Reviewer’s report

Title: Prevalence and risk factors for periprosthetic fracture in older recipients of total hip replacement: A cohort study

Version: 1 Date: 26 February 2014

Reviewer: Gillian Hawker

Reviewer’s report:

This is a well-written and straight-forward paper that summarizes findings from follow-up of Medicare-eligible hip replacement recipients at 10 years with respect to risk for peri-prosthetic fracture. Low rates of peri-prosthetic fracture are identified among surviving THR recipients.

Major Compulsory Revisions:

In the introduction, it would be helpful to provide more justification for the need to evaluate peri-prosthetic fractures 10 years following an index hip replacement. The point is made that this is perhaps the least well studied complication, but perhaps this is justified by the low incidence rate? In any case, further evidence of the importance of this complication would help to cement the importance of this work.

As noted by the authors, the analyses are limited by the inability to examine peri-prosthetic fractures that occurred before 2006 (due to lack of a specific code). While the authors have controlled for receipt of a post-index THR hip or knee replacement procedure during follow-up, it would be helpful to have controlled separately for receipt of hip and knee replacement procedures separately, and among hips and knees, primary and revision procedures. Specifically, what proportion of the index THRs received a revision hip replacement before the 2006 follow-up date? If these were due to peri-prosthetic fracture, how might this affect results? Knowing the reasons for these earlier revisions would be helpful. Also, providing greater detail regarding these interceding hips and knees might help to elucidate some potential explanations for the documented relationship between post-index THR receipt of additional joint replacements to risk for peri-prosthetic fracture? Finally, in the same vein, to what extent might the fracture have been on the side of a post-index THR hip replacement rather than of the index hip? I recognize that your sample of fracture patients is small, which may limit power, but these additions would be helpful.

The comparison of resource use of those who experienced a periprosthetic fracture versus those that did not is interesting, but does not appear to have taken other factors that would predict health resource use into account. Could you comment on adjustment for factors beyond age and sex, such as comorbidity?

The comment is made that there did not appear to be a relationship with typical
risk factors for osteoporosis, OP, yet given the age of the sample, one might expect most of the sample to have low bone mass. Were any other OP-related variables examined, such as history of a fragility fracture or bisphosphonate use?

Minor essentional revisions - none

Discretionary revisions - none

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

Quality of written English: Acceptable

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