Outpatient preanaesthesia evaluation clinics. *Singapore Med J* 2004;**45**:509–16. New reference [13]: Emanuel A., Macpherson R. The anaesthetic pre-admission clinic is effective in minimising surgical cancellation rates. *Anaesth Intensive Care* 2013;**41**:90-4. doi: 10.1177/0310057X1304100115 This reference has been deleted: [51] Power LM, Thackray NM. Reduction of preoperative investigations with the introduction of an anaesthetist-led preoperative assessment clinic. *Anaesth Intensive Care* 1999;**27**:481–8. doi: 10.1177/0310057X9902700508 [Published online first: 1999/10/16].
1. Methods Information about the analysis process is lacking. How was the narrative analysis	

conducted? 1. Results I suggest re-structuring the presentation, including information about participants, gender, age, and surgical procedure first, then intervention, and outcomes? 1. Discussion I suggest to re-structure the discussion section according to the structure of the research questions 1-2 and the results section. 1. I also suggest to re-structure sections, starting with review findings first- then discussion/comparison to existing research/theory?	1. We understand that this might be unclear and have changed the text and added one reference. 1. We agree, and have moved the paragraph on page 11 to page 12. 1. Thank you for your comment. We agree and have re- structured the discussion as you proposed on page 16, 17 and 18. 1. We agree and have added the following sentence page 16: Seven studies met the inclusion criteria, and the main findings were reduction in the length of stay and surgery cancellation rate in hospitals. However, the studies were of low quality, making it difficult to draw any conclusion.