Reviewer's report

Title: Clinical identification of bacteria in human chronic wound infections: culturing vs. deep 16S ribosomal DNA sequencing

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Reviewer: Claire Jenkins

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Medical microbiologists have relied on culture of microorganisms to inform patient care with respect to diagnosis of infection and treatment for over a century. More recently molecular techniques, including 16S rRNA sequencing, have provided new insights into the complex microbiota associated with infection. The aim of this study was to compare culture and molecular testing of chronic wound infections.

The methods described in this study are clear and reproducible. They demonstrate (i) a close interaction between microbiologists performing traditional culture techniques and molecular microbiologists, (ii) a well-designed study plan and (iii) good statistical analysis.

Comparing results of culture with molecular methods is difficult because the two approaches are so different. However, the authors’ presentation of their results is comprehensible and unambiguous. The 16S data clearly shows how often obligate anaerobes, an important component of wound infections, are missed during routine culture. The authors raise some interesting issues that may have an impact on patient care and antimicrobial treatment regimes, such as the role of bacteria present in the wound at low-levels and the interactions between bacteria in a polymicrobial community. They also discuss the significance of “culture bias”, where robust bacteria may be selected for above the more fastidious genera.

This is well-designed, well written, thought provoking study addressing important clinical questions on the issues associated with interpreting results from molecular tests and their impact on patient care. Studies such as this represent a novel and valuable contribution to the field.

No major or minor compulsory revisions.

Discretionary revisions
1. The authors might discuss the precautions they took to avoid contamination during the DNA extraction and amplification processes.

Level of interest: An article of importance in its field

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.