

Not All Antimicrobial Incise Drapes are Created Equal

A drape's barrier and antimicrobial properties are only effective when the drape is securely adhered to the patient's skin. Secure adhesion ensures the barrier and antimicrobial properties are utilized all the way to the wound edge. This same adhesive property can create difficulties in developing test methods for live microbial presence on the skin surface that might correlate with potential for wound contamination. When an incise drape is removed, it takes the top layer of skin with it along with bacteria that are in that layer (Figure 1). Subsequent skin sampling represents bacteria in lower skin layers, not those originally available for possible wound contamination. As a result, test methods that

directly apply the drape to the skin and measure skin flora after removal are very difficult to correlate with real suppression at the skin surface.

A time kill study, an alternative approach, is a common *in-vitro* test method routinely used to measure the rate of kill of a specific type of microbe due to an antimicrobial agent. This method can characterize the specific antimicrobial activity of different drapes relative to each other and known standards. This information allows the surgeon and the surgical team to judge whether the antimicrobial activity of a given drape is sufficient to meet the specific requirements of various procedures and patients.

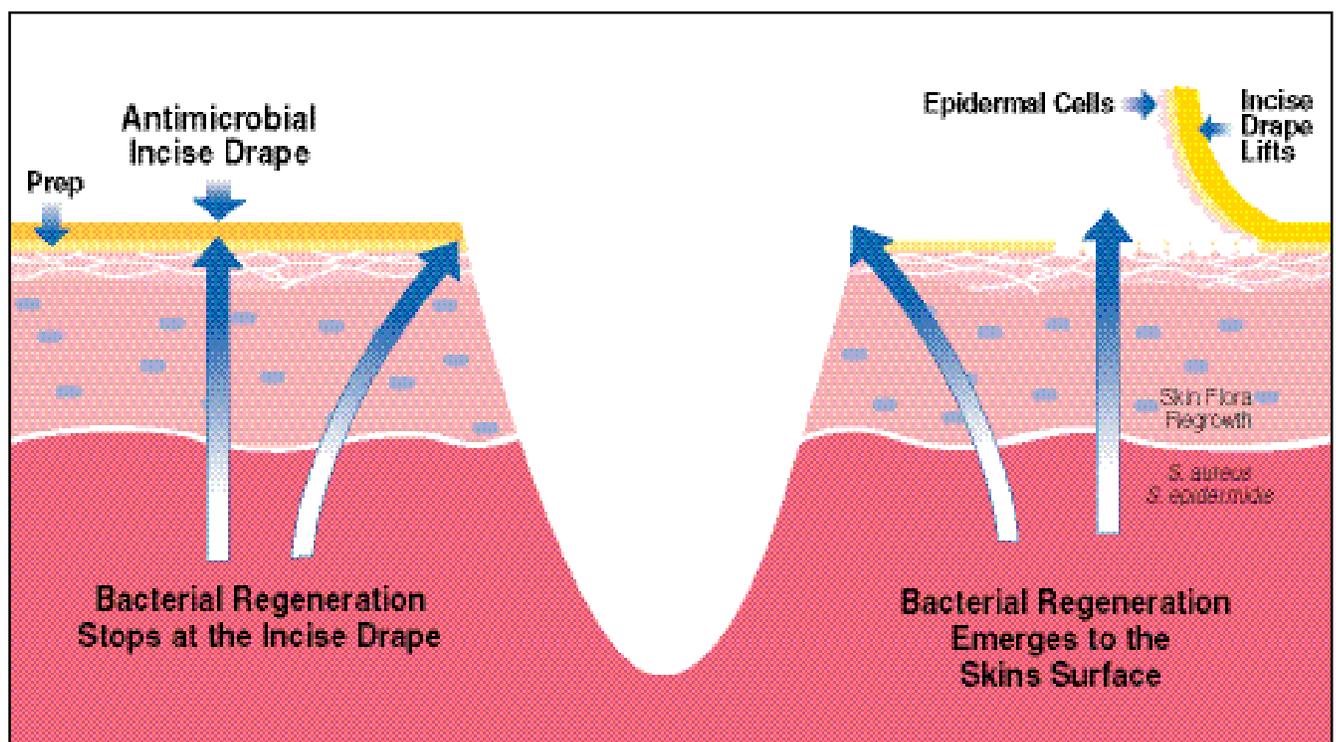


Figure 1. 3M™ Ioban™ Antimicrobial Incise Drapes create a sterile surface and act as a barrier to block skin flora from migrating to the incision.

Procedure:

Three lots consisting of 3M™ Ioban™ 2 Antimicrobial Incise Drapes, Medical Concepts Development (MCD) ACTI-Gard® Antimicrobial Incise Drapes, and 3M™ Steri-Drape™ 2 Incise Drapes (the negative control) were tested against six strains of bacteria by an independent laboratory. Approximately 6 logs/ml of each bacterial strain were suspended in a phosphate buffer. An aliquot of the suspension was pipetted onto the adhesive side of drape samples and incubated for 30, 45, and 90 minutes. Figure 2 shows the average log kill by time for each bacterial strain exposed to the drapes.

Conclusions:

- Ioban 2 incise drape exposure significantly reduces or eliminates all bacterial strains tested.
- As expected, the control, Steri-Drape 2 incise drape, with no added antimicrobial, does not significantly reduce counts of *S. epidermidis*, *S. aureus*, and *E. faecalis*.
- MCD ACTI-Gard shows little reduction of bacterial counts and does not differ significantly from the control with no added antimicrobial (Steri-Drape 2 incise drape).

Microbial Kill by Exposure to Drape range = +/- 2 standard error

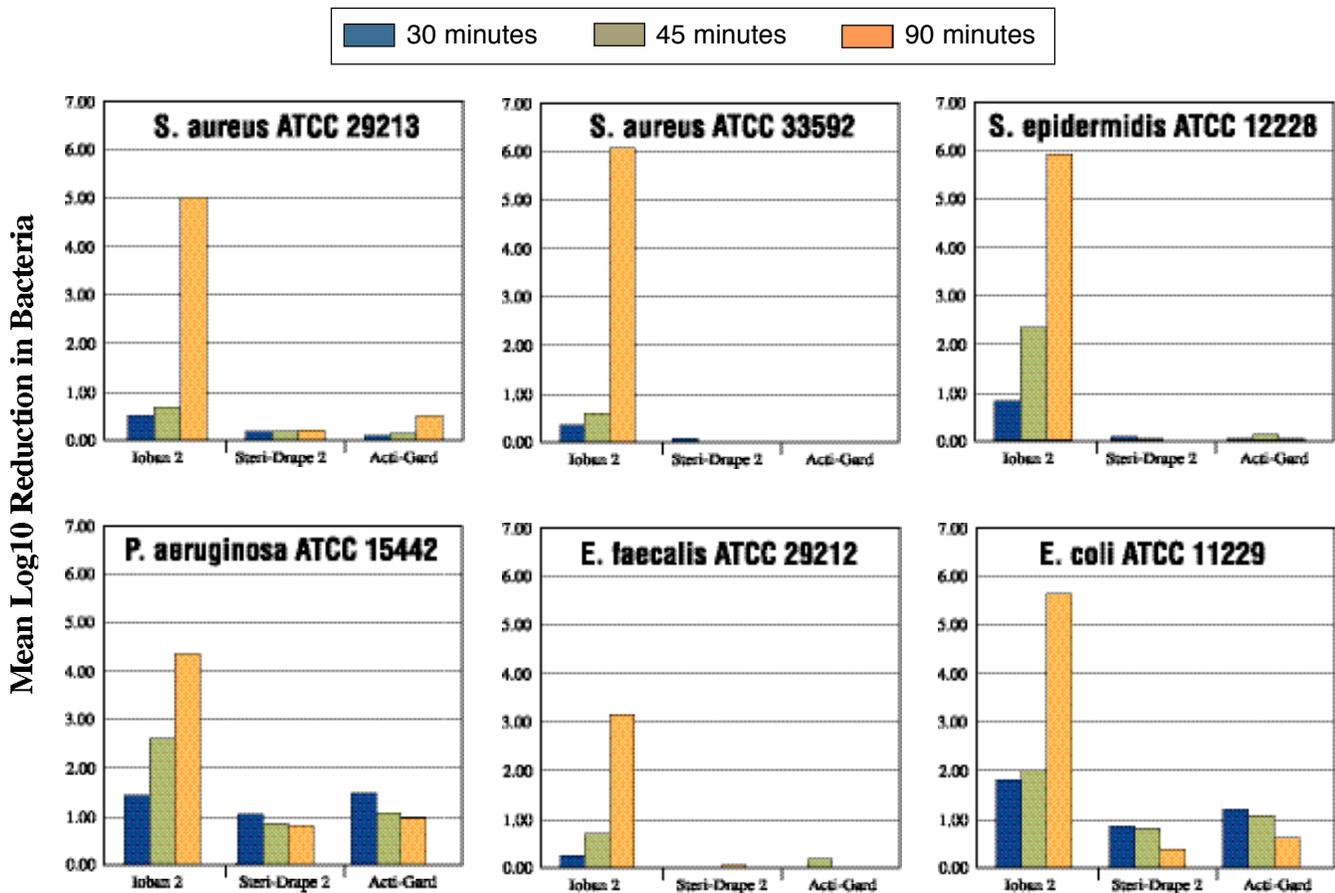


Figure 2.

(Reference: 3M Study No. 12MS 9884, Hill Top Research, Inc. – 2003)



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