Reviewer's report

Title: Which is the best method of sterilization for recycled bone autograft in limb salvage surgery: A radiological, biomechanical and histopathological study in rabbit.

Version: 3
Date: 6 October 2014

Reviewer: Robert Ashford

Reviewer's report:

The authors compare 3 different bone sterilisation techniques
There are a number of issues that need addressing before the article is publishable

Major Compulsory Revisions

Line 97 - "dramatic improvement" - since when?
Line 114 - why is it appealing?
Line 116 - major work on ECI has come out of Australia too - this should be acknowledged
Line 123 - Hong paper (http://www.ncbi.nlm.nih.gov/pubmed/11380232) should be referenced
Line 124 - microwave and liquid nitrogen need references
Line 184-187 - are these durations and doses applicable to rabbit bone? How was this decided upon

The key thing for me is the high distal osteotomy non union rate
1/6 - untreated
4/6 - pasteurised
1/6 - irradiation
1/6 - autoclaving

It is not clear if there is a difference at the distal osteotomy site on the semi-quantitative system - this would be good to include
Similarly more needs to be made of the distal non-unions

Conservation of the periosteum is an important difference to tumour reconstructions as are the other factors listed 392-406. This almost certainly makes the study less applicable in humans - more needs to be made of this

The relevance of the last 2 paragraphs of the discussion is not clear - they should be tailored to this paper

The conclusion is missing the authors thoughts on autoclaving
Minor Essential Revisions

Line 90 - add "in the majority of cases" - there is still an amputation rate of about 8% 
Line 195 - Kombitrim is an antibiotic I am not familiar with - it should be listed by ingredient

Discretionary 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