

## QUESTION 8: Does the use of incise draping reduce the incidence of surgical site infections/periprosthetic joint infections (SSIs/PJIs)? Is there a difference in efficacy between incise drapes?

**RECOMMENDATION:** There is evidence to indicate that antimicrobial-impregnated incise drapes result in a reduction in bacterial colonization of the surgical site. While bacterial colonization of the incision may predispose to subsequent SSIs/PJIs, there is no literature to demonstrate that the use of incise drapes results in clinical differences in the rates of subsequent PJIs. Many surgeons prefer to utilize incise draping for physical isolation of sterile from non-sterile regions and to prevent migration of drapes during the procedure.

**LEVEL OF EVIDENCE:** Limited

**DELEGATE VOTE:** Agree: 89%, Disagree: 5%, Abstain: 6% (Super Majority, Strong Consensus)

### RATIONALE

Surgical incise draping, which is an adhesive material applied to the skin around the incision, is utilized by surgeons to potentially reduce the recolonization of the surgical site with host flora, which may predispose the patient to subsequent infections. It is important to distinguish between antibacterial-impregnated and non-impregnated drapes as the use of an antimicrobial agent in the drape may have a different influence on the rates of contamination of the incision and colonization. Unfortunately, the literature does not make such distinctions and the majority of the systematic reviews and even the guidelines by the World Health Organization (WHO) and the Association of Perioperative Registered Nurses (AORN) have not made such distinctions. The adhesive barrier, usually containing an antibacterial material such as iodine, is applied prior to the incision and removed at the time of or after skin closure [1–3]. The rationale behind this practice is that the use of incise draping, in addition to conventional skin preparation, can reduce bacterial proliferation at the skin and serve as a physical barrier to block the translocation of recolonizing bacteria from the skin adjacent to the surgical site into the surgical field. This may then result in a decrease in the rates of subsequent SSIs/PJIs. However, it is important to note that using incise drapes as a substitutes for skin disinfection and preparation is not recommended [4].

Although many surgeons routinely utilize incise drapes, there is limited evidence to support that these drapes lead to a reduction in the incidence of PJIs or SSIs. Several associations do not support their routine use. The recent SSI prevention guidelines by WHO did not find any evidence to support the use of incise drapes during surgery and recommended against its use, however, none of the studies that formed the basis of such a recommendation were in orthopaedic surgery [5,6].

Several studies have demonstrated that impregnated incise drapes result in a reduction in bacterial colonization. Rezapoor et al. found that 12% of incisions with iodine-impregnated adhesive drapes and 27.4% without adhesive drapes were positive for bacterial colonization in a prospective randomized controlled trial of 101 hips undergoing hip preservation surgery [7]. Furthermore, patients without adhesive drapes were significantly more likely to have bacteria present at the incision at the time of skin closure and at all time-points of surgery. In addition, Fairclough et al. found that 122 hips undergoing acute hip fracture surgery, with iodophor-impregnated drapes placed 24 hours prior to the procedure, showed lower wound contamination rates from 15 to 1.6% compared to those without drapes [8]. In contrast, some studies have also found no differences in the rates of bacterial contamination with the use of adhesive drapes. Chiu et al. demonstrated no differences in wound contamination rates of 120 hip fracture patients when comparing plastic incise drapes with no drapes [9], while a randomized control trial (RCT) in cardiac surgery comparing use of drapes to no drapes showed earlier and more bacterial contamination following use of drapes [10].

While there is some evidence to suggest that bacterial contamination is reduced with impregnated incise drapes in non-orthopaedic surgery, there is no evidence to demonstrate that impregnated incise drapes result in a significant decrease in infection rates. This is likely because the majority of studies are underpowered given the relative rarity of PJIs or SSIs. In a recent Cochrane review of 3,082 patients, Webster et al. found that a higher proportion of patients developed surgical site infections with plastic drapes than patients in whom no drapes were used ( $p = 0.03$ ) [1]. However, no difference was found when iodophor-impregnated drapes were used (1.03, 95% confidence interval (CI) 0.06 to 1.55,  $p = 0.89$ ).

There is a need for studies evaluating the effect of iodine-impregnated incise drapes on infection rates in total hip arthroplasties and total knee arthroplasties as no clinical studies on this subject have been performed.

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