Reviewer's report

Title: Quality indicators in continuous renal replacement therapy (CRRT) care in critically ill patients: protocol for a systematic review

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Reviewer: Jenny Doust

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This paper is a protocol to review quality indicators for continuous renal replacement therapy used in critically ill patients. The authors outline clearly the importance of CRRT and the variation in practice that may be contributing to variation in health outcomes.

The quality indicators will be grouped using the Donabedian framework of structure, process and outcome. This would seem an appropriate initial step. The review will assess each quality indicator using a recognised framework covering the four measures of importance, scientific acceptability, usability and feasibility.

Major compulsory revisions

The authors list 9 themes that will be used to group the various quality indicators that might be used for CRRT. The breadth of these themes means that the review will cover a very extensive list of potential interventions in the review. It is difficult to see how many of these themes would relate to the quality of CRRT. For example, the authors list high versus low dose prescription of drugs as a quality indicator. The current protocol does not explain how this would indicate the quality of the CRRT. The same criticism applies to each of the themes and all of the potential quality indicators within each theme.

The main weakness of the protocol as written is the lack of an outline on how the quality indicators will be assessed for their impact on clinical outcomes, for example survival of the patient and reduction of complications. The protocol states that “Scientific acceptability will assess how plausible each QI measures respective outcomes”. The lack of a method to assess the impact of the quality indicators on outcomes of significance to patients needs to be rectified. The types of outcomes that will be assessed needs to be considered and discussed.

The inclusion/exclusion criteria are not well outlined as several of the outcomes (eg feasibility) being considered would not necessarily be studied in the type of intervention studies outlined, and are more likely to be studied in qualitative or mixed methods studies. On the other hand, using case-control studies and case series data to assess the effectiveness of the indicators is likely to result in a high risk of bias.

The authors do not report how they will assess the risk of bias of the studies to be included in the review or how quantitative results will be combined where available.
Minor essential revisions
The search appears well considered and appropriate. However, the limiting of studies to particular languages is a potential bias of the review.

**Level of interest:** An article whose findings are important to those with closely related research interests

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

**Statistical review:** No, the manuscript does not need to be seen by a statistician.

**Declaration of competing interests:**
No competing interests