Reviewer’s report

Title: Outcomes of Aortic Aneurysm Surgery in England: A nationwide cohort study using Hospital Admissions Data from 2002 to 2015

Version: 0 Date: 05 Oct 2018

Reviewer: Reviewer 2

Reviewer's report:

PEER REVIEWER COMMENTS: To view the full report from the academic peer reviewer, please see the attached file.

REVIEWER COMMENTS FROM REPORT: This is a manuscript of interest mainly to the small group of British researchers interested in abdominal aortic aneurysm and some of the background and terminology used may not be universally understood. The work has been conducted thoroughly and in great detail but perhaps with more detail than is merited by the data. Therefore some of the approaches used appear to result in erroneous results. The work also covers the period 2002-2015, a period during which there have been many changes in the management of this disease and, the configuration of vascular care in the quality of coding and hence the data. Therefore it seems as though, at minimum, the study should compare results from 2002-8 and 2009-2015.

REQUESTED REVISIONS:

1 The authors have attempted to split the data into elective and emergency admissions (cases), infrarenal cases and complex cases, but this may be too reductionist. It does not consider urgent admissions (eg for very large aneurysms or symptomatic aneurysms) or the fact that open repairs may use suprarenal clamping for juxtarenal aneurysms but if this same aneurysm was subject to endovascular repair it would classified as complex. Such clinical issues need to acknowledged and discussed in the circumstances where the authors find the current data to cross their classification lines.

2 The recording and accuracy of data may have changed over the time period under study, so that the authors advice and conclusions may not be applicable to future studies. This should be discussed and assessed by splitting the data into two time periods, early and late, to identify whether the same issues are found and methods should apply to more recent and future data. Then it would be relevant to report 30-day mortality in each of the 2 time periods.

3 The methods used to assess which procedures were endovascular before specific codes for EVAR were introduced have underestimated the number of procedures, at least for 2002-4, when the EVAR trials were still recruiting. This simple cross check has been ignored. It also is very
unlikely that in these early years, 20% of EVAR procedures were for ruptures. It is these reasons which make me suspect that you have over-interpreted only fair quality data for procedure coding. Please check and comment.

4 What lessons can be learned for researchers in other countries using administrative data-bases, such as the German or Australian or Medicare USA administrative data. A section on this topic would make the manuscript much more generalisable and valuable.

ADDITIONAL REQUESTS/SUGGESTIONS:

Some better explanation about English NHS vascular services and their changes in configuration would be helpful, together with definitions of terms such as consultant.

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

No

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

No

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

No

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.

Not relevant to this manuscript

Quality of written English
Please indicate the quality of language in the manuscript:

Needs some language corrections before being published
Declaration of competing interests
Please complete a declaration of competing interests, considering the following questions:

1. Have you in the past five years received reimbursements, fees, funding, or salary from an organisation that may in any way gain or lose financially from the publication of this manuscript, either now or in the future?

2. Do you hold any stocks or shares in an organisation that may in any way gain or lose financially from the publication of this manuscript, either now or in the future?

3. Do you hold or are you currently applying for any patents relating to the content of the manuscript?

4. Have you received reimbursements, fees, funding, or salary from an organization that holds or has applied for patents relating to the content of the manuscript?

5. Do you have any other financial competing interests?

6. Do you have any non-financial competing interests in relation to this paper?

If you can answer no to all of the above, write 'I declare that I have no competing interests' below. If your reply is yes to any, please give details below.

This reviewer has been recruited by a partner organization, Research Square. Reviewers with declared or apparent competing interests are not utilized for these reviews. This reviewer has agreed to publication of their comments online under a Creative Commons Attribution License attributed to Research Square and was paid a small honorarium for completing the review within a specified timeframe. Honoraria for reviews such as this are paid regardless of the reviewer recommendation.

I agree to the open peer review policy of the journal. I understand that my name will be included on my report to the authors and, if the manuscript is accepted for publication, my named report including any attachments I upload will be posted on the website along with the authors' responses. I agree for my report to be made available under an Open Access Creative Commons CC-BY license (http://creativecommons.org/licenses/by/4.0/). I understand that any comments which I do not wish to be included in my named report can be included as confidential comments to the editors, which will not be published.

I agree to the open peer review policy of the journal

Do you want to get recognition for reviewing this manuscript?

Add a record of this review to Publons to track and showcase your reviewing expertise across the world’s journals. Signing up is quick, easy and free!

No