# INPLASY PROTOCOL

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

# Prevalence of axial symptoms after anterior cervical fusion: a meta-analysis

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**Review question / Objective:** **The aim of this systematic review is to research prevalence of axial symptoms after anterior cervical fusion to better inform clinical practice. To this end, the proposed systematic review will to investigate axial symptoms prevalence and related risk factors, in attempt to provide available detailed evidence-based data for preoperative evaluation, appropriate patient selection and informed consent.**
**Condition being studied:** **A systemic literature search is conducted in PubMed, Embase, CNKI, Wanfang, and Cochrane for observational and cohort studies. We conducte a meta-analysis using STATA package version 12.0 program for all extracted data. 2 clinical librarian(Xiaolin Zhao and Yong Huang) and 2 reviewers (Hui shang and Tianyu Shen) participate in the research process.**

**INPLASY registration number:** This protocol was registered with the International Platform of Registered Systematic Review and Meta-Analysis Protocols (INPLASY) on 12 March 2022 and was last updated on 12 March 2022 (registration number INPLASY202230048).

## INTRODUCTION

**Review question / Objective:** **The aim of this systematic review is to research prevalence of axial symptoms after anterior cervical fusion to better inform clinical practice. To this end, the proposed systematic review will to investigate axial symptoms prevalence and related risk factors, in attempt to provide available detailed evidence-based data for preoperative evaluation, appropriate patient selection and informed consent.**

**Rationale:** **At present, different studies on the prevalence of AS after anterior cervical**

fusion have been inconclusive and even conflicting, the risk factors for AS remain unclear. To the best of our knowledge, nometa-analysis studies have been conducted regarding the comprehensive epidemiological prevalence of AS after anterior cervical fusion.

**Condition being studied:** A systemic literature search is conducted in PubMed, Embase,CNKI, Wanfang, and Cochrane for observational and cohort studies.We conducte a meta-analysis using STATA package version 12.0 program for all extracted data. 2 clinical librarian(Xiaolin Zhao and Yong Huang) and 2 reviewers (Hui shang and Tianyu Shen) participate in the research process.

## METHODS

**Participant or population:** Patients with axial symptoms.

**Intervention:** Anterior cervical fusion.

**Comparator:** None( single-arm study).

**Study designs to be included:** Observational and cohort studies.

**Eligibility criteria:** Axial pain is defined as pain from the nuchal to the periscapular or shoulder region. This has been reported mainly after posterior cervical surgery. AS is more comprehensively described as pain and/or stiffness around the posterior neck or suprascapular areas that is improved by lying down and warming, and worsened by cooling.

**Information sources:** PubMed, Embase, CNKI, Wanfang, and Cochrane.

**Main outcome(s):** Prevalence of axial symptoms, postoperative axial pain defined as a VAS score standards of axial symptoms.

**Quality assessment / Risk of bias analysis:** The modified Newcastle Ottawa scale for non-randomized trials is used to assess the quality of the studies included in the meta-analysis. The quality assessment is conducted by both aforementioned reviewers individually, while the result of the evaluation was achieved by discussion or decision of the corresponding author.

**Strategy of data synthesis:** Stata 12.0 will be used conducte a meta-analysis of all extracted data,When a significant Q test (P\0.10) or I2[50 % indicated heterogeneity across studies, the DerSimonian and Laird random-effects model will be used for meta-analysis; otherwise, the Mantel–Haenszel fixed-effects model will be used.We will calculate the point prevalence of AS with its 95 % CI for each individual study, and then a pooled prevalence estimate and 95 % CI were generated.

**Subgroup analysis:** Subgroup analysis is performed according to preoperative average age and sex proportion (male: female), neck collar wear time, and surgical procedure[anterior cervical discectomy fusion(ADCF), anterior cervical corpectomy fusion(ACCF), artificial cervical disc replacement(ACDR)].

**Sensitivity analysis:** Sensitivity analysis will be conducted to examine the influence of excluding each study, prospective study or some specific studies on the overall AS prevalence(Sensitivity analysis is conducted by STATA software, and the sensitivity of the study will reflecte by the change of effect size after deleting one of the studies).

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

**Keywords:** Axial symptoms; Anterior cervical fusion; Prognosis; Meta-analysis.

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