Reviewer's report

Title: Tibia shaft fractures: costly burden of nonunions

Version: 2 Date: 4 September 2012

Reviewer: Glinda Cooper

Reviewer's report:

Major Compulsory Revision

Table 1 shows a much higher rate of second fractures among patients with nonunion fractures, but this point was not mentioned when describing the comparison of nonunion and union patients, nor was it addressed in the analysis or discussion. (The data are included in “Figure 3”, but Figure 3 is not referred to in the paper). This is a major oversight that needs to be corrected in a revision, and could have a big impact on the interpretation and use of the results. How much of the difference in costs (or strong opioid use) is mediated through this difference in secondary fractures? Could this be an important, and easily recognized, indicator of severity/risk of nonunion?

Other Issues to Address

The authors interpretation of Figure 2 is not actually describing what Figure 2 represents. The age distribution of fractures in a population (e.g., in men) reflects the rate of fractures at a given age and the underlying age distribution of the population. That is, if you have a relatively young population, you're going to see more fractures at young ages than if the same age-specific rates are applied to an older population – the higher proportion of fractures in older women compared with older men may reflect, in part, a greater proportion of women living to older ages. You need to present the prevalence rates by age if you want to make comments about the age-pattern in the rates. Also, the last sentence in the paragraph describing “Tibia fracture patient characteristics: age and sex” is not accurate- the p-value (0.50) is for a comparison of union vs nonunion fractures by sex, NOT for a comparison of prevalence of tibia shaft fractures by sex. It would be better to replace Figure 2 with a more accurate description of the data that is in Table 1.

It would be more informative to present the comparison between nonunion and union status in relation to other variables, such as open or closed fractures, by reporting the odds ratio and 95% confidence intervals rather than a p-value.

Introduction - can you define and/or give references for "a clinically reasonable time period" (with respect to healing failure that would lead to secondary surgical intervention)

Last paragraph of Results section is not needed.
Figure 1 is not needed. Table 4 can be reformatted – mean, SD and median do not need to be on 3 separate lines.

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

**Quality of written English:** Acceptable

**Statistical review:** Yes, and I have assessed the statistics in my report.

**Declaration of competing interests:**

I declare that I have no competing interests.