Reviewer’s report

Title: Determinants and outcomes of Access-Related Blood-Stream Infections among Irish Haemodialysis Patients; A Cohort Study

Version: 0 Date: 29 Oct 2018

Reviewer: Mark Marshall

Reviewer’s report:

This is a carefully-done quality improvement project that carries a simple and poignant insight. I think it is well-deserving to be in the literature, although I have a few suggestions that may add value to the study.

1) I am always very concerned about comparisons between AVFs and CVCs, since the patients (or their doctors) are so fundamentally different. Irrespective of the balanced appearance of the Table 1 in this cohort, this is likely to be true for this study as well. Is it possible to do a sensitivity analysis in a restricted group whose characteristics maybe more balanced, such as those patients who might be listed / accepted for a DDKT, or those who are on self-care or home HD?

2) Was there any effect modification by whether patients were incident or prevalent, or whether these were first or second or third catheters? Can you please split this out and do an interaction or subgroup analysis if you have the data?

3) Right at the start of the CVC conundrum, Maki etc showed that CABSI rates are much higher as time goes on - CABSI rates are time dependent. Firstly, what is the average duration over which patients utilize catheters in your study? How does this compare to the general landscape in the literature? Secondly, did you test for effect modification by catheter vintage? Is there a safe / honeymoon period of a few weeks for a new CVC, only after which things get hairy? I appreciate power of this analysis will be low in your study, but this is an important question. Honestly, we all know that catheters are unavoidable in many patients, particularly incident ones, and the only recourse in not really to avoid them but to minimize the duration of exposure.

4) I might have missed it, but I think some description of AVF site is important (BC / RC/ BB / thigh etc).

5) I think the definition of CRBSI in the study is fine, but it should be acknowledged that it does not include sampling from a peripheral vein (as recommended by the Centres of Disease Control and Prevention). As I say, this is fine and not a deal-breaker, and your definition is certainly more pragmatic than that of the CDC. However, this difference should be stated. You might want to quote Pelletier et al from 2016 who showed the peripheral culture adds little to sensitivity and specificity of the CVC drawn culture.

6) I don't understand what the Fem is in table 1 and 2. Is this a percent?
7) Is IV drug abuse a big thing in Ireland?

8) Finally, I am always concerned in studies that use rates that a small number of patients with frequent occurrences may be driving the comparison. Could you please do some sort of frequency table or graphic to determine whether there were some hyper-offenders in the CVC group that might be leading to an exaggeration of risk? If you do identify any of these folks, could you please do a sensitivity analysis and leave them out, and see if the conclusion as it stands is still robust?

**Are the methods appropriate and well described?**
If not, please specify what is required in your comments to the authors.

Yes

**Does the work include the necessary controls?**
If not, please specify which controls are required in your comments to the authors.

Yes

**Are the conclusions drawn adequately supported by the data shown?**
If not, please explain in your comments to the authors.

Yes

**Are you able to assess any statistics in the manuscript or would you recommend an additional statistical review?**
If an additional statistical review is recommended, please specify what aspects require further assessment in your comments to the editors.

I am able to assess the statistics

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