

INPLASY

Learning curves of different robot systems and surgeon conditions in robot-assisted spine surgery: A systematic review and suggesting residency curricula

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ADMINISTRATIVE INFORMATION

Support - None.

Review Stage at time of this submission - Formal screening of search results against eligibility criteria.

Conflicts of interest - None declared.

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Amendments - This protocol was registered with the International Platform of Registered Systematic Review and Meta-Analysis Protocols (INPLASY) on 08 June 2024 and was last updated on 08 June 2024.

INTRODUCTION

Review question / Objective Is there exist the learning curve of robot-assisted spine surgery and is the learning curve the same when using different robot systems?

Condition being studied The learning curve of robot-assisted spine surgery with different robotic systems.

METHODS

Search strategy (“robot” OR “robotic” OR “robotics” OR “robot-assisted”) AND (“spine” OR “spinal” OR “vertebral” OR “vertebra” OR “vertebrae”) AND (“surgery” OR “surgical”) AND “learning curve” AND (English[Language]).

Participant or population Patients underwent robot-assisted spine surgery.

Intervention Robot-assisted spine surgery.

Comparator Not applicable.

Study designs to be included cohort studies, case-control studies, or cross-sectional studies.

Eligibility criteria

- 1) Articles must be about the robot-assisted spine surgery with robot system using to place pedicle screws or other spine instrumentation in patients and written in English.
- 2) Articles must describe the learning curve.
- 3) Articles must present the primary research data including: baseline data of patients, type of the robot system and measurement outcomes at least containing one of the following endpoints as

evidence of improvement in proficiency with the device: pedicle screw accuracy (graded or rate of misplacement), pedicle screw placement time, operative time, radiation time or dose.

4) Articles must be original and describe the primary data from a cohort, trial, series or so, as opposed to a narrative or systematic review, meta-analysis, case report, commentary, letter to the editor, or editorial.

5) Articles must study inside the clinical setting, the studies performed in cadavers, polyurethane models, or animals will be excluded.

Information sources Pubmed, Embase, Web of Science and Scopus databases.

Main outcome(s) The identification of the learning curve of robot-assisted spine surgery.

Quality assessment / Risk of bias analysis The assessment of the quality of each individual study was performed reviewers according to the North American Spine Society (NASS) levels of evidence guidelines.

Strategy of data synthesis Narrative review, not applicable.

Subgroup analysis Not applicable.

Sensitivity analysis Not applicable.

Country(ies) involved China (Beijing Friendship Hospital, Capital Medical University).

Keywords spine robot, learning curve, robot system, surgeon condition, residency curricula.

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