

## INPLASY

## Selection criteria for maxillomandibular advancement surgery in adults with obstructive sleep apnea: a scoping review protocol

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Facultad odontología.**ADMINISTRATIVE INFORMATION****Support** - Universidad Nacional de Colombia.**Review Stage at time of this submission** - The review has not yet started.**Conflicts of interest** - None declared.**INPLASY registration number:** INPLASY202670004**Amendments** - This protocol was registered with the International Platform of Registered Systematic Review and Meta-Analysis Protocols (INPLASY) on 2 July 2026 and was last updated on 11 July 2026.**INTRODUCTION**

**Review question / Objective** To map the scientific evidence available on the clinical, anatomical, polysomnographic and functional criteria used to select adult patients with obstructive sleep apnea (OSA) who are candidates for maxillomandibular advancement (MMA) surgery.

Review question: What clinical, anatomical, polysomnographic and functional criteria are reported in the scientific literature for selecting adult patients with OSA as candidates for MMA surgery?

**Rationale** Despite well-documented surgical success rates, patient selection for MMA lacks a standardized protocol. Clinical, cephalometric, polysomnographic criteria and drug-induced sleep endoscopy (DISE) findings used to indicate surgery vary considerably across groups and reference centers, which prevents comparison between studies and limits evidence-based decision-making. No comprehensive prior systematic or

scoping review on selection criteria was identified after searching INPLASY, PROSPERO and Open Science Framework.

**Condition being studied** Obstructive sleep apnea (OSA) is a breathing disorder characterized by recurrent upper airway collapse during sleep, with documented cardiovascular, metabolic and neurocognitive consequences. Standard diagnosis is via polysomnography (PSG), with severity classified by the apnea-hypopnea index (AHI): mild (5-15 events/h), moderate (15-30 events/h) and severe (>30 events/h).

**METHODS**

**Search strategy** A systematic search was conducted in PubMed/MEDLINE, Embase and Scopus between 3 and 10 July 2026, without language restriction, following the three-step search method of the Joanna Briggs Institute. Grey literature (Google Scholar) was also screened. The database-specific strategies were:  
PubMed/MEDLINE:

("Obstructive Sleep Apnea"[Mesh] OR "Obstructive Sleep Apnea" OR "Sleep Apnea, Obstructive" OR OSA) AND ("Maxillomandibular Advancement"[Mesh] OR "Maxillomandibular Advancement" OR "Orthognathic Surgery"[Mesh] OR "Orthognathic Surgery" OR "Genioplasty"[Mesh] OR Genioplasty) AND ("Patient Selection"[Mesh] OR "Eligibility Determination" OR "Inclusion Criteria" OR "Indications" OR "Clinical Decision-Making" OR algorithm OR protocol OR "Decision Support Techniques")

Embase:

('obstructive sleep apnea'/exp OR 'obstructive sleep apnea':ti,ab OR osa:ti,ab) AND ('maxillomandibular advancement'/exp OR 'orthognathic surgery'/exp OR 'genioplasty'/exp) AND ('patient selection'/exp OR 'eligibility determination':ti,ab OR indication\*:ti,ab OR 'clinical decision making'/exp OR algorithm\*:ti,ab OR protocol\*:ti,ab)

Scopus:

TITLE-ABS-KEY("obstructive sleep apnea" OR "sleep apnea" OR OSA OR OSAS OR "sleep-disordered breathing") AND TITLE-ABS-KEY("maxillomandibular advancement" OR "bimaxillary advancement" OR "jaw advancement surgery" OR MMA OR "orthognathic surgery" OR "facial skeletal surgery") AND TITLE-ABS-KEY("patient selection" OR "selection criteria" OR "surgical indication" OR predictor\* OR algorithm OR protocol) Full database-specific search strategies are provided as Supplementary Material in the manuscript."

**Participant or population** Adults ( $\geq 18$  years) with a confirmed diagnosis of OSA by polysomnography (level 1 or 2, current AASM criteria). Studies with mixed pediatric/adult populations will be excluded unless results are reported separately by age group.

**Intervention** Not applicable in the traditional effectiveness sense. This scoping review does not test an intervention's effect; the concept of interest is the set of clinical, anatomical, polysomnographic and functional criteria reported for selecting candidates for maxillomandibular advancement (MMA) surgery.

**Comparator** Not applicable — this is a scoping review; no comparator intervention is pre-specified.

**Study designs to be included** Observational studies, clinical trials, systematic reviews, meta-analyses, consensus statements, narrative reviews, book chapters and relevant clinical guidelines.

**Eligibility criteria** Inclusion — Population: adults ( $\geq 18$  years) with PSG-confirmed OSA. Concept: studies reporting selection criteria, indication variables or predictors of surgical success for MMA. Context: any geographic/clinical setting, no language restriction. Design: see Item 15. Timeframe: publications from 2000 to the final search date.

Exclusion: pediatric population ( $< 18$  years); studies evaluating exclusively soft-tissue procedures (UPPP, genioglossus advancement, hypoglossal nerve stimulation) without a skeletal component; case series with fewer than 10 patients that do not report selection criteria; studies without accessible full-text clinical data; duplicate publications (primary report retained).

**Information sources** PubMed/MEDLINE, Embase, Scopus, Google Scholar, and grey literature (OpenGrey, ProQuest Dissertations, conference proceedings of maxillofacial surgery and sleep medicine societies).

**Main outcome(s)** Not applicable in the effect-estimation sense. As a scoping review, no outcome measure is pre-specified for pooling; this review maps reported patient-selection criteria, cephalometric/anatomical variables, polysomnographic and DISE parameters, and factors associated with surgical outcome, as reported by the primary studies.

**Additional outcome(s)** Not applicable.

**Data management** Title/abstract screening, full-text assessment and data charting were performed independently by all three reviewers (Ponce-Sandoval IM, Gallo Orjuela DM and Balentien M) for every article; disagreements were resolved by consensus among the three reviewers. References were managed in Rayyan and data were charted using a standardised, piloted nine-domain extraction form.

**Quality assessment / Risk of bias analysis** Not performed. In accordance with JBI 2020 guidance (Peters et al.), critical appraisal or risk-of-bias assessment is not recommended in scoping reviews, since the aim is to map the extent, range and nature of available evidence rather than appraise its quality. The level of evidence of each source is recorded descriptively only (JBI scale I-V).

**Strategy of data synthesis** Descriptive and narrative synthesis. No meta-analysis will be performed. Results will be presented as an evidence map (distribution of studies by year,

country, design and level of evidence), frequency tables of selection criteria by domain (clinical, cephalometric, PSG, DISE), a descriptive conceptual framework linked to the specific objectives, a PRISMA-ScR flow diagram, and a narrative synthesis of knowledge gaps.

**Subgroup analysis** Not applicable — no quantitative synthesis is planned.

**Sensitivity analysis** Not applicable — no quantitative synthesis is planned.

**Language restriction** No language restriction will be applied to the search strategy.

**Country(ies) involved** Colombia, Curazao.

**References** Peters MDJ, Marnie C, Tricco AC, et al. Updated methodological guidance for the conduct of scoping reviews. *JBIM Evid Synth*. 2020;18(10):2119-2126. — Tricco AC, Lillie E, Zarin W, et al. PRISMA extension for scoping reviews (PRISMA-ScR): checklist and explanation. *Ann Intern Med*. 2018;169(7):467-473. — Arksey H, O'Malley L. Scoping studies: towards a methodological framework. *Int J Soc Res Methodol*. 2005;8(1):19-32. — Levac D, Colquhoun H, O'Brien KK. Scoping studies: advancing the methodology. *Implement Sci*. 2010;5:69.

**Keywords** obstructive sleep apnea; maxillomandibular advancement; orthognathic surgery; patient selection; polysomnography; drug-induced sleep endoscopy; scoping review.

**Dissemination plans** "Results will be submitted for publication to a Q1-indexed journal (target: International Journal of Oral and Maxillofacial Surgery), presented at maxillofacial surgery / sleep medicine conferences, and shared through the authors' educational channels."

### Contributions of each author

Author 1 - Ivonne Ponce - Conceiving and designing the review; coordinating the review; writing the protocol.

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Author 2 - Diana Marcela Gallo Orjuela - Designing the review methodology; critical revision of the search strategy.

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