There is not enough evidence to suggest that wound dressings prevent surgical site infections in post-operative wounds healing by primary intention.

Can wound dressings prevent surgical site infection?

**In this article...**

- Finding of a Cochrane review of the effects of dressing selection on surgical site infection
- Implications for practice

What effect do wound dressings have on preventing surgical site infection, in people with surgical wounds healing by primary intention?

**Nursing implications**

Most surgical wounds heal through primary intention but it is thought that approximately 5% of surgical patients in the UK develop a surgical site infection (SSI). Dressings can be applied to surgical wounds to form a physical barrier against micro-organisms to prevent infection; however there are many dressings that can be used and it is uncertain which, if any, are effective at preventing SSIs.

**Study characteristics**

This Cochrane systematic review evaluated evidence from randomised controlled trials about the post-operative occurrence of SSIs. Secondary outcome measures of cost, scarring, pain, acceptability and ease of dressing removal, were also considered. In total, 20 trials were included with 3,623 participants. All studies were deemed to have an “uncertain” or “high” risk of bias.

Studies needed to recruit participants over the age of two years with a surgical wound (excluding grafts) to be healed using primary intention. The wounds needed to be dressed in an operating theatre immediately after surgery.

The reviewers included studies that used dressings classified as:
- Basic contact dressings, subtyped as absorbent (such as gauze) or low-adherent (such as paraffin gauze);
- Advanced, such as hydrogels or films;
- Antimicrobial or specialist.

Basic contact and advanced dressings are equally effective at preventing site infection.

Only RCTs that compared a dressing with “no dressing” or an alternative dressing type were considered.

**Evidence**

Basic contact dressings compared with no dressing (exposed wound) were evaluated in two trials. These study results could not be combined in a meta-analysis because the trials had different surgical wound types and study arm comparisons. Nonetheless, both trials found no evidence of a difference in SSI occurrence.

A film (advanced dressing) and exposed wound for clean surgery were compared in one trial. No statistical difference in SSI between the study arms was found.

Comparison between two different types of basic contact dressings (paraffin tulle versus non-adherent) was undertaken in one study with 50 clean wound surgery participants. No statistical difference was found, based on three participants who developed an SSI.

Basic contact dressings were evaluated against film (advanced) dressings in eight RCTs, two of which did not report SSI data. Four of the remaining studies involved clean surgery but when the results were pooled in a meta-analysis, no statistical difference was found in SSIs. Two studies (which either did not state surgical wound type or had a mix of types), had small sample sizes and did not detect evidence of a difference between the trial arms.

Basic contact (mostly gauze) versus hydrocolloid (advanced) dressings, were trialled in six studies, three of which involved surgically clean wounds. Only one presented SSI data; no statistical difference was shown between the groups. The remaining three trials included clean/contaminated surgery (two studies with a variety of surgery wound types). A meta-analysis identified no statistical difference between the control and intervention arms.

A basic contact and a fibrous-hydrocolloid dressing comparison was made in two clean surgery trials. Neither detected a statistical difference in SSI; one reported no SSIs, the other was underpowered.

In general, little evidence was found to demonstrate a clear impact of surgical wound dressing on scarring, pain control, acceptability or ease of dressing removal.

**Recommendations**

There is not enough evidence to know whether wound dressings prevent SSIs in post-operative wounds healing by primary intention. The review authors recommend further research on the most common dressings is undertaken to ascertain their impact when surgical patients are at greatest risk of developing an SSI. In the meantime, they suggest dressing-use decisions include consideration of cost and wound characteristics (such as exudate), and that other measures such as hand hygiene are used to help control SSI.

**References**