

## Preoperative eradication of *Staphylococcus aureus* nasal carriage or not?

The following question was answered by a systematic review of the literature: Is using perioperative intranasal mupirocin superior to not using perioperative intranasal mupirocin in the prevention of surgical site infection?

This review was presented in a poster session during the SHEA meeting 2004.

### Is there evidence for recommending preoperative eradication of *Staphylococcus aureus* nasal carriage in guidelines?

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**Introduction:** The Dutch Infection Prevention Working Party (WIP) gives recommendations and draws up guidelines for infection control in healthcare. Within the scope of making guidelines evidence-based, the question arose whether there is evidence for recommending preoperative eradication of *Staphylococcus aureus* nasal carriage in guidelines? This question was answered by a systematic review.

**Methods:** Controlled clinical trials, randomised clinical trials and systematic reviews/meta-analysis were identified by a search strategy in Medline (1966 – September 2003), Embase and the Cochrane Controlled Trials Register. Trials investigating preoperative eradication of *Staphylococcus aureus* nasal carriage, using mupirocin nasal ointment in the treatment group and placebo in the control

group with surgical site infection as the outcome measure were selected. The quality of the methods used of all selected publications was assessed by using a quality assessment scale for randomised clinical trials. In addition we looked critically at subject-specific aspects, as 'duration of operation', 'time of closing wound', 'wound class', 'presence of postoperative drain' and 'receiving antibiotics'.

**Results:** Two of eight reports satisfied the selection criteria (1,2). Both studies scored good quality. With respect to important confounding factors, in both trials 'duration of operation' and 'wound class' was evenly distributed between the study groups. For the variables 'time of closing wound', 'presence of postoperative drain' and 'receiving antibiotics', no data were shown. In both studies, the estimated overall effect of mupirocin as well as the effect in patients with *Staphylococcus aureus* nasal carriage was statistically not significant. Because both included trials were methodologically, clinically and statistically homogeneous, we pooled the data of the subgroups (Mantel-Haenszel): In carriers, the pooled relative risk was 0.58, 95% confidence interval 0.33 to 1.02; The pooled risk difference 0.02, 95% confidence interval 0.0 to 0.05; Numbers needed to treat 50.

**Conclusion:** An almost significant pooled risk difference and pooled relative risk of mupirocin was found in patients who carried *S.aureus* preoperatively.

Additional randomised controlled trials are needed to confirm this preventive effect of mupirocin nasal ointment. Future studies should only include patients with *Staphylococcus aureus* nasal carriage. Currently, the WIP recommends intranasal eradication of *Staphylococcus aureus* with mupirocin when all preventive precautions have failed in reducing an increased number of surgical site infections with genotypically different strains of *S. aureus* ([www.wip.nl](http://www.wip.nl)).

1 Perl et al., N Engl J Med 2002;346(24):1871-7

2 Kalmeijer et al., Clin Infect Dis 2002;35(4):353-8



# Is there evidence for recommending preoperative eradication of *Staphylococcus aureus* nasal carriage in guidelines?

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## Background:

The Infection Prevention Working Party (WIP) gives recommendations and draws up guidelines for infection control in healthcare. Within the scope of making guidelines evidence-based, the question arose whether there is evidence for recommending preoperative eradication of *Staphylococcus aureus* nasal carriage in guidelines?

This question was answered by a systematic review

## Results:

Two of eight reports satisfied the selection criteria (1,2). Both studies scored good quality. With respect to important confounding factors, in both trials 'duration of operation' and 'wound class' were evenly distributed between the study groups. In both studies, the estimated overall effect of mupirocin as well as the effect in patients with *Staphylococcus aureus* nasal carriage was statistically not significant. Because both included trials were methodologically, clinically and statistically homogeneous we pooled the data of the subgroups (Mantel-Haenszel): In carriers, the pooled relative risk was 0.58, 95% confidence interval 0.33 to 1.02; The pooled risk difference 0.02,

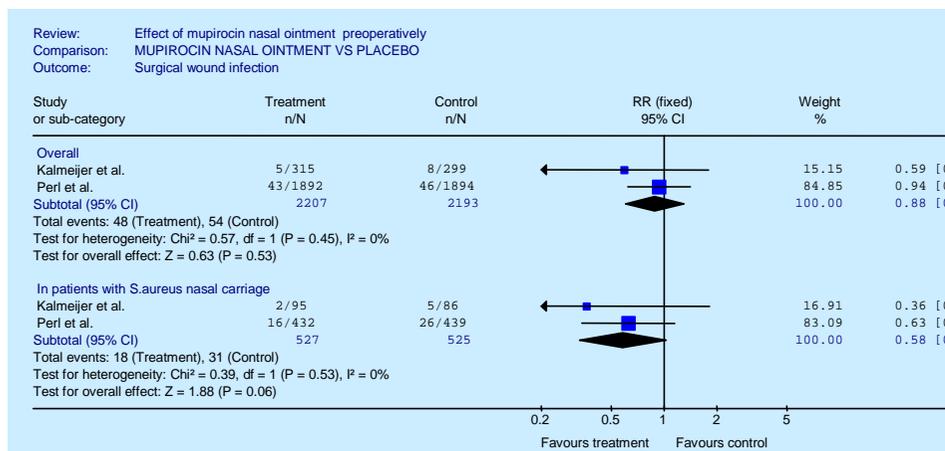
## Conclusion:

An almost significant pooled risk difference and pooled relative risk of mupirocin was found in patients who carried *S.aureus* preoperatively. Additional randomised controlled trials are needed to confirm this preventive effect of mupirocin nasal ointment. Future studies should only include patients with *Staphylococcus aureus* nasal carriage.

Currently, the WIP recommends intranasal eradication of *Staphylococcus aureus* with mupirocin when all preventive precautions have failed in reducing an increased number of surgical site infections with genotypically

## Methods:

Controlled clinical trials, randomised clinical trials and systematic reviews/meta-analysis were identified by a search strategy in Medline (1966 - September 2003), Embase and the Cochrane Controlled Trials Register. Trials investigating preoperative eradication of *Staphylococcus aureus* nasal carriage, using mupirocin nasal ointment in the treatment group and placebo in the control group with surgical site infection as the outcome measure were selected. The quality of the methods used of all selected publications was assessed by using a quality assessment scale for randomised clinical trials. In addition we looked



References included in analysis: (1) Perl et al. NEJM 2002;346(24):1871-7 (2) Kalmeijer et al. Clin Infect Dis 2002;35(4):353-8