

Clinical effectiveness of mupirocin for preventing *S. aureus* infections in non-surgical settings: A Meta-analysis

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INTRODUCTION

A protective effect of mupirocin has been seen among surgical, nonsurgical and dialysis patients. Our aim is to summarize evidence for mupirocin decolonization for prevention of *S. aureus* infections in non surgical healthcare settings.

Objective - To identify the optimal setting and patient population to implement mupirocin decolonization for prevention of *S. aureus* infections using meta-analytic methods.

METHODS

- Primary literature were obtained from PubMed, Cochrane Library Databases, Scopus, Web of Science, and ClinicalTrials.gov (until June 2013)
- Two investigators completed data abstraction forms. Forms were compared for responses using a consensus sheet
- Review Manager (RevMan) v5.3 and Excel were used for data entry and analysis.
- Random effects model with inverse variance methodology was used to analyze data

STUDY SELECTION

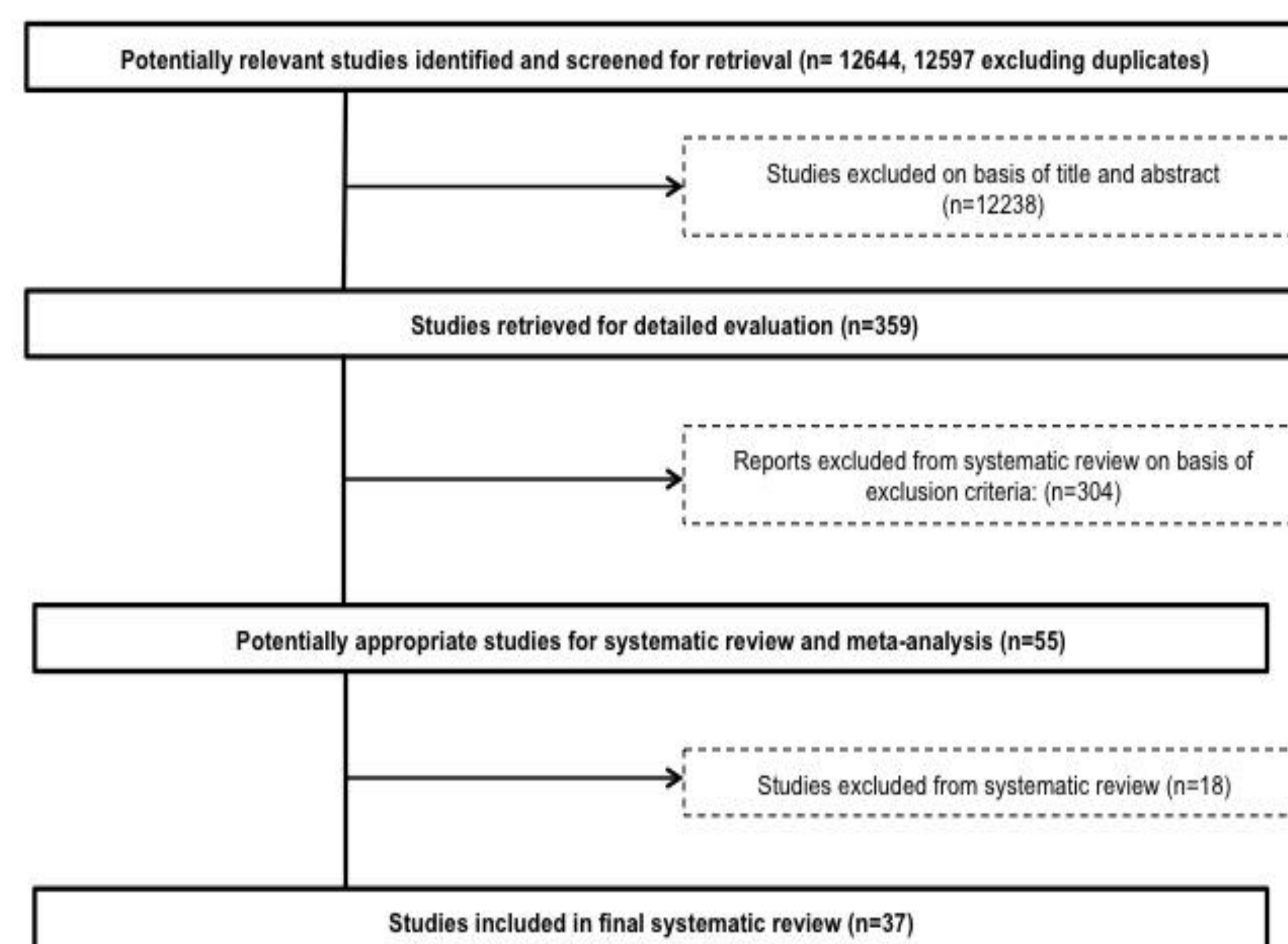
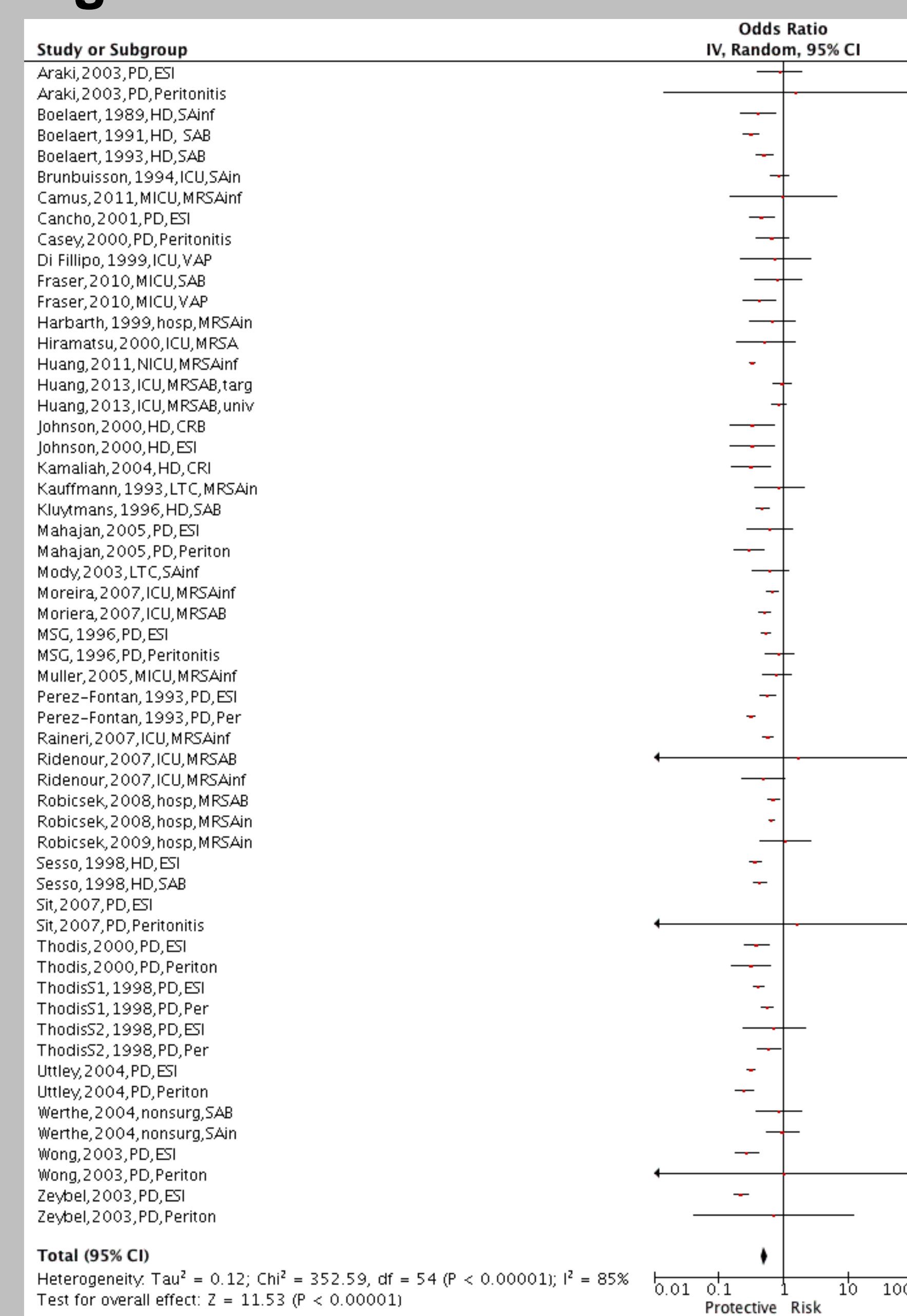


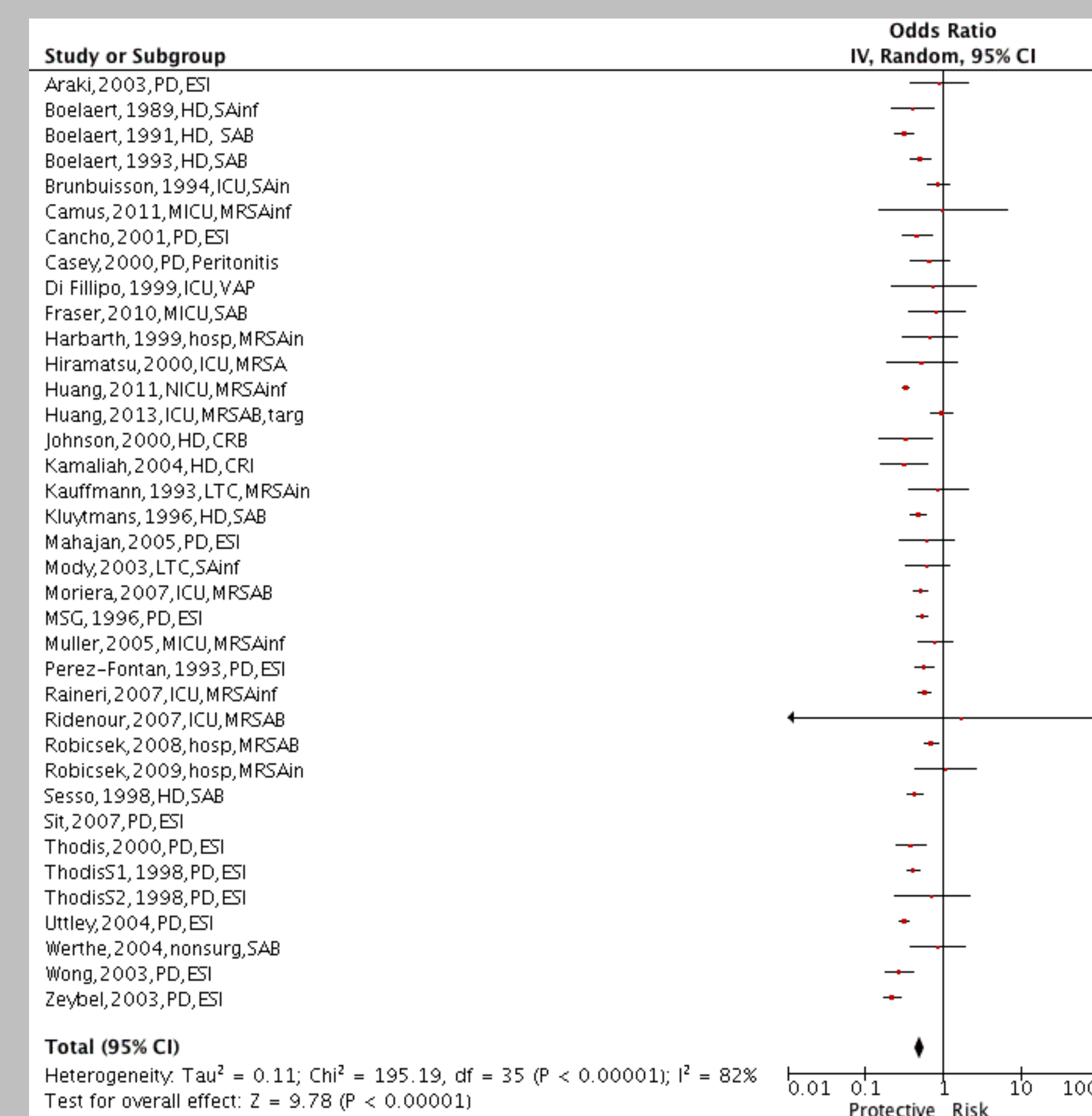
Fig 1. Flow diagram for mupirocin decolonization study selection

RESULTS

Figure 1: Forest Plots



Pooled OR = 0.50 (0.45, 0.57)



Pooled OR = 0.50 (0.44, 0.58)

RESULTS

- Mupirocin was observed to reduce the odds of infection by 50% in all admission settings (95%CI 0.44, 0.58) (Figure 1). Universal decolonization was observed to be more effective than targeted.
- Decolonization with mupirocin was observed to be relatively more protective in dialysis patients (pOR=0.41, 95%CI 0.36, 0.48) compared to non-dialysis such as ICU admissions and other hospital unit admission.

RESULTS

- Mupirocin decolonization was significantly effective at preventing exit-site infections (pOR=0.41, 95%CI 0.33, 0.52), and bacteremia (pOR=0.42, 95%CI 0.32, 0.54) among hemodialysis patients and at preventing MRSA infections among ICU admissions (pOR=0.58, 95%CI 0.41, 0.84).
- Subgroups were observed to be homogeneous by type of infection (p=0.35, I²=9.2%) and study design (p=0.91, I²=0%).

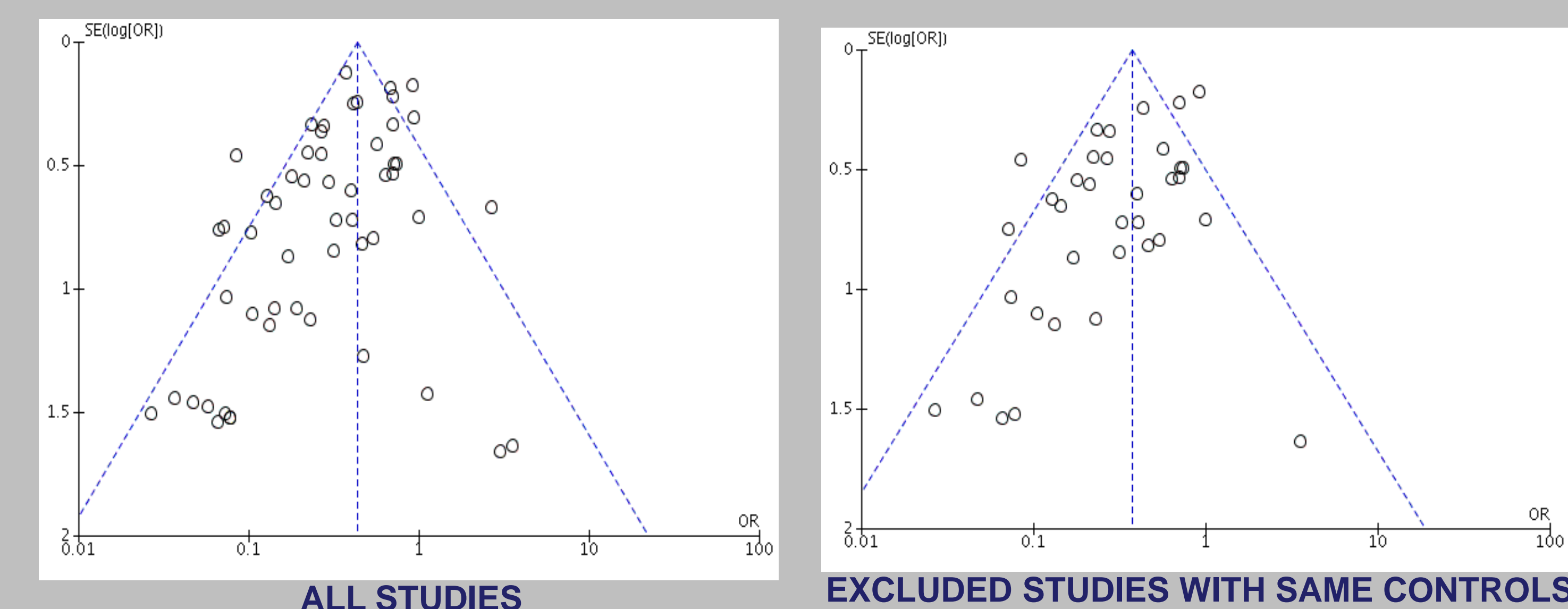
Table 1: Effect Estimates for Homogeneous Strata

Group	Subgroup	N	Random effects pOR	p	I ²
Admission unit	Hospital	4	0.72 (0.59, 0.88)	0.8	0%
Isolation	Yes	8	0.71 (0.6, 0.82)	0.31	15%
Control group	Placebo	6	0.55 (0.47, 0.64)	0.74	0%
Infection definition	Clinical culture	6	0.79 (0.68, 0.92)	0.56	0%
Dialysis	Hemodialysis	7	0.42 (0.36, 0.48)	0.25	23%
ICU	Outcome: <i>S. aureus</i> infection	3	0.85 (0.64, 1.13)	0.98	0%
Mupirocin (as the only agent)	Non-dialysis (excluding NICU study)	7	0.79 (0.64, 0.99)	0.96	0%
Studies including transitioning patients		5	0.72 (0.59, 0.87)	0.87	0%

N=number of studies in subgroup, pOR= pooled odds ratio, NICU=neonatal intensive care unit, I² quantifies degree of heterogeneity

LIMITATIONS

- Significant degree of heterogeneity among studies included in the meta-analysis (I²=82%)



- Potential publication bias as observed from the funnel plot

SUMMARY & CONCLUSIONS

- Mupirocin decolonization (regardless of combination agents and decolonization site) was observed to be protective against hospital-acquired infections.
- Use of mupirocin is a simple and cost-effective measure in prevention of potentially prevalent infections in certain admission settings.
- Additional studies are warranted in long-term care facilities and pediatric settings.