

# INPLASY

## A Comparative Meta-Analysis of Povidone-Iodine-Alcohol versus Chlorhexidine-Alcohol for Preoperative Skin Antisepsis in Abdominal Surgeries

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### ADMINISTRATIVE INFORMATION

**Support** - Nil.

**Review Stage at time of this submission** - Completed but not published.

**Conflicts of interest** - None declared.

**INPLASY registration number:** INPLASY202480090

**Amendments** - This protocol was registered with the International Platform of Registered Systematic Review and Meta-Analysis Protocols (INPLASY) on 20 August 2024 and was last updated on 20 August 2024.

### INTRODUCTION

**Review question / Objective** P: patients undergoing abdominal surgeries (GS and GYN); I: skin disinfection before surgery; C: chlorhexidine and iodine for preoperative skin disinfection; O: surgical site infection rate.

**Rationale** Whether the more expensive chlorhexidine has better effectiveness in preventing SSIs has been discussed. However, most comparisons are between chlorhexidine-alcohol and aqueous povidone-iodine, which does not eliminate the potential bias introduced by alcohol. Some studies directly compare chlorhexidine-alcohol to iodine-alcohol, but are limited by the small number of included studies and population or level of evidence.

**Condition being studied** To investigate this issue more precisely, this meta-analysis focuses on patients undergoing abdominal surgery, and examines the impact of using chlorhexidine-

alcohol or iodine-alcohol for preoperative antisepsis on the incidence of SSIs.

### METHODS

**Search strategy** Search pubmed, embase and cochrane.

**Participant or population** Patients undergoing abdominal surgeries.

**Intervention** Preoperative skin disinfection with chlorhexidine-alcohol or povidone-iodine.

**Comparator** Compare postoperative surgical site infection.

**Study designs to be included** RCT and cohorts.

**Eligibility criteria** Age>18; patients underwent abdominal surgeries (general surgeries and GYN); no missing data; detailed record about post op

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wound condition ; record of soft tissue infection meets criteria of CDC.

**Information sources** Electronic databases.

**Main outcome(s)** Compare soft tissue infection rate and divide into subgroup analysis according to wound classification.

**Additional outcome(s)** Mortality and morbidity, hospital stay.

**Data management** A thorough search of the Cochrane Library, Embase, and MEDLINE electronic databases was conducted to identify relevant studies. The metafor package in R software was used for meta-analysis. We collected risk ratios (RRs) for surgical site infection (SSI) in both groups assess the effects of EAP on reducing the risk of SSI. The meta-analysis used a random-effects model, and effect sizes were presented with their corresponding 95% confidence intervals (CIs).

**Quality assessment / Risk of bias analysis** Robins I and rob 2.0.

**Strategy of data synthesis** The metafor package in R software was used for meta-analysis.

**Subgroup analysis** Subgroup analysis according to wound classification.

**Sensitivity analysis** The meta-analysis used a random-effects model, and effect sizes were presented with their corresponding 95% confidence intervals (CIs).

**Language restriction** English records.

**Country(ies) involved** Taiwan.

**Other relevant information** This meta-analysis contains a number of limitations. Firstly, there is an insufficiency in the number of included RCTs. A significant reason is that some RCTs did not clearly state whether the antisepsis was combined with alcohol. Additionally, many studies involve surgeries on different sites but did not provide subgroup results for SSI rates. Secondly, due to the lack of standardized protocols, the proportions of antisepsis formulations varied across the included RCTs. This variability may introduce potential bias. Lastly, aside from the incidence of SSIs, other important outcomes such as length of hospital stay, re-operation, unexpected readmission, and emergency room visits, could not

be analyzed due to the limited number of RCTs providing these data.

**Keywords** Surgical site infections, preoperative skin disinfection, chlorhexidine, povidone-iodine.

**Contributions of each author**

Author 1 - Hua Hsin Hsieh - writing, methodology, and data management.

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