

# INPLASY PROTOCOL

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None declared.

## A comprehensive comparison of ultrasound-guided erector spinae plane block for postoperative analgesia effect in different types of surgery: A network meta analysis

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**Review question / Objective:** We conduct to perform a network meta-analysis to determine the better analgesic efficacy and safety of ESPB in patients undergoing what kind of surgery. Following the PICOS framework, we identified randomized controlled trials (RCT) the patients applied ESPB with different types of surgery compared with either non-block care or blocks. We hypothesized that the ESPB would be superior to non-block care but not inferior to other blocks in thoracic and breast surgeries compared with other types of surgery. In terms of postoperative 24 h opioid consumption (intravenous morphine equivalent) and other analgesic makers, including pain scores at rest and movement, first night sleep quality, postoperative vomiting/nausea, and block-related complications.

**INPLASY registration number:** This protocol was registered with the International Platform of Registered Systematic Review and Meta-Analysis Protocols (INPLASY) on 21 January 2022 and was last updated on 21 January 2022 (registration number INPLASY202210107).

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### INTRODUCTION

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equivalent) and other analgesic makers, including pain scores at rest and movement, first night sleep quality, postoperative vomiting/nausea, and block-related complications.

**Rationale:** In presence of the improvement of medical level and the acceleration of aging, the amount of surgery will continue to increase in the future. According to previous data suggested more than 80% of surgical patients develop postoperative pain, however less than half of patients are able to get effective analgesia. If adequate pain control the acute postoperative pain may turn to the chronic pain lasting half a year or even several decades, and is often accompanied by psychological changes such as anxiety and depression, affecting the postoperative rehabilitation, reducing the postoperative quality of life, and increasing the social burden. Therefore, ensuring pain-relief is still the priority in patients undergoing different types of surgery. Regional anesthesia as one essential part of multi-modal has been widely used in various clinical practices. Erector spinae plane block (ESPB) as an emerging regional interfascial block initially introduced in 2016 by Forero. At present, ESPB has been widely investigated either in clinical applications or anatomy basis featured by its clinical technical simplicity, relatively safe profile, and wide dermatomal spread (T1 to L3).

**Condition being studied:** Although, newly defined fascial plane block (ESPB) has been established in a variety of thoracic, breast, cardiac, lumbar, hip, and major liver surgical procedures for its promising analgesia efficacy and safety, their results are remains controversial. And due to different operations and surgical locations, the postoperative analgesia effect of ESPB is generally different. It is generally acknowledged that meta-analysis is a powerful statistic tool to overcome the limitation of different sample size from individual studies and to generate the best estimation, and a network meta is an effective method use indirect comparison different methods.

## METHODS

**Search strategy:** Two investigators independently systematically searched electronic database including PubMed, The Cochrane Library, Web of Science citation index, Embase from inception to December 2021 for RCTs meeting the listed inclusion criteria. According to the PICOS approach.

**Participant or population:** Adults patient with age 18-80 years old applied erector spinae plane block undergoing different types of surgery.

**Intervention:** Ultrasound-guided erector spinae plane block

**Comparator:** Non-block care or blocks.

**Study designs to be included:** Randomized controlled study.

**Eligibility criteria:** All published full-article RCTs in patients applied with ESPB undergoing different types of surgery were eligible for inclusion. There were no language restrictions. Moreover, we also excluded case reports, non-RCT studies, incomplete clinical trials, and any trials used multiple nerve blocks. We also excluded any conference abstracts which could not offer enough information about the study design, or by data request to the author.

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**Main outcome(s):** The primary outcome is postoperative 24 h opioid consumption (intravenous morphine equivalent).

**Additional outcome(s):** Secondary outcomes are other analgesic makers, including pain scores at rest and movement, first night sleep quality, postoperative vomiting/nausea(POVN), and block-related complications.

**Quality assessment / Risk of bias analysis:** GRADE/ the Cochrane Risk of Bias Tool (each article was recorded either as low risk, high risk or unclear risk) and the Jadad score (total 1–5).

**Strategy of data synthesis:** Heterogeneity among the studies was estimated by I<sup>2</sup> statistics. Random-effect model was performed if I<sup>2</sup>>50%, suggesting the existence of high heterogeneity, whereas if I<sup>2</sup>≤50%, fixed-effect model was performed.

**Subgroup analysis:** Sub-group analyses were also performed to assess heterogeneity.

**Sensitivity analysis:** Sensitivity analyses were performed via the leave-one-out approach to evaluate whether the results were changed significantly by a single study.

**Language:** English.

**Country(ies) involved:** China.

**Keywords:** erector spinae plane block; ultrasound-guided; regional anesthesia; different types of surgery; postoperative analgesia.

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