



Title	Systematic Review of the Effectiveness of Preventing and Treating Staphylococcus Aureus Carriage in Reducing Peritoneal Catheter-Related Infections
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Aim

To determine: 1) clinical and cost effectiveness of alternative strategies to prevent Staphylococcus aureus (*S. aureus*) carriage in patients on peritoneal dialysis; 2) clinical and cost-effectiveness of alternative strategies to treat *S. aureus* carriage in patients on peritoneal dialysis.

Conclusions and results

The review of clinical effectiveness included 25 reports describing 22 studies.

Prophylaxis (all patients): When considering all oral antibiotics together, there were fewer cases of peritonitis caused by *S. aureus* in the groups that received antibiotics, but the difference did not reach statistical significance (RR 0.69, 95% CI 0.28 to 1.72; $p=0.43$). There were fewer cases of exit site and/or tunnel infections caused by *S. aureus* (RR 0.27, 95% CI 0.11 to 0.65; $p=0.003$).

Only one trial compared a topical antibiotic with no antibiotics. No difference was found in the number of patients with peritonitis caused by *S. aureus*. However, there were fewer exit site and/or tunnel infections in the group allocated to use a topical antibiotic.

Considering all antiseptics together, there was no real difference in peritonitis caused by *S. aureus* in the groups allocated to antiseptic use (RR 1.08, 95% CI 0.54 to 2.16; $p=0.84$). However, when considering antiseptic use at the time of catheter insertion, there were fewer cases of peritonitis (1 trial). Fewer cases of exit site and/or tunnel infections caused by *S. aureus* were found in the groups allocated to antiseptic use (RR 0.43, 95% CI 0.28 to 0.66; $p=0.0001$).

Treatment of S. aureus carriage: When considering all oral antibiotics together, there were fewer cases of peritonitis caused by *S. aureus* in the groups that received antibiotics – again this was not statistically significant (RR 0.27, 95% CI 0.05 to 1.35; $p=0.11$) – and fewer cases of exit site and/or tunnel infections caused by *S. aureus* (RR 0.60, 95% CI 0.16 to 2.28; $p=0.46$).

Considering all topical antibiotics together, there were fewer cases of peritonitis caused by *S. aureus* in the groups that received antibiotics (RR 0.80, 95% CI 0.49 to 1.32; $p=0.39$), fewer patients requiring catheter removal (RR 0.63, 95% CI 0.29 to 1.39; $p=0.26$), and fewer cases of exit site and/or tunnel infections caused by *S. aureus* (RR 0.66, 95% CI 0.36 to 1.20; $p=0.17$), but no statistical significance.

Evidence on the effectiveness of the alternative interventions to prevent and treat *S. aureus* carriage was limited. Hence, their use in an economic evaluation would provide no informative data on relative cost effectiveness. Therefore, the hypothetical model required to compare alternative interventions was provided along with a description of its information needs, which served to highlight key areas where data were unavailable.

Recommendations

We conclude that interventions reduce exit site and tunnel infections, but that we cannot say whether they reduce peritonitis.

Methods

See Executive Summary link above.

Further research/reviews required

More primary research is needed in the form of longer, larger trials. More data on the natural history of carriage are also required.