Reviewer's report

Title: Factors affecting aseptic loosening of 4750 total hip arthroplasties: multivariate survival analysis.

Version: 2 Date: 2 May 2007

Reviewer: Andrew Roddam

Reviewer's report:

General

This revised manuscript is much improved from the first version but I still have some relatively minor comments/suggestions.

Major Compulsory Revisions (that the author must respond to before a decision on publication can be reached)

1. With regard to the response to the comments of the other referee and to satisfy some issues that I have with the analysis it is important that the authors present some information on the relationship between type of stem/cup used and possible indications for use – such as age, hip score, surgeon experience etc. The arguments presented that the Cox model controls for all of these inter-relationships are not true – if it were the case that there were strong correlations between the various explanatory variables then parameter estimates could be biased. I would suggest that the authors include either as a table or in the text a summary of the other confounding variables by type of cup and stem implanted (similar to table 1 but split by type of implant).

2. In a number of the analyses the chosen reference group for comparison is often that with very low numbers of cases and controls making it somewhat unstable for the comparisons – see for example age and type of cup. For these two groups I would strongly suggest choosing a different reference group (40-69 for age and press fit for type of cup).

3. As very few people have a Charnley’s hip score Class C I would suggest merging Class B and Class C and form a single group.

4. The authors present some results a p-trend when it is very unclear why a trend would be appropriate. For example for type of cup are the authors looking for a trend with cost? In this case it would be more statistically reliable to quote an overall p-heterogeneity which would say whether or not including the relevant variable into the model improved model fit.

5. The authors might consider the use of floated confidence intervals particularly for the effects of type of cup and type of stem. Such an analysis/presentation would allow the authors the ability to directly compare any two types and be able to say for example that press fit polythene was (or was not) different from press fit ceramic.

6. Although the authors have added a sentence explaining about those patients who suffered both a cup and stem failure simultaneously they have not been treated any differently in the analysis. I would have thought that they would represent a group of patients for whom a separate analysis/description would be merited in the text as they might have characteristics different from those patients who suffer just a stem or a cup failure?

Minor Essential Revisions (such as missing labels on figures, or the wrong use of a term, which the author can be trusted to correct)

1. In the tables can the authors state what the adjusted column is adjusted for – i.e. mutually adjusted for all variables.

Discretionary Revisions (which the author can choose to ignore)

What next?: Unable to decide on acceptance or rejection until the authors have responded to the major compulsory revisions
**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:**

'I declare that I have no competing interests'