

INPLASY

Efficacy of *Staphylococcus aureus* eradication at hospital admission on reduction of any infections within 90 days – a systematic review and meta-analysis

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ADMINISTRATIVE INFORMATION

Support - None.

Review Stage at time of this submission - Data extraction.

Conflicts of interest - None declared.

INPLASY registration number: INPLASY202450015

Amendments - This protocol was registered with the International Platform of Registered Systematic Review and Meta-Analysis Protocols (INPLASY) on 04 May 2024 and was last updated on 04 May 2024.

INTRODUCTION

Review question / Objective To determine if decolonization protocols, using a nasal ointment and applied during hospitalization, reduce the risk of infection in hospitalized patients within 90 days after decolonization. Other objectives are the impact on mortality, microbiological eradication and adverse events.

Rationale Healthcare associated infection are frequent and linked to higher mortality and costs. Simple interventions, such as decolonization protocols, might help to reduce infection, especially if used for *Staphylococcus aureus* or in setting in which *S. aureus* plays an important role. Research focused mainly on the use of decolonization protocols in an outpatient setting or preoperative. However, a simple intervention, which can be widely implemented would be feasible.

Condition being studied Infectious diseases. Decolonization protocols aim to eradicate bacteria

- in the case of the review mainly aimed at *S. aureus* - and should therefore reduce subsequent infection.

METHODS

Participant or population Adults (≥ 18 years). Exclusively hospitalized in acute care.

Intervention Decolonization in the intervention arm included at least nasal ointment. We accepted all other decolonization interventions, such as antiseptic soaps. There was no limit for days of treatment or repeated cycles of the intervention.

Comparator In the control group no active nasal ointment was used. We accepted all other decolonization interventions, such as antiseptic soaps. There was no limit for days of treatment or repeated cycles of the intervention.

Study designs to be included Randomized controlled trials.

Eligibility criteria Outcome needs to be reported within 90 days, but not earlier as 7 days after decolonization. Only RCTs comparing intervention vs. non-intervention.

Information sources MEDLINE and EMBASE were searched for all relevant articles. Trial registers (clinicaltrials.gov) was assessed for terminated and ongoing studies.

Main outcome(s) Infection within 90 days after decolonization, but follow up needs to be at least 7 days.

Additional outcome(s) All cause mortality, microbiological eradication, any adverse event
Time: within 90 days after decolonization, but follow up at least 7 days.

Quality assessment / Risk of bias analysis Risk of bias will be assessed by two persons independently. Risk of Bias 2 tool will be used.

Strategy of data synthesis Data of all included studies was synthesised and summarized as a table. If possible, data will be pooled and analysed in a meta-analysis using random-effects model and DerSimonian and Laird inverse variance. Analysis was performed using the meta package and R software (R Core Team, Vienna). Random-effects model and DerSimonian and Laird inverse variance was applied to pool data.

Subgroup analysis and investigation of heterogeneity Data will be calculated as Risk Ratio and if possible pooled using random-effects model. Data will be presented as meta analysis and forest plot if at least 2 studies can be included and the outcome is reported in a similar manner. In case this is not possible, a narrative synthesis will be done.

Subgroup analysis Prespecified subgroup analysis was performed for cause of hospital stay (medical speciality (surgery vs non- surgery and ICU vs. non-ICU), duration of decolonization (cut off: 5 days, several vs. single course of decolonization), included population (universal vs. targeted; S. aureus and MRSA) and if in addition to the nasal intervention other interventions were conducted.

Sensitivity analysis Sensitivity analysis will be done to assess the impact of risk of bias and studies will be grouped into low risk of bias and not low risk of bias (some concerns, high risk). Certainty of the evidence.

Country(ies) involved Canada, Switzerland.

Keywords Staphylococcus aureus, decolonization.

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