3M Science. Applied to Life.™

Clinical evidence summaries

3M™ Ioban™ 2 Antimicrobial Incise Drapes

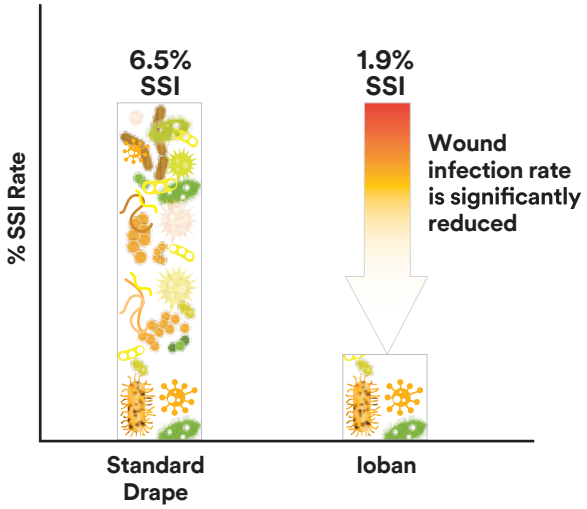
Summary 1

Ioban 2 Antimicrobial Incise Drape is a cost effective intervention associated with a significantly lower incidence of SSI

Bejko J, Tarsia V, Carrozzini M, et al. Comparison of efficacy and cost of iodine impregnated drape vs. standard drape in cardiac surgery: study in 5100 patients. *J Cardiovasc Transl Res.* 2015; 8: 431-7.

Objective

- To evaluate the efficacy of two incise drapes (iodine-impregnated and not iodine-impregnated) in preventing surgical site infections (SSIs) in cardiac surgery
- A detailed cost analysis was also completed



Methodology

- Retrospective study considered prospectively collected data from 5,100 cardiac surgery patients between January 2008 and March 2015
- Using a propensity-matched analysis, 808 patients from each group were matched for available risk factors

Findings

- Ioban 2 Antimicrobial Incise Drape was associated with a significant reduction in the incidence of overall SSIs ($P = .001$)
- SSI rate with the group receiving Ioban 2 Antimicrobial Incise Drape was 1.9% vs. 6.5% for the group that received a non iodine-impregnated incise drape (a 71% SSI rate reduction)
- In addition, Ioban 2 Antimicrobial Incise Drape was shown to be cost effective for direct patient-related care, delivering overall cost savings of $828,000 (€773,495), or about $1,025 (€948) per patient

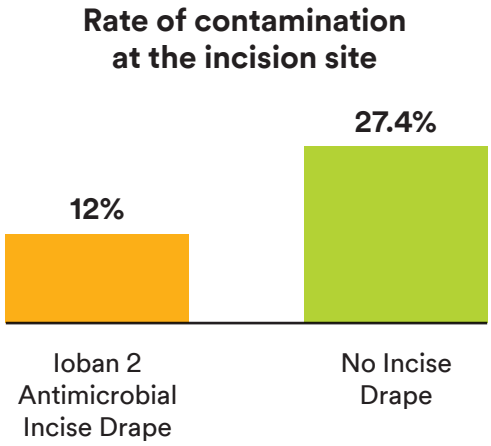
Summary 2

Ioban 2 Antimicrobial Incise Drape was shown to be significantly more effective at reducing microbial contamination vs. using no drape

Rezapoor M, Tan TL, Maltenfort MG, Parvizi J. Incise draping reduces the rate of contamination of the surgical site during hip surgery: a prospective, randomized trial. *J Arthroplasty*. 2018; 33 (6): 1891-1895.

Objective

- Evaluate the efficacy of Ioban 2 Antimicrobial Incise Drape for protecting against surgical site contamination during hip surgery



Methodology

- Prospective, randomized clinical study
- Patients undergoing hip preservation surgery were randomized to either Ioban 2 Antimicrobial Incise Drape or no incise drape
- Wound culture swabs were taken from the surgical site at five different times throughout the surgical procedure

Findings

- Study showed that Ioban 2 Antimicrobial Incise Drape was significantly more effective at reducing microbial wound contamination at the incision site compared to not using an incise drape
- At the end of surgery 12% of incisions with Ioban 2 Antimicrobial Incise Drape and 27.4% of incisions without an incise drape were positive for bacteria
- When controlling for preoperative colonization and other factors, patients without adhesive incise drapes were significantly more likely to have bacteria at the incision than patients with Ioban 2 Antimicrobial Incise Drape at the time of closure

Due to the significant reduction in bacterial colonization in the adhesive drape group, a decision was made to terminate the study.

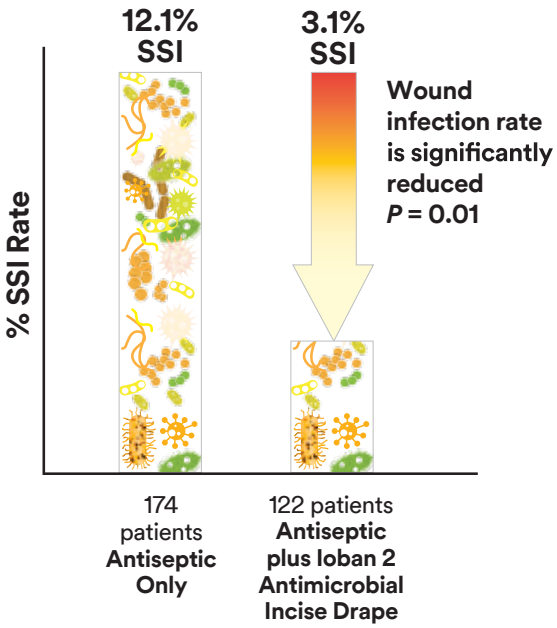
Summary 3

Ioban 2 Antimicrobial Incise Drape showed significant reduction in infection rate compared to using no incise drape

Yoshimura Y, Kubo S, Hirohashi K, et al. Plastic iodophor drape during liver surgery operative use of the iodophor-impregnated adhesive drape to prevent wound infection during high risk surgery. *World J Surg.* 2003; 27: 685-8.

Objective

- Understand what effect the use of an iodophor-impregnated incise drape has on surgical site infection rates during liver resection surgery



Methodology

- Retrospective study involving 296 patients investigated wound infection after liver resection surgery
- Regression analysis used to compare infection rates when an antimicrobial incise drape (Ioban 2 Antimicrobial Incise Drape) was used vs. when an incise drape was not used

Findings

- Wound infection was significantly less likely ($P = 0.01$) with the use of iodophor drapes (3.1%) than for surgery without iodophor drapes (12.1%)
- Regression analysis indicated that nonuse of iodophor drapes was a risk factor for wound infection
- Most of the bacteria isolated were skin bacteria, including *Staphylococcus aureus* and *Staphylococcus epidermidis*

Summary 4

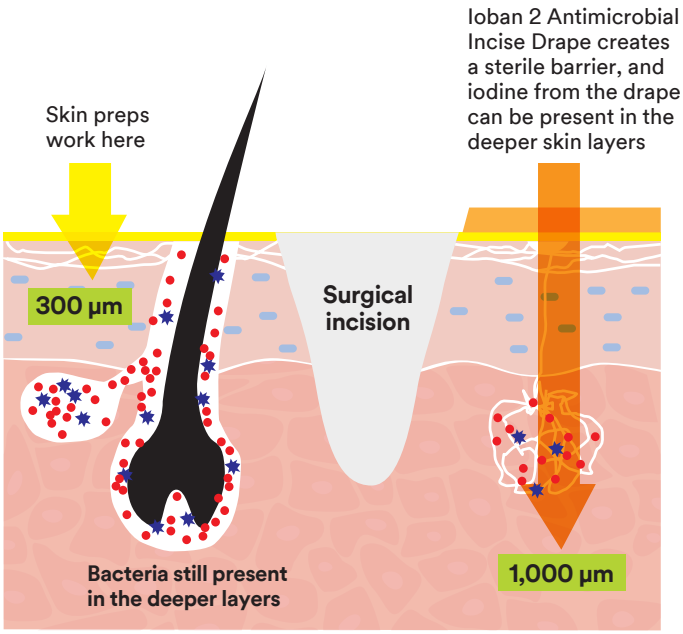
The iodine in Ioban 2 Antimicrobial Incise Drape was shown to be present in the deeper layers of the skin (down to 1000 microns) where hair follicles exist

Casey AL, Karpanen TJ, Nightingale P, Conway BR, Elliott TSJ. Antimicrobial activity and skin permeation of iodine present in an iodine-impregnated surgical incise drape. *J Antimicrob Chemother.* 2015; 70: 2255-60.

Objective

- The antimicrobial efficacy of Ioban 2 Antimicrobial Incise Drape against MRSA was evaluated in a human skin model
- The presence of iodine from Ioban 2 Antimicrobial Incise Drape in the skin was also assessed

Skin Penetration of skin preps and 3M™ Ioban™ 2 Antimicrobial Incise Drape



Methodology

- The antimicrobial efficacy of Ioban 2 Antimicrobial Incise Drape, compared to 3M™ Steri-Drape™ 2 Drape and no drape, was evaluated ex vivo with the use of human donor skin at 5 minutes, 2 hours, and 6 hours after drape application, following skin inoculation of MRSA
- In addition, the concentrations of iodine at different skin depths were evaluated

Findings

- Study showed that Ioban 2 Antimicrobial Incise Drape is not only effective at killing microbes on ex vivo skin, but also the iodine was shown to be present in the deeper skin layers (1000 microns) where hair follicles exist
- This compares to a related study that shows that CHG-based skin preps only penetrate to 300 microns[1]

[1]Karpanen TJ, Worthington T, Conway BR, Hilton AC, Elliott TSJ, Lambert PA. Penetration of chlorhexidine into human skin. *Antimicrob Agents Chemother.* 2008; 52: 3633-6.

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