

# Use of antibacterial sutures for skin closure in controlling the surgical site infections: a systematic review of published randomized controlled trials

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# Introduction

- Surgical site infection (SSI): immense burden on healthcare resources
- Surgical procedures involving skin incisions: 234 million
- Prevalence of SSI: 5% in the developed world
- Solution: prevention VS treatment (ABX)



# Introduction

Preventive measures to reduce SSI include:

- OR measures
- Surgical technique measures
- Dressing measures
- Prophylactic antibiotics
- Role of different sutures in causing and reducing SSI



# Sutures coated with antibiotics (Triclosan)

- Broad-spectrum bacteriocidal agent
- Used in various products
- Acts on bacterial cytoplasm and cell membrane
- Triclosan-coated sutures reduce number of bacteria in vitro
- Reduces wound infections in animals



# Objective

Systematically analyze the randomized, controlled trials comparing the use of Triclosan coated antibacterial sutures (ABS) versus simple sutures (SS) for skin closure in controlling the surgical site infections.



# Methods

## Data sources:

- Pubmed
- Medline
- Embase
- Cochrane Central Register of Controlled Trials
- References of the published trials

## Inclusion criteria

- RCT published before October 2012
- Comparison between ABS VS SS
- Irrespective of language, country or hospital of origin, blinding, sample size



# Methods

## Data extraction and trial quality analysis

- Two authors independently extracted data and confirmed by third author
- No discrepancies between authors
- Trial scoring according to Jadad et al & Chalmers et al

## Variables

- Primary: SSI
- Secondary: Postoperative complications  
Duration of operation  
Length of hospital stay



# Methods

## Statistical analysis

- RevMan 5.1.2
- Combined outcomes of variables expressed as OR or SMD
- Heterogeneity calculation
- Forest plot display



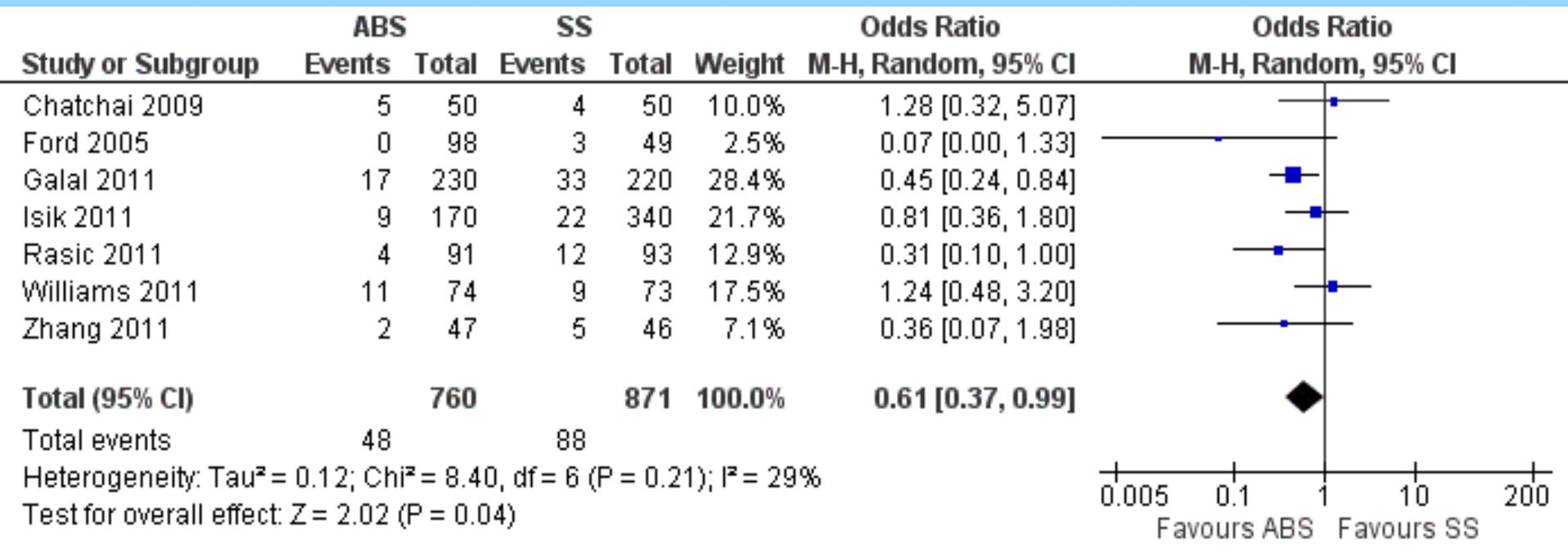
# Results

- Seven RCTs
- Number of patients: 1631
- ABS group: 760 patients
- SS group: 871 patients



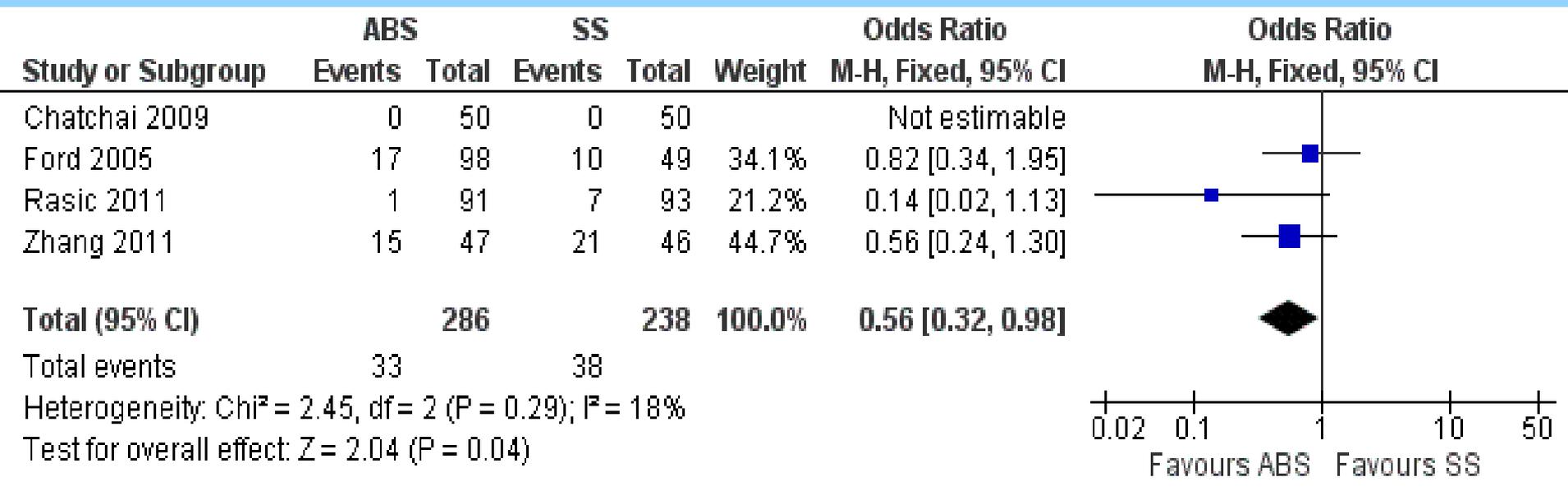
# Results - Surgical site infection

## ABS reduce SSI



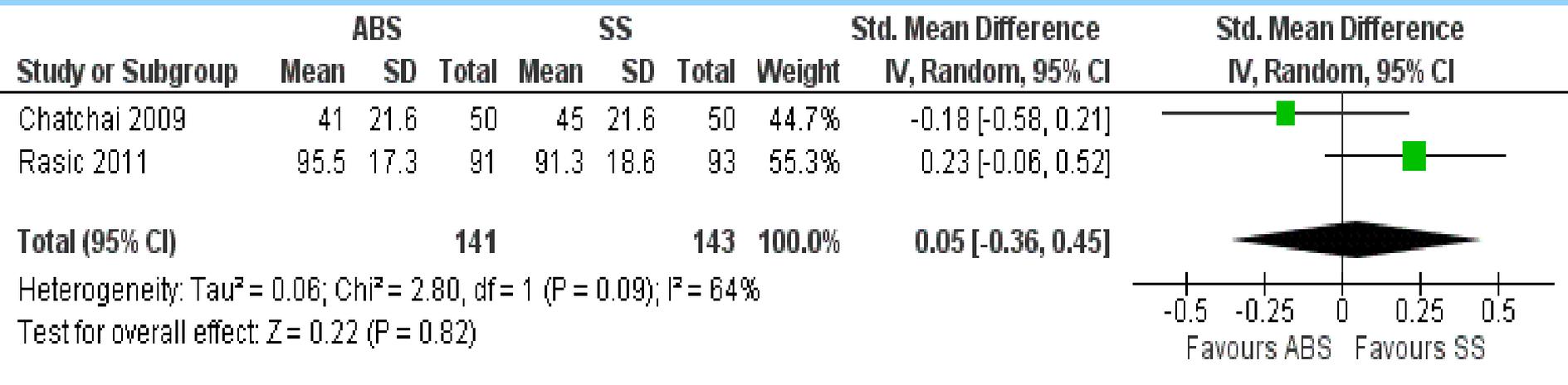
# Results - Postoperative complications

ABS reduce the risk of postoperative complications



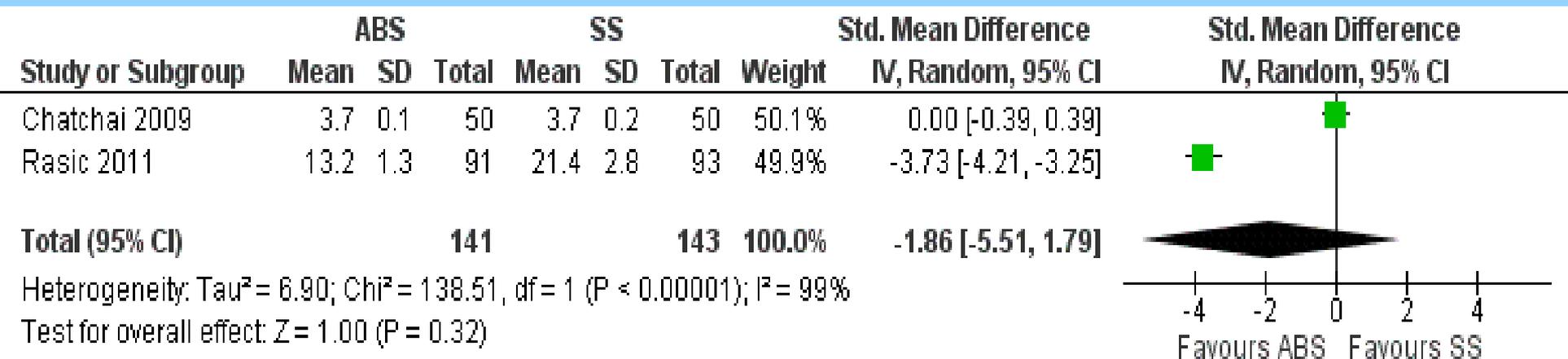
# Results - Duration of operation

The duration of operation for both sutures was similar



# Results - Length of hospital stay

The duration of hospital stay for both sutures was similar



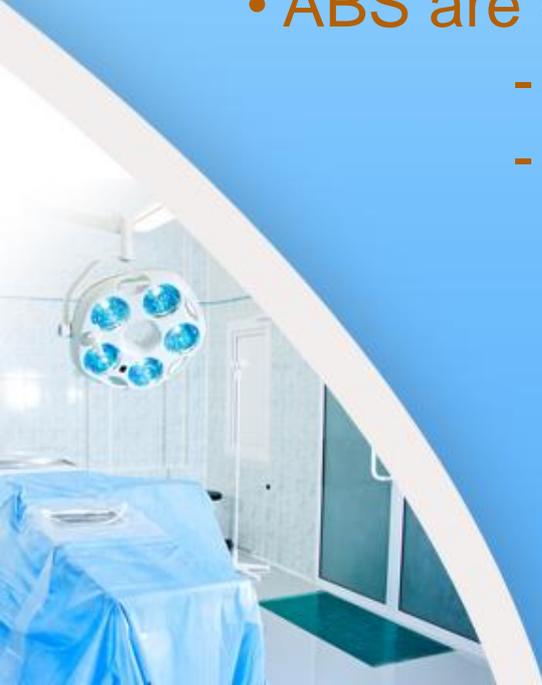
# Limitations

- Only 1631 patients in 7 RCTs VS number of operations worldwide
- RCT with fewer patients may not have been sufficient to recognise small differences in outcomes
- Quality of included trials was not good due to inadequate randomization technique, allocation concealment, power calculations, blinding and intention-to-treat analysis



# Conclusion

- The use of ABS for skin closure in surgical patients is an effective measure in reducing the risk of:
  - SSI
  - postoperative complications
- ABS are comparable with SS in terms of:
  - length of hospital stay
  - duration of operation.



**Thank you!**

