



Time to switch to nonsterile gloves for these procedures?

Are sterile gloves worth the extra cost for common cutaneous surgeries? This systematic review and meta-analysis provides answers.

PRACTICE CHANGER

Using nonsterile gloves for common primary care skin procedures causes no more infections than using sterile gloves.¹

STRENGTH OF RECOMMENDATION

A: Based on a systematic review and meta-analysis of 13 randomized controlled trials.

Brewer JD, Gonzalez AB, Baum CL, et al. Comparison of sterile vs nonsterile gloves in cutaneous surgery and common outpatient dental procedures: a systematic review and meta-analysis. *JAMA Dermatol.* 2016;152:1008-1014.

ILLUSTRATIVE CASE

Your practice manager comes to you to discuss ways that you can reduce expenses. He asks whether the practice could reduce the amount of money spent on gloves for procedures. How do you reply?

A decision involving a small difference, spread over a larger number of events, can have a sizable effect. An example is whether to use sterile vs nonsterile gloves for minor procedures. The cost difference between a box of sterile gloves and a box of nonsterile gloves is relatively small, and certainly worth the difference if the more expensive sterile gloves reduce the number of surgical site infections (SSIs).

However, if there is no difference in the number of SSIs, there may be no value to the extra cost, which, given the number of such procedures, becomes a large unnecessary expense. The choice to use sterile gloves often

stems from habit, product availability, or the perceived benefit of fewer SSIs.² While some evidence exists comparing glove choice, there is wide variability in physicians' choice of gloves.³⁻⁵ This large systematic review compared rates of SSIs using sterile vs nonsterile gloves.

STUDY SUMMARY

RCTs/observational studies find sterile no better than nonsterile gloves

This systematic review and meta-analysis of 13 randomized controlled trials (RCTs) and observational (prospective or retrospective) studies compared infection rates using sterile vs nonsterile gloves in 11,071 unique patients undergoing cutaneous surgery, including Mohs microsurgery or outpatient dental procedures. The methods used in the review followed the Cochrane collaboration guidelines.⁶ The inclusion criteria were that the studies had to be either RCTs or observational studies. Patients included in each study underwent outpatient cutaneous or mucosal surgical procedures, including laceration repair, standard excisions, Mohs micrographic surgery, or tooth extractions. In addition to glove type, documentation of postoperative SSI was necessary for inclusion.

Methodology. The authors of the analysis reviewed a total of 512 publications for inclusion; of these, 14 met the inclusion criteria. One study was later removed due to incomplete data, leaving a total of 13 trials

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 INSTANT POLL

Do you use sterile or nonsterile gloves for cutaneous surgeries such as Mohs procedures?

Sterile

Nonsterile

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➤ **The results did not show any difference in surgical site infections between sterile and nonsterile gloves.**

for the analysis. Of the 11,071 patients included in the final analysis, 1360 patients were randomly assigned to treatment with sterile gloves, while 1381 patients were assigned to treatment with nonsterile gloves as the intervention in a clinical trial. The remaining patients participated in either prospective or retrospective observational trials; 4680 patients were treated with sterile gloves, and 3650 patients were treated with nonsterile gloves. Heterogeneity was low for the included studies. Of note, the researchers performed a subgroup analysis on 9 total studies (4 RCTs and 5 observational studies) involving cutaneous surgeries only. These represented procedures most likely performed in the primary care setting.

■ **The primary outcome** of this review was postoperative wound infection. The results did not show any difference in SSIs between sterile vs nonsterile gloves in all trials (2% vs 2.1%; relative risk [RR]=1.06; 95% confidence interval [CI], 0.81-1.39). There was also no difference in infection rates in the subgroup analysis of 9 trials limited to cutaneous surgery (2.2% vs 2.2%, respectively; RR=1.02; 95% CI, 0.78-1.34) or when the analysis was limited to only RCTs.

WHAT'S NEW

Highest-quality evidence shows no difference in SSIs

This systematic review found no difference in SSI rates when using sterile vs nonsterile gloves. Given that the analysis represents the highest-quality level of evidence (a systematic review of RCTs) and that sterile gloves are

several times more expensive per pair than nonsterile gloves, the findings should impact future practice.

CAVEATS

A risk of bias and limited applicability

Not every trial in this meta-analysis was an RCT, and the inclusion of observational studies increases the risk of bias. However, the results of the observational studies were similar to those of the RCTs, somewhat alleviating this potential threat to validity.

It is worth noting that more extensive surgeries and more complicated repairs were not included in the trials, meaning that the findings are limited to oral surgery, Mohs micrographic surgery, standard incisions, and laceration repairs.

CHALLENGES TO IMPLEMENTATION

Inertia, medicolegal concerns, and personal preference

Clinical inertia may lead to slow adoption of these recommendations. Physicians may worry about potential medicolegal ramifications from this change.¹ Lastly, some physicians may prefer the fit and feel of sterile gloves for their procedures. **JFP**

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