# INPLASY PROTOCOL

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**Support:** **TSUM.**

**Review Stage at time of this submission:** **Preliminary searches.**

**Conflicts of interest:**
**None declared.**

# Preoperative Lung Ultrasound for Confirmation of Double-lumen Endotracheal Tube for One Lung Ventilation: a Protocol for Systematic Review and Meta-analysis

Chang, KV[1].

**Review question / Objective:** **The meta-analysis aims to investigate the performance of lung ultrasound for assessing the double-lumen tube position for one lung ventilation.**
**Condition being studied:** **To examine the usefulness of ultrasound in the evaluation of the double-lumen tube position for one lung ventilation.**
**Information sources:** **PubMed, Scopus and Web of Science databases will be searched for the relevant studies without language restriction. Case reports, case series, conference abstracts, animal studies or those performed in laboratory settings will be excluded from the present meta-analysis.**

**INPLASY registration number:** This protocol was registered with the International Platform of Registered Systematic Review and Meta-Analysis Protocols (INPLASY) on 04 October 2022 and was last updated on 04 October 2022 (registration number INPLASY2022100021).

## INTRODUCTION

**Review question / Objective:** **The meta-analysis aims to investigate the performance of lung ultrasound for assessing the double-lumen tube position for one lung ventilation.**

**Condition being studied:** **To examine the usefulness of ultrasound in the evaluation**

of the double-lumen tube position for one lung ventilation.

## METHODS

**Search strategy:** The combinations of the following keywords will be used for literature search, including ultrasound, sonography, ultrasonography, double lumen, double-lumen, thoracic surgery, and one lung ventilation.

**Participant or population:** Patients undergoing thoracic anesthesia needing the insertion of the double lumen endotrachea tube insertion.

**Intervention:** Ultrasound imaging.

**Comparator:** Clinical evaluation.

**Study designs to be included:** cross-sectional, case-control, cohort studies and randomized controlled trial.

**Eligibility criteria:** (1) clinical trials investigating the accuracy of sonography to confirm the double lumen endotrachea tube positioning and (2) human studies.

**Information sources:** PubMed, Scopus and Web of Science databases will be searched for the relevant studies without language restriction. Case reports, case series, conference abstracts, animal studies or those performed in laboratory settings will be excluded from the present meta-analysis.

**Main outcome(s):** The primary outcome was the performance of either ultrasound imaging or clinical evaluation for validating the position correctness of the double-lumen endotracheal tube, using the findings of fiberoptic bronchoscopy or direct visualization of lung collapse during surgeries as the gold standard.

**Quality assessment / Risk of bias analysis:** The Quality Assessment of Diagnostic Accuracy Studies (QUADAS)-2 will be used to assess the quality of the studies included in the meta-analysis. Based on the QUADAS-2 tool, each article will be evaluated for the risk of bias in four domains (patient selection, index test, reference standard and flow and timing).

**Strategy of data synthesis:** The relevant parameters encompass sensitivity, specificity, positive predictive value, negative predictive value, positive likelihood ratio and negative likelihood ratio, which will be pooled by employing the random effect model. The summary receiver operating characteristics analysis will be used to compute the area under curve for the diagnostic examination.

**Subgroup analysis:** A subgroup analysis will be performed based on the difference of the assessment methods.

**Sensitivity analysis:** We may perform a sensitivity analysis to evaluate the influence of each study on the overall effect by eliminating them individually.

**Language restriction:** No limitation of languages.

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

**Keywords:** Anesthesia, ultrasonography, thoracic surgery, auscultation, double lumen tube.

**Contributions of each author:**
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