



Clinical-Medical Image

Regulatory Standards for Evaluating Preoperative Skin Preparation Efficacy Underestimate Actual Dermal Bioburden in a Porcine Model

Erik Gansevoort*

Department of Orthopaedics, Delft University of Technology, Mekelweg, Netherlands

Brief Report

Regulatory standards for assessing the efficacy of preoperative skin preparation are crucial in minimizing Surgical Site Infections (SSIs). However, current methods may not accurately reflect true dermal bioburden, as demonstrated in a porcine model. These standards typically rely on surface-level microbial reductions without accounting for bacteria residing within deeper dermal layers. This oversight could lead to an underestimation of residual pathogens, potentially compromising patient outcomes. The porcine model, often used for its similarity to human skin, highlights the limitations of conventional testing methods. Preoperative skin preparations are evaluated based on their ability to reduce Colony-Forming Units (CFUs) from the skin's surface. However, bacteria embedded within hair follicles, sebaceous glands, and dermal layers may persist despite surface sterilization. These residual microorganisms pose a risk of recolonization and infection during surgical procedures.

Recent studies utilizing advanced microbiological techniques reveal that standard methods fail to detect a significant proportion of viable bacteria within the dermis. This underreporting raises concerns about the true efficacy of preoperative skin preparations. It also emphasizes the need for more comprehensive evaluation protocols that incorporate assessments of subsurface bacterial populations. By addressing these deeper reservoirs of infection, improved skin preparation techniques could be developed to enhance surgical asepsis [1,2].

The findings underscore the importance of revisiting regulatory standards to align them with real-world clinical scenarios. Incorporating models that account for dermal bioburden into testing protocols could provide a more accurate measure of a product's antimicrobial performance. Such adjustments are essential for improving surgical site preparation and reducing the risk of SSIs. In conclusion, the current standards for determining preoperative skin preparation efficacy fail to fully account for dermal bioburden, highlighting the need for revised evaluation methods that ensure comprehensive microbial reduction.

Keywords: Porcine model; Infection prevention; Antiseptic efficacy

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Conflict of Interest

None.

References

1. Duffy HR, Godfrey RW, Williams DL and Ashton NN (2022). A porcine model for the development and testing of preoperative skin preparations. *Microorganisms* 10(5): 837.
2. Rutala WA and Weber DJ (2019). Guideline for disinfection and sterilization in healthcare facilities, 2008. (2019).

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***Corresponding author:** Erik Gansevoort, Department of Orthopaedics, Delft University of Technology, Mekelweg, Netherlands; E-mail: erikansevoort@do.nl

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