

ORIGINAL ARTICLE OPEN ACCESS

How to Develop Trustworthy Evidence-Informed Clinical and Public Health Guidelines in Oral Health: Methodological Strategies

Francisca Verdugo-Paiva^{1,2}  | Samantha Rutherford³ | Michele West³ | Olivia Urquhart¹  | Ivan D. Florez^{4,5}  | Fang Hua⁶  | Carol C. Guarnizo-Herreño⁷  | Akira Hasuike⁸  | Ignacio Neumann⁹ | Manu Mathur¹⁰  | Stefan Listl¹¹  | Alonso Carrasco-Labra¹ 

¹Center for Integrative Global Oral Health, School of Dental Medicine, University of Pennsylvania, Philadelphia, USA | ²Department of Paediatrics, Obstetrics & Gynaecology and Preventive Medicine and Public Health, Universitat Autònoma de Barcelona, Barcelona, Spain | ³Scottish Dental Clinical Effectiveness Programme, NHS Education for Scotland, Edinburgh, UK | ⁴Department of Pediatrics, University of Antioquia, and Pediatric Intensive Care Unit, Clínica Las Americas-AUNA, Medellín, Colombia | ⁵School of Rehabilitation Science, McMaster University, Hamilton, Ontario, Canada | ⁶Center for Evidence-Based Stomatology, School & Hospital of Stomatology, Wuhan University, Wuhan, China | ⁷Facultad de Odontología, Universidad Nacional de Colombia, Bogotá, Colombia | ⁸Department of Periodontology, School of Dentistry, Nihon University, Tokyo, Japan | ⁹School of Medicine, Universidad San Sebastián, Santiago, Chile | ¹⁰Centre for Dental Public Health and Primary Care, Institute of Dentistry, Queen Mary University of London, London, UK | ¹¹Section for Oral Health, Heidelberg University Hospital, Heidelberg Institute of Global Health, Heidelberg, Germany

Correspondence: Francisca Verdugo-Paiva (verdugof@upenn.edu)

Received: 16 February 2026 | **Revised:** 1 September 2026 | **Accepted:** 5 October 2026

Keywords: clinical practice guidelines | evidence-based dentistry | evidence-informed guidelines | oral health policies

ABSTRACT

Objectives: To identify barriers for the development of evidence-informed guidelines and propose potential methodological strategies addressing key barriers to producing trustworthy evidence-informed guidelines in oral health (OH).

Methods: Findings from a qualitative study exploring barriers in OH guideline development were used, and an international working group of experts in guideline methodology and individuals with experience in clinical and public health guidelines in OH was recruited. Through an iterative consensus approach, the following steps were followed: (1) identification of barriers related to the guideline development process itself and could be addressed through implementing or enhancing methodological strategies; (2) determination of the relevance of these challenges for guideline developers and research methodologists; and (3) agreement on the content and structure of each methodological strategy to address a particular barrier. Current methodological handbooks and publications on evidence-informed guideline development informed this process. The nominal group technique was used to reach consensus, concluding when no further comments were raised and the participants confirmed that no additional modifications were needed.

Results: Twelve experts from nine countries participated. The working group consolidated current methodology into nine strategies addressing 13 identified barriers. The document covers: defining when a document qualifies as an 'evidence-informed guideline'; practical approaches for defining guideline topics, scope, and questions; using pre-existing systematic reviews; formulating recommendations with limited or indirect evidence; developing recommendations on dental products; integrating economic considerations and people values and preferences; and involving non-dental healthcare professionals in OH guideline development.

Discussion: These strategies support guideline methodologists and lead developers in producing trustworthy clinical and public health guidelines in OH at global, regional, national, and subnational levels. They aim to improve the quality, consistency, and

This is an open access article under the terms of the [Creative Commons Attribution](https://creativecommons.org/licenses/by/4.0/) License, which permits use, distribution and reproduction in any medium, provided the original work is properly cited.

© 2026 The Author(s). *Community Dentistry and Oral Epidemiology* published by John Wiley & Sons Ltd.

1 | Introduction

Evidence-informed (or evidence-based) guidelines are systematically developed sets of recommendations that various interest-holders ideally can use to make informed health decisions [1, 2]. Across health sectors, trustworthy guidelines incorporate the best available evidence, along with expert experience and people's values and preferences, and other contextual factors, into actionable statements (commonly known as recommendations). Guidelines can focus on various aspects of healthcare. Clinical guidelines focus on treatment, prevention, diagnosis, or prognosis within defined clinical scenarios. In contrast, public health guidelines often focus on health promotion strategies, public health and social measures, or health system interventions that operate at both the patient and community level [3, 4]. These guidelines can help clinicians and patients determine the best course of action for clinical scenarios and help public health professionals and policymakers make health policy decisions, allocate healthcare resources, and determine coverage [5].

Over the past decade, the number of oral health (OH) guidelines has increased exponentially; however, this rise in quantity has not been accompanied by improvements in quality. Several methodological reviews using the Appraisal of Guidelines for Research and Evaluation (AGREE) II tool [6] have identified significant deficiencies in OH guidelines, with only a small proportion deemed suitable for use [7–12]. This deficiency reflects the lack of a rigorous and established methodology in the guideline development process, rather than the absence of strong or high-quality evidence. A systematic survey revealed that most organizations responsible for developing OH guidelines and policy documents lack structured and standardized approaches for formulating recommendations. This study demonstrated inconsistent use of terminology across organizations and identified reliance on informal methods in guideline development [13].

Many studies have examined barriers to developing high-quality, evidence-based guidelines, with time constraints, limited resources, and personnel shortages being the most frequently reported challenges [14, 15]. These barriers not only hinder the guideline development process but also risk undermining the trustworthiness and applicability of the resulting guidelines for their intended users—clinicians, patients, and policymakers—who depend on evidence-informed recommendations to inform their decisions.

A recently published qualitative study exploring barriers specific to OH guideline developers found that, although they report similar barriers to those identified in other fields, they also described additional obstacles hindering the integration of evidence into guidelines [16]. These obstacles fall into two categories: those unique to OH guideline development, such as overemphasis on personalized treatment planning, regulatory issues related to dental devices and materials, the low priority assigned to OH by authorities and the public, and limited communication with non-dental professionals; and those that,

while not specific to OH, remain highly applicable to it, such as reliance on surrogate outcomes and difficulties incorporating economic considerations into decision-making [16]. Regardless of category, these barriers cannot be resolved simply by directing guideline developers to existing resources, such as GRADE methodological papers or Guidelines International Network (GIN) resources. Rather, they reflect genuine methodological gaps: some barriers are not directly addressed by existing cross-disciplinary guidance, and where relevant methodological approaches do exist, they are dispersed across multiple sources rather than consolidated in a single document, and are rarely presented in a way that allows direct application to the guideline development process.

To align OH guideline development with international standards, tailored methodological strategies are needed—dedicated, field-adapted solutions that draw on the expertise of experienced OH guideline developers who have encountered these barriers firsthand, and that are presented in a practical format to operationalize established GRADE, GIN, and Cochrane principles for OH guideline developers. To address these gaps, this article presents expert-informed methodological strategies to support the production of trustworthy, evidence-informed OH guidelines.

2 | Methods

2.1 | Overview

Findings from a qualitative study that explored barriers to develop guidelines in OH reported by guideline developers were used [16]. An international working group of experts in guideline methodology and individuals with experience in clinical and public health guidelines was recruited. An iterative consensus approach was employed to (1) identify which barriers were related to the guideline development process itself and could be addressed through methodological strategies; (2) determine the relevance of these challenges for guideline developers and research methodologists; and (3) agree on the content and structure of each methodological strategy to address a particular barrier. Definitions for key guideline-related terms can be found in Box 1 and Files S1 and S2 (Glossary). The study protocol was registered in OSF [17] (Figure 1).

2.2 | Participants

Experts in evidence-informed guideline development were invited. Balanced representation was sought, including experts from diverse countries, with representation in both low- and high-income settings with varying health systems, as well as across gender, geographic distribution, and areas of expertise. Based on their availability and expertise, they were assigned to be part of the working group either as members of the steering committee or the expert panel.

BOX 1 | Key Concepts on Evidence-Informed Guideline.*What is an evidence-informed (or evidence-based) guideline?*

A systematically developed set of actionable statements that help clinicians, patients, public health professionals, policymakers, and other interest-holders make informed decisions about health interventions. These guidelines use systematic methods to identify, appraise, and synthesize the best available evidence, following a structured process to translate evidence into formal recommendations

What do evidence-informed guidelines include?

Guidelines typically contain multiple actionable statements. Formal recommendations are central, as they provide actionable suggestions for choosing between management or policy options for a specific patient, population and setting. Each formal recommendation should be clear, actionable, and unambiguous. In addition, other types of actionable statements are also necessary, including good practice statements, research-only recommendations, remarks or implementation considerations, and tools and tips

What is a guideline developer or guideline-producing organization?

An entity that produces statements intended to guide health-related practice, including statements addressing clinical, public health, health systems, and policy domains. Such organizations may include governmental agencies, professional associations, and disease- or population-specific organizations, among others, and may operate at the international, regional, national, or sub-national level

What can a guideline do for clinicians?

- Support decision-making: clinicians can use guidelines to determine whether and how to proceed when managing a disease or condition using specific interventions for individual patients
- Summarize best available evidence: clinicians can use guidelines to easily access the available body of evidence on a specific clinical question

What can a guideline do for patients and the public?

- Empower through trustworthy information: patients and the public can use guidelines to learn about benefits and harms of a specific intervention, helping them make informed health choices
- Support shared decision-making: patients and the public can use guidelines to make choices about their own and their family's health and well-being in alignment with their values and preferences
- Advance public interest: patients and the public can use guidelines to promote and advance consumer protection, education and healthcare access

What a guideline can do for public health professionals?

- Support decision-making: public health professionals can use guidelines to support decisions on how to proceed when managing a disease or condition using specific interventions or strategies to improve population outcomes and tackle inequalities
- Summarize best available evidence: public health professionals can use guidelines to easily access the available body of evidence on a specific public health question
- Support advocacy: Guideline recommendations can provide evidence-informed backing for policy proposals and program implementation

What can a guideline do for policymakers?

- Inform health policy and regulatory decisions: policymakers can use guidelines to align health policies with recommendations and prioritize interventions in health benefit packages
- Support resource allocation and priority setting: policymakers can use guidelines to make decisions about healthcare resource allocation and coverage
- Guide training and coordinate strategies: policymakers can use guidelines to inform decisions about how providers are trained and coordinated, including individual health professionals and health facilities

What is not a guideline?

- A document advising in favour or against the use of an intervention or policy option that is not actionable or is ambiguous
- The opinion, position statement, or belief of an organization on a specific topic
- Information about legislation or regulations on health policies
- Educational materials or general information resources

2.3 | Drafting the Methodological Strategies

The barriers specifically related to the guideline development process that could be addressed through the implementation of specific methodological strategies were reviewed by steering committee members [16]. To inform this process, two members (FVP, ACL) drafted the first version of the strategies. The most up-to-date versions of methodological handbooks and publications related to evidence-informed guideline development were consulted. The draft was reviewed by the full steering committee and provided detailed feedback for iterative refinement.

2.4 | Achieving Consensus on Content and Structure

Steering committee and expert panel members were invited to participate in a consensus meeting and were e-mailed all relevant information and documents in advance. The meeting was held online, and the session was recorded and transcribed.

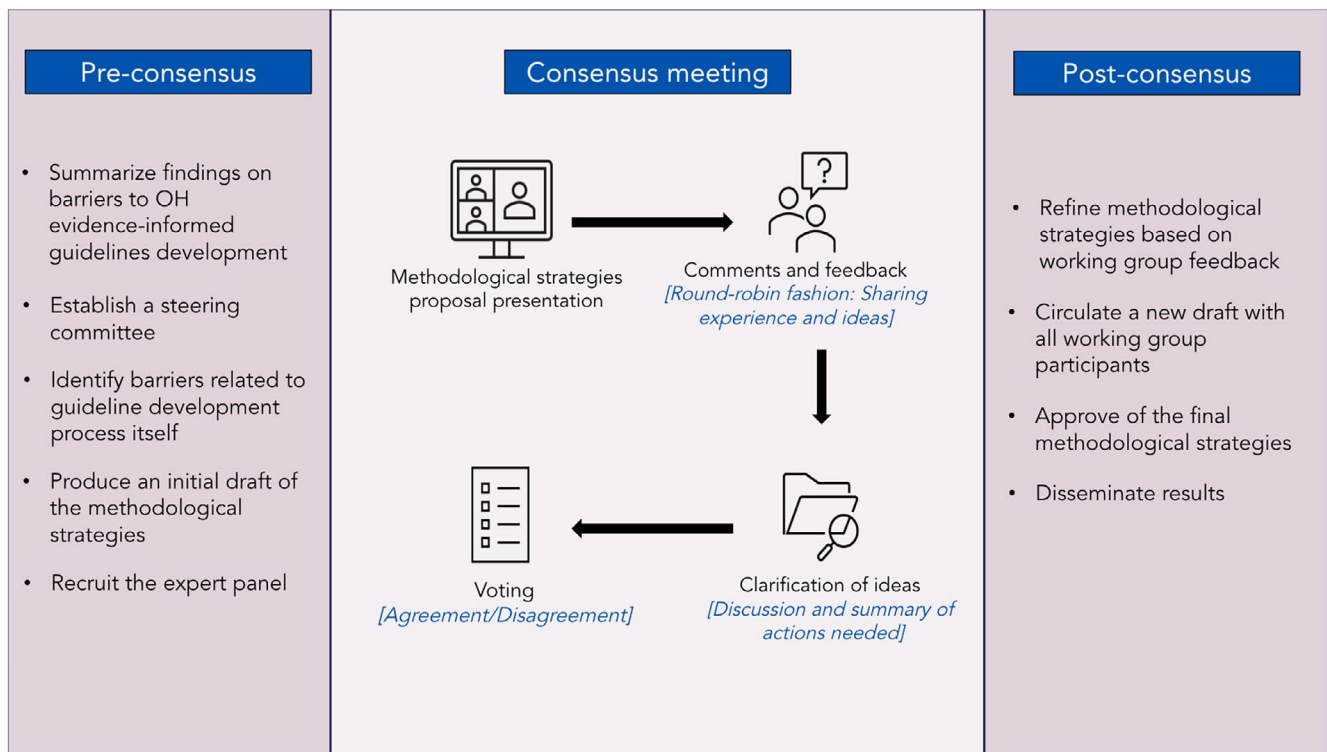


FIGURE 1 | Methodological strategies development process overview.

During the meeting, selected barriers, their rationale for being considered barriers, and the proposed methodological strategies to overcome them were presented by a steering committee member. Feedback from expert panel members was gathered using a structured Nominal Group Technique (NGT), including individual comments in a round-robin format, open discussion, clarification, and voting on each item [18]. Discussion to resolve disagreements on structure and content was facilitated by steering committee members. Consensus was defined as the absence of objections to the proposed methodological approaches. After each discussion round, a summary of the agreed-upon modifications was presented back to the group to confirm alignment and fidelity.

2.5 | Approval of the Final Methodological Strategies

The document was finalized by incorporating all agreed-upon revisions from the working group. The development process concluded once all working group members confirmed, through explicit approval, that the content and structure of the strategies required no additional modifications.

3 | Results

3.1 | Participants Characteristics

Sixteen experts were invited, of whom 12 individuals from nine countries (Figure S1) agreed to participate in the working group (seven to the steering committee and five to the expert panel).

Members had experience in guideline methodology (including active members of the GRADE (Grading of Recommendations Assessment, Development and Evaluation) working group, the AGREE collaboration, the Guidelines International Network (GIN)), in clinical guideline development in OH, and public OH guidelines and policy documents.

3.2 | Selected Barriers to Inform the Development of Methodological Strategies

Of the 47 barriers reported in the qualitative study [16], 19 were excluded because they reflected external contextual constraints rather than challenges inherent to the guideline development process (e.g., lack of training in evidence-informed decision-making). Of the remaining 28 barriers, 15 were excluded because they could not be addressed through methodological strategies (e.g., existing guidelines are scattered across different sources). Thirteen barriers that were both intrinsic to the development process and potentially addressable through methodological approaches were retained for the development of this document (Figure S2).

3.3 | Final Methodological Strategies

The working group consolidated current standard methodology into nine methodological strategies aimed at overcoming the 13 identified barriers (Table 1). A glossary defining key terms used throughout the document is provided in File S1—Glossary. Additionally, a list of available guidance, checklists, and tools for guideline development is available in Box 2.

TABLE 1 | Barriers reported by OH guideline developers and methodological strategies to address them.

Barrier identified	Methodological strategies
1. Lack of consistency in guideline terminology	When to label a document as a guideline and when to describe it as “evidence-informed”
2. Methodological rigour constrains the scope of the guideline	How to define a focused and feasible topic and scope
3. Complexities in guideline topic prioritization	
4. Challenges in selecting and framing guideline questions	How to frame answerable questions and prioritize them
5. Overvaluation of surrogate outcomes by clinicians and researchers	
6. Contradictory findings across existing systematic reviews	How to use pre-existing systematic reviews to inform recommendations
7. Limited high-certainty evidence	How to formulate recommendations with limited or indirect evidence
8. Insufficient evidence to answer relevant questions	
9. Regulatory complexities related to dental products	How to formulate recommendations on dental products
10. Difficulties in incorporating economic evidence	How to incorporate economic considerations into OH guidelines
11. Lack of patient partner organizations	How to incorporate people's values and preferences into OH guidelines
12. Lack of evidence about people's values and preferences	
13. Limited participation and communication with non-dental professionals	How to involve non-dental healthcare professionals in developing OH guidelines

3.3.1 | Target Audience and Scope

The primary audience includes individuals responsible for, or supporting, the methodological processes used to develop evidence-informed clinical or public health guidelines at global, regional, or national levels—typically guideline methodologists and lead guideline developers. Some sections of this document may also be relevant for systematic reviewers, policymakers, and guideline panellists (see Box 1). This can also be used in academic training settings.

These strategies are intended for use across a range of settings, including the development of clinical and public health guidelines at global, regional, national, and subnational levels. The methodological strategies outlined may be applied when addressing decisions that affect individuals, populations, or health systems. Given the broad scope of this manuscript, the term “evidence-informed” is used throughout the manuscript, as it represents a more inclusive concept that acknowledges the integration of research evidence into diverse decision-making processes.

3.4 | Methodological Strategies for OH Guidelines

3.4.1 | When to Label a Document as a “Guideline” and When to Describe It as “Evidence-Informed”

3.4.1.1 | Current Situation. Organizations worldwide produce documents intended to guide practice and public health decisions. However, many terms have been used to label documents

containing actionable statements recommending or suggesting a course of action to guide clinical practice or public health decisions in OH. These terms include “clinical practice guideline”, “consensus statements”, “consensus recommendation”, “best practice guidance”, “evidence-based guideline”, “evidence-informed guideline”, “consensus-based guideline”, “experts’ recommendations”, and many others [13].

3.4.1.2 | Consequences. The current inconsistency in terminology undermines the credibility, usability, and implementation of trustworthy OH recommendations. This misleading nomenclature weakens adherence to evidence-based dentistry principles, as OH clinicians may perceive that documents labelled as “evidence-informed guidelines” and “best practice guidelines” are equivalent, leading to confusion and disregard of methodological rigour. This inconsistency also limits the ability of OH guidelines to be recognized by other interest-holders.

3.4.1.3 | What to Do. OH guideline developers are encouraged to distinguish between different types of documents and actionable statements. An actionable statement is any explicit guidance provided within a clinical or public health guideline that directs a decision or behaviour for a defined population, context, or intervention (commonly known as recommendations) (Box 1):

1. Use the term “guideline” only when developing a document containing recommendations intended to support clinicians, patients, public health professionals, policymakers,

and other interest-holders in making healthcare decisions. A recommendation should be clear, actionable, and leave no ambiguity about how to proceed [34].

BOX 2 | List of available guidance, checklists and tools for evidence-informed guideline development.

Guideline planning, development, and updating:

- The Guidelines International Network (GIN)-McMaster Guideline Development Checklist (GDC) (<https://macgrade.mcmaster.ca/resources/gin-mcmaster-guideline-development-checklist/>) [19] and its extensions for equity considerations, rapid guidelines, interest-holders^a engagement, and quality assurance and improvement [20–23]
- Involvement of patients and the public in guideline activities: GIN Public Toolkit: patient and public involvement in guidelines. The Guidelines International Network (GIN) [24]
- Disclosure of interests (DOI) and management of conflicts of interest (COIs): Methods of the American College of Physicians (ACP) [25]
- Contextualization (adopt and adapt guidelines): GRADE-ADOLOPMENT [26] WHO handbook for guideline contextualization [27]

Methodological standards:

Appraisal of Guidelines for Research and Evaluation Reporting Checklist II (AGREE) Instrument [6]

Reporting standards:

- Reporting Items for practice Guidelines in HealthCare (RIGHT) statement [28]
- Reporting Conflicts of Interest and Funding in Health Care Guidelines: The RIGHT-COI&F Checklist [29]
- Reporting Tool for Adapted Guidelines in Health Care: The RIGHT-Ad@pt. Checklist [30]
- Reporting of Updated Guidelines (CheckUp) [31]

Guidance for development of evidence syntheses to inform guidelines:

- The Cochrane Collaboration (<https://www.cochrane.org>)
- The Joanna Briggs Institute (JBI) (<https://jbi.global/>)
- The Campbell Collaboration (<https://www.campbellcollaboration.org/>)
- Concise guidance and tools for conducting systematic reviews [32]

^aIn the context of guidelines, the term stakeholder is often used to describe groups responsible for or affected by recommendations, such as patients, the public, providers, and policymakers. Following the MuSE Consortium's recommendation (formerly the Multi-Stakeholder Engagement Consortium), the term interest-holders was used [33].

2. Use the term “evidence-informed guideline” or “evidence-based guideline” only when referring to guidelines that include formal recommendations (Box 1) [34]. These are actionable statements that have a clear direction (for or against the options) and strength (e.g., strong or conditional) [34] and should be:

Informed by one or more systematic reviews (SR) or other types of evidence synthesis. A SR includes the following [35]:

- A clear research question
- Well-defined inclusion and exclusion criteria.
- Comprehensive search methods
- Description of the selection (screening) and data extraction process
- Critical appraisal of the quality/risk of bias of the included studies
- Description of data analysis and synthesis.

Based on a structured process to move from the available evidence to a recommendation or decision. This process should include an explicit and transparent description of critical criteria influencing decisions (e.g., benefits and harms, resource requirements, people's values and preferences). For clinical decisions, the main GRADE Evidence to Decision (EtD) framework can be used. For public health decisions, the GRADE EtD framework for health system and public health decisions, or the World Health Organization (WHO) INTEGRATE EtD can be used [3, 36, 37].

3.4.1.4 | What Not to Do. Avoid informal recommendation: These are actionable statements that are not developed following the systematic process describe above (i.e., informed by a systematic review and based on a structured process for moving from evidence to a decision) [34]. For example, a recommendation stated in a narrative review or expert opinion piece without an explicit, transparent methodology would be considered informal. While there are valid reasons for not developing formal recommendations (e.g., the alternative to an intervention is highly unlikely to be chosen due to ethical concerns), informal recommendations should be avoided whenever possible [34]. In these cases, the guideline panel may formulate good practice statements (GPS) [34, 38].

3.4.2 | How to Define a Focused and Feasible Guideline Topic and Scope

3.4.2.1 | Current Situation. In the past, most guidelines aimed to address entire conditions, resulting in extensive documents filled with recommendations covering the full continuum of care. Such broad guidelines were time-consuming to develop, difficult to update, and often impractical to implement. At present, increasing methodological rigour in guideline development and the rapid emergence of evidence have made these broad scopes less feasible. Moreover, the rise of living guideline approaches has highlighted the need for more flexible, focused, and adaptive scopes [39]. Given the considerable resources and time required to develop guidelines, topic prioritization is required to ensure that efforts are allocated to the most impactful areas [39].

3.4.2.2 | Consequences. As a result, modern guidelines tend to focus on specific questions or well-defined aspects of care. However, formal processes for defining priority topics and their scopes are rarely conducted or reported. In many cases, topic selection is done by the funder or commissioner of the guideline, without input from interest-holders or available evidence, or is influenced by other factors, such as conflicts of interest, economic, or political pressures [16].

3.4.2.3 | What to Do. Guidelines developers should conduct a systematic and transparent topic prioritization process to define the most needed and high-impact topics that a guideline should address. This deliberative process can include the funder or commissioner of the guideline, guideline developers, methodologists, and interest-holders, including patients and members of the public, health-care providers, program managers, and policymakers [20]. This process should:

1. Be conducted at the beginning of the guideline project, since topic definition will lead to the establishment of the scope, objective, and target users
2. Include a pre-prioritization phase to generate an initial list of topics. Potential guideline topics can be identified by consulting with interest-holders and conducting evidence mapping [39, 40]. Before finalizing a topic, guideline developers should search and review existing guidelines and SRs related to the proposed area. This step helps ensure alignment with current guidelines and policies and prevents duplication of recent high-quality documents.
3. Use predefined criteria to rank the guideline topics based on relevance and feasibility (e.g., burden of disease, urgency, variation in practice, potential impact on health outcomes, inequalities or economics) [40].
4. Incorporate the values of relevant interest-holders within the local, national, regional, or global OH landscape, depending on where the guidelines will be implemented [39, 41].
5. Funders and commissioners may play a role in defining topic and scope; they should not influence the content, direction, grading, and final recommendations [6].
6. Guideline developers should ensure that guidelines are appropriately focused and have a well-defined scope. To maintain methodological rigour, while remaining responsive to evolving and emerging evidence, technologies and health priorities, adopting a focused or modular scope is recommended. Moreover, since most organizations can only feasibly address a limited number of questions, a focused scope enhances the practicality of guideline development projects. For example, rather than developing a guideline on the overall management of acute dental pain, it may be more feasible to focus specifically on the pharmacological management of acute dental pain associated with tooth extractions or toothache when definitive dental treatment is not immediately available in children and adolescents [42].

3.4.2.4 | What Not to Do. Avoid defining a guideline topic and scope without considering the target users and interest-holders: A scope that seems relevant from the perspective of expert clinicians, researchers, or policymakers may not be applicable

or implementable for the intended users of the guideline. The topic of the guideline and its scope should be realistic, aligned with practice, and feasible within the local health system.

3.4.3 | How to Frame Answerable Questions and Prioritize Them

3.4.3.1 | Current Situation. Evidence-informed guidelines are developed in response to one or more questions, which inform crucial aspects of the guideline development [40]. However, many guideline developers fail to apply a standardized framework for selecting and prioritizing questions and outcomes. In OH, the inclusion of person-important outcomes in decision-making is uncommon, as surrogate outcomes—outcomes that are precursors, predictors, or proxies of person-important outcomes—are frequently used in primary studies and SRs [43]. Person-important outcomes are those for which a person would consider receiving an intervention even when it involves adverse events, costs, and burden [44].

3.4.3.2 | Consequences. When recommendations are developed without a proper prioritization process, they risk being irrelevant or not aligned with the most pressing concerns of patients, clinicians, and policymakers. The use of surrogate outcomes to assess the effects of clinical or public health interventions can undermine the credibility of the recommendations, as a demonstrated effect on a surrogate outcome does not necessarily translate into meaningful benefits for person-important outcomes [45]. Examples of surrogate outcomes in OH include mutans streptococci levels, bleeding on probing, and peri-implant bone loss.

3.4.3.3 | What to Do. Guideline developers should conduct a prioritization exercise to:

1. Facilitate the guideline panel in identifying and prioritizing the most important questions to address. This process can include conducting evidence mapping, surveying guideline panel members, and consulting interest-holders using predefined criteria to rank the questions [40]. These guideline questions have to be translated into one or more review questions—that is, questions that can be answered through a SR.
2. Review questions should follow a structured framework that specifies each question's domain, components, and characteristics. Examples of question frameworks include Population, Intervention, Comparator, and Outcome (PICO), Population, Index Test, Reference Test, Diagnosis of Interest (PIRD), and Population, Exposure, Outcome (PEO) [46].
3. Facilitate the guideline panel in prioritizing the most critical outcomes for decision making. A structured process should be undertaken to rate the importance of potentially relevant outcomes before the evidence is presented to a panel [47]. During this process, the guideline panel rates outcomes as critical, important, and not important for decision making. Brainstorming potential outcomes and consulting existing evidence sources (such as outcomes reported in existing SRs or guidelines and checking availability of core outcome

sets) is recommended. Examples of critical outcomes in OH include pain relief, pain intensity, tooth loss, and dental implant loss.

3.4.3.4 | What Not to Do. Avoid using surrogate outcomes as equivalent to person-important outcomes: When evidence on a person-important outcome is unavailable (e.g., when critical outcomes are not reported in trials due to the event being infrequent or occurring over a long follow-up period), OH guideline developers may need to rely on surrogate outcomes. In such cases, it is essential to explicitly define the person-important outcomes of interest and clearly identify the surrogate outcomes being used in their place. Surrogate outcomes should not be considered equivalent to person-important outcomes, and their use may warrant rating down the certainty of the evidence due to indirectness [48].

3.4.4 | How to Use Pre-Existing Systematic Reviews to Inform Recommendations

3.4.4.1 | Current Situation. SRs are widely recognized as the cornerstone of evidence-informed decision-making in health. As a result, the number of published SRs has grown exponentially in recent years [49]. This increase has not been aligned with an improvement in their quality. The current landscape is saturated with low-quality and often redundant reviews with limited decision-making relevance, contributing to research waste [50].

3.4.4.2 | Consequences. Guideline developers often face challenges when trying to use existing SRs to inform recommendations. In many cases, they decide to conduct a new SR instead. The abundance of reviews addressing the same or similar questions creates difficulties in comparing multiple SRs and/or selecting a single one to rely on [51].

3.4.4.3 | What to Do.

1. Before initiating a new SR, guideline developers should assess existing reviews on the topic. While there is no universal standard for selecting the best SR, some principles can guide the decision:
 - 1.1 Relevance: Include reviews that closely address the guideline question and its domains (i.e., PICO framework)
 - 1.2 Methodological quality: Choose reviews with high methodological quality and low risk of bias, as assessed using tools such as AMSTAR 2 or ROBIS [52, 53]
 - 1.3 Comprehensiveness: Select a review that includes all or nearly all relevant primary studies. This can be assessed by comparing the included studies across reviews. A comprehensive review should, at a minimum, include all studies identified by previous reviews addressing the same question and selection criteria
 - 1.4 Currency: Prioritize reviews with a recent search date to ensure the evidence is up to date
2. If available reviews report contradictory findings, explore whether differences in eligibility criteria, search methods, quality assessment, analytical approaches, as well as variations in methodological quality, comprehensiveness, or currency might explain the discrepancies.

3. If you identify an out-of-date but high-quality review, guideline developers may opt to update its search rather than rely on a newer but lower-quality review.

3.4.4.4 | What Not to Do. Avoid initiating a de novo SR without first assessing existing reviews: In some cases, guideline developers may find an up-to-date, high-quality SR ready to use to inform their recommendation. When such reviews are not available, previous SRs can still provide value by offering insights into methods used and highlighting the evidence identified in those reviews.

Avoid selecting a review based on criteria unrelated to those mentioned above (e.g., publication in a high-impact journal) or relying on only one of the three key criteria (e.g., choosing the most recent SR without also assessing its methodological quality and comprehensiveness).

3.4.5 | How to Formulate Recommendations With Limited or Indirect Evidence

3.4.5.1 | Current Situation. Ideally, guideline developers rely on high-certainty evidence, however, available evidence often does not directly answer guideline questions and may only partially address them, be of low quality, or have limited applicability [54]. In OH, both clinicians and guideline developers frequently perceive available evidence as insufficient, low quality, or irrelevant for key questions [16, 55]. Methodological studies confirm that most OH guideline recommendations across topics are based on low- or very low-certainty evidence [7, 8, 11]—a pattern common across medical fields.

3.4.5.2 | Consequences. When faced with limited or insufficient evidence, guideline developers, panels and policymakers may find it challenging to formulate recommendations. Some argue that without robust evidence—typically large, high-quality randomized controlled trials (RCTs)—guidelines cannot or should not be developed [56]. As a result, many groups and organizations avoid addressing certain topics or questions in their guidelines, leaving important gaps. Research evidence intended to guide decisions can instead become a rationale for postponing them. This pattern carries especially serious implications in public health. Under the pretext that “no data are available,” policymakers sometimes fail to act even when inaction carries predictable and inequitable harms. Treating uncertainty as grounds to defer action risks transforming evidence from an enabler into a barrier [57]. Yet, when evidence is limited and uncertainty is high, systematic synthesis of all available evidence across contextual factors, combined with expert input, becomes even more crucial. Despite—or perhaps because of—uncertainty, target users of guidelines still prefer having recommendations over none at all [56, 58].

3.4.5.3 | What to Do. The decision to develop evidence-based recommendations should be based on whether the recommendation is needed and its expected impact. The number of studies, their design, and the certainty of the evidence should inform the methodological approach for incorporating evidence into decisions but should not be grounds for dismissing the question. OH guideline developers should:

1. Abandon the notion that trustworthy guidelines require large RCTs and high-certainty evidence. Guideline trustworthiness depends on the rigour of methods used to develop recommendations. Moreover, evidence certainty depends on multiple factors beyond study design; low-certainty evidence can emerge from RCTs, while high-certainty evidence can come from observational studies. Limited evidence does not necessarily imply low certainty. In some situations, factors such as a large magnitude of effect, the presence of a dose-response gradient, or other features that strengthen causal inference may support high certainty [59]. For example, drainage of a gingival or periodontal abscess is associated with high certainty of benefit, even in the absence of high-quality RCTs.
2. When direct evidence is lacking, one solution is to incorporate indirect evidence. This means extrapolating evidence from similar contexts, populations, interventions, or outcomes to inform the recommendation process. If guideline developers anticipate limited direct evidence, they should plan for the use of indirect evidence during the evidence synthesis planning stages. This can be informed by evidence mapping exercises or discussions with content experts.
3. In situations where evidence is limited, living guidelines are particularly valuable because continual monitoring alerts guideline developers when more robust evidence becomes available. However, developing and maintaining living guidelines is resource-intensive and requires substantial methodological and organizational capacity. This approach should be reserved for areas where important new evidence is expected to emerge.
4. Guideline developers must be transparent about evidence limitations while leveraging the diverse expertise and collective experience of guideline panellists to recommend the most appropriate course of action. Indeed, limited evidence may sometimes justify recommending against a widely implemented intervention.

3.4.5.4 | What Not to Do. Avoid excluding relevant guideline questions due limited evidence: Prioritize guideline questions based on clinical relevance and potential impact rather than evidence availability or certainty. When evidence is limited or indirect and contextual factors cannot support a formal recommendation, panels may issue a research-only recommendation—one that neither recommends for nor against an intervention in practice but advises its use only within research settings until further evidence emerges [34]. This approach is particularly useful for emerging technologies that show promise but lack robust clinical evidence. For instance, when potential benefits are suggested only by preclinical studies, a research-only recommendation acknowledges promise while emphasizing the need for clinical validation.

3.4.6 | How to Formulate Recommendations on Dental Products

3.4.6.1 | Current Situation. OH professionals routinely make decisions on the use of dental products, including materials or devices. These products are used in a wide range of orofacial

conditions, from simple-tooth restorations for dental caries to complex rehabilitation of edentulous patients. To obtain market approval, manufacturers must submit evidence to regulatory authorities demonstrating the safety of their products. However, the type and extent of data required depends on the rules of a given country's regulatory agency and the device's risk classification and may include results from laboratory studies (in vitro or in vivo) or clinical studies of any design [60, 61]. Manufacturers are not always required to demonstrate an additional clinical benefit to launch a new version of a product [60, 61].

Manufacturers use different strategies to promote OH products to consumers, including attending conferences, partnering with well-known OH professionals (opinion leaders) to endorse their products [62]. These advertising claims may influence clinicians' decisions about which product to use in their clinical practice. However, many of these claims are based on findings from laboratory studies or clinical studies that measure surrogate outcomes.

3.4.6.2 | Consequences. For OH guideline developers, formulating recommendations in favour of dental products is often challenging. Because proven clinical benefits are not required for market approval [60, 61], there are no incentives to conduct rigorous studies, and high-quality evidence measuring person-important outcomes is frequently lacking. Another challenge is the frequent release of new versions of dental products, which often lack reliable clinical evidence demonstrating a tangible improvement over the previous version. Even when RCTs are available, assessing the efficacy and safety of newer product versions poses a methodological challenge when conducting a SR. These trials may not evaluate the exact same intervention, making the interpretation of findings challenging.

3.4.6.3 | What to Do. When developing a guideline that includes questions about the use of dental products, OH guideline developers should consider the following key points:

1. When defining interventions, different dental materials should be grouped based on their composition and clinical use. The introduction of a new version or generation of a product, or differences between brands, does not necessarily justify treating them as separate interventions in the evidence synthesis analysis or when formulating recommendations. Subgroup analyses should only be considered when a substantial modification to the product is suspected or when preliminary reports suggest clinically significant differences in outcomes. The rationale for decisions linked to grouped interventions should be explicitly stated, especially when conducting a meta-analysis.
2. When conducting a SR with meta-analysis to inform a guideline, plan in advance a subgroup analysis to explore the effects of different components, versions or brands of a dental product. These analyses may help determine whether these variations influence the effectiveness or safety of the intervention. When industry-funded trials predominate the evidence base, guideline developers and methodologists should carefully assess the potential for small-study effects, due to publication bias, reporting bias and clinical heterogeneity. However, they should

downgrade the certainty of evidence only when there is empirical support for such concerns (e.g., asymmetrical funnel plots).

3. All individuals involved in developing recommendations related to dental products should disclose any potential conflicts of interest (COIs). Guideline developers should establish and apply a clear COI management policy to ensure the integrity and credibility of the guideline. Although this principle applies to all recommendations, particular attention should be given to relationships with organizations that manufacture or market dental products, as these entities may directly benefit from the guideline's conclusions and could therefore pose a serious threat to the guideline's credibility [25].

3.4.6.4 | What Not to Do. Avoid using findings from laboratory studies to inform guideline decision-making: If no clinical evidence on person-important outcomes is available, the panel should decide whether to (a) issue a recommendation against the intervention under consideration, or (b) formulate a research-only recommendation, highlighting the need for future clinical studies [34].

3.4.7 | How to Incorporate Resource Use and Cost-Effectiveness Into OH Guidelines

3.4.7.1 | Current Situation. In most countries, OH care is delivered by independent private providers, leaving patients without financial coverage facing high out-of-pocket costs [63]. Oral diseases disproportionately affect economically disadvantaged and marginalized communities, who often have very limited access to dental care [64].

Because resources are limited, guidelines must consider both the resource implications of recommending an intervention or option and their cost-effectiveness. However, integrating economic evidence into guidelines remains a significant challenge in OH and other medical fields [65].

3.4.7.2 | Consequences. Most OH guidelines do not incorporate economic considerations when formulating recommendations [12]. Consequently, guideline panels may recommend interventions that improve health outcomes but have questionable cost-effectiveness. This can lead to prioritization of less effective interventions and misallocation of resources, particularly in public health options. Failing to assess an intervention's financial requirements can hinder its implementation, as the willingness or ability to pay by patients, third-party payers, and other interest-holders may become a system-limiting factor.

3.4.7.3 | What to Do. OH guidelines should consider resource requirements and cost-effectiveness when making recommendations at either the individual or population level to ensure that the proposed course of action produces an optimal impact at an acceptable cost [65]. OH guideline developers should:

1. Use a structured framework such as the GRADE-EtD or WHO-INTEGRATE to systematically incorporate

economic considerations into the guideline development [3, 36, 66]. Depending on the type of guideline—whether clinical or public health—and framework used, panels should be informed about: differences in resource use and cost-effectiveness between interventions or options; the certainty of evidence regarding resources; the financial impact, including overall budget impact of implementing the intervention; and the broader economic impact of the intervention [66, 67].

2. Incorporate the best available evidence to inform economic considerations, prioritizing the results of SRs of economic evaluations (including cost-benefit, cost-utility, and cost-effectiveness studies) in conjunction with evidence of people's perceptions after receiving the intervention [5]. Guideline developers should note that certain SRs of interventions include economic evidence that can help inform this criterion.
3. When evaluating resource requirements (costs), consider direct costs (e.g., treatment expenditures) and indirect costs (e.g., work or school absences) [63]. Costs vary widely across settings and change over time; therefore, guideline developers should ensure cost estimates are context- and time-specific.
4. Include experts in health economics on the working group or guideline panel to conduct their own economic evaluations to support the guideline or will help in identifying and appraising economic literature that may be used to inform the recommendations.

3.4.7.4 | What Not to Do. Do not omit any reference to economic aspects in the decision-making process: Even though guideline developers may decide not to consider economic factors in the final judgements, they need to be explicit about how these factors played a role in the decision. Although valid reasons may exist for not considering resource use and cost-effectiveness (e.g., when the intervention does not improve any key outcomes), guideline developers and panel should explicitly justify their rationale [36, 67].

3.4.8 | How to Incorporate People's Values and Preferences Into OH Guidelines

3.4.8.1 | Current Situation. Evidence-informed guidelines should be developed by a multidisciplinary group of interest-holders and be responsive to their target users. International methodological standards emphasize that patient and public involvement is a fundamental principle in the development, and dissemination of guidelines. Well-recognized EtD frameworks (e.g., GRADE EtD, WHO-INTEGRATE) consider people's values and preferences—including patients, family members, carers, representatives and members of the public—when formulating recommendations [3, 36, 66, 68].

Despite the above, only a few OH guideline developers include patient partners on their panels or explicitly mention patients among the intended users of their guidelines [13]. The literature on patient and public involvement in OH remains limited, with few documented examples of its integration [69, 70]. This gap

is particularly relevant in OH, given the persistent tendency toward clinician paternalism reported in the literature, where dentists have traditionally presumed to know what is best for their patients, often limiting patient involvement in treatment decisions [16, 71, 72]. Ethical concerns related to patient autonomy are also particularly relevant in this field (e.g., decisions about cosmetic procedures, tooth extraction versus conservative alternatives).

3.4.8.2 | Consequences. Excluding patients and public from the guideline development process may overlook meaningful insights they can offer, including subjective experiential knowledge about living with a disease or condition [73]. This exclusion affects the guideline's relevance and acceptability, as recommendations risk being disconnected from people's values and preferences. Guidelines that fail to incorporate people's perspectives can face significant implementation issues, as patients may be less likely to trust or follow recommendations that do not reflect their concerns or are based on outcomes that are irrelevant to them.

3.4.8.3 | What to Do. Following the principle of “Nothing about me, without me,” patient and public involvement should be recognized as a core element in the development of guidelines in OH. OH guideline developers should:

1. Involve patients and public from the beginning of the guideline project. Their input is valuable at early stages, such as defining the scope, formulating key research questions, and prioritizing outcomes, as well as in later phases, including drafting recommendations and developing patient materials for guideline dissemination and implementation [24].
2. Incorporate people's values and preferences when developing recommendations. This encompasses factors that influence whether a person finds a course of action desirable, including personal beliefs, priorities, health goals, concerns about convenience, risks, benefits, and burden, as well as cultural norms and the wishes of caregivers [47]. Patient representatives should be included in the guideline panel as full voting members. They should be provided with adequate information and training on the guideline development process, so that they are empowered to fulfil their role effectively and participate on equal terms with other panel members. In addition, it can be incorporated systematically through methods such as SRs of people's values and preferences, realistic synthesis, qualitative studies (e.g., focus groups or interviews), or quantitative surveys.

3.4.8.4 | What Not to Do. Do not omit any reference to people's values and preferences aspects in the decision-making process: Even though guideline developers may struggle to determine and incorporate this dimension formally and systematically into recommendations, they must be transparent and explicit about how these aspects were considered. In many cases, panel members discuss their thoughts on this topic based on their experience, but these assumptions are rarely documented. Guidelines developers should clearly report what considerations were used to inform people's values and preferences aspects, their

sources, and how the guideline panel incorporated them into the decision-making process.

3.4.9 | How to Involve Non-Dental Healthcare Professionals in Developing OH Guidelines

3.4.9.1 | Current Situation. In many countries, OH care is not integrated into the broader health system [74]. Dentists work in isolation from other health professionals within a dentist-centred oral healthcare subsystem, with insufficient interdisciplinary efforts to address shared risk factors, for example, those linked to noncommunicable diseases (NCDs) [75].

3.4.9.2 | Consequences. This lack of integration affects different dimensions of OH care, including OH guideline development, dissemination, and implementation. Most OH guidelines are dentist-oriented, with minimal consideration of insights from other relevant healthcare providers. Even high-quality OH guidelines may face challenges with implementation if they remain isolated from relevant health policies and programmes.

3.4.9.3 | What to Do.

1. Aligned with the strategic objectives of the WHO “Global Strategy and Action Plan on Oral Health 2023–2030” [63], OH guideline developers should ensure multidisciplinary representation in the guideline panel and involvement of non-dental healthcare professionals in the guideline process. Depending on the guideline topic, this may include primary care health professionals, paediatricians, social workers, psychologists, radiologists, nurses, cardiologists, endocrinologists, physiotherapists, rheumatologists, emergency medicine physicians, and other relevant health specialties.

Non-dental healthcare professionals, with their diverse expertise and perspectives, can provide valuable insights at the following stages [19, 76]:

- Proposing a guideline topic during priority setting by highlighting the relevance of OH for other conditions.
 - Identifying the target users and selecting the guideline topic.
 - Generating, prioritizing, and providing feedback to guideline questions.
 - Deciding on the wording of recommendations to ensure they are clear and accessible to non-dental professionals.
 - Writing supporting remarks that frame recommendations and guide users on key considerations, such as equity issues and specific conditions that may apply.
 - Participating in the review of recommendations and the external peer review process.
 - Contributing to dissemination and implementation efforts, along with acceptance of guidelines.
2. To enhance the use of OH guidelines among non-dental healthcare professionals and advance the integration of

OH into broader healthcare systems, guideline developers should highlight the relevance of these guidelines for other health professions and explicitly include non-dental professionals as part of the target users. Additionally, recommendations should be formulated in comprehensive and accessible language to ensure understanding across various healthcare settings.

3.4.9.4 | What Not to Do. Avoid forming guideline panels that are exclusively composed of dentists. Include non-dental professionals as well as other members of the dental team, such as dental assistants, dental therapists, hygienists, nurses, and technicians.

4 | Discussion

This study describes the first consensus-based, internationally developed, evidence-informed methodological strategies tailored to OH guidelines that have been produced. Current methodology was consolidated by the working group into nine strategies addressing key barriers. These strategies cover diverse aspects of guideline development and provide practical recommendations, highlighting what to do and what to avoid when addressing these challenges.

The proposed strategies should be situated within, rather than positioned as a replacement for, the substantial body of existing international methodological guidance. The aim of this work was not to develop a new methodological handbook or duplicate established frameworks (Box 2), which remain foundational to evidence-informed guideline development across disciplines. Where existing guidance does not address field-specific barriers (such as dental device regulation, limited participation and communication with non-dental professionals) this work proposes targeted strategies to close these gaps. Where existing guidance is conceptually applicable but has not been operationalized for OH, this work provides a practical bridge to its application in the field. Its value therefore lies not in the novelty of the underlying methodological principles, but in their specificity to the barriers encountered in OH, their practical orientation, and their grounding in the expertise of experienced OH guideline developers—presented in a format directly applicable to OH guideline development.

This study has several strengths, including rigorous methodology and the involvement of international experts with diverse expertise, both within and outside the OH realm. However, there are limitations. For example, in consensus meetings, participants may adjust their opinions to align with those of the steering committee. Additionally, other aspects of the guideline development process may require guidance beyond what is covered here. Furthermore, these strategies may not fully capture or address the specific methodological challenges faced by organizations in low- and middle-income country contexts. Finally, important differences exist between clinical and public health guidelines—such as the types of evidence synthesis used and the contextual factors that need to be considered—and these nuances were not fully described in this article. Yet, the goal was to consolidate methodological

strategies that help OH guideline developers achieve minimum standards for trustworthy guidelines, not to create another comprehensive handbook covering every detail of the entire process.

These methodological strategies seek to support guideline developers, research methodologists, policymakers, and trainees in improving the quality, consistency, and applicability of OH guidelines. Ultimately, they aim to facilitate integration of reliable evidence into oral healthcare decision-making, contributing to better health outcomes, lower health inequalities, and more effective health systems.

Author Contributions

Creation of the study protocol: F.V.-P. and A.C.-L. Development of the methodological strategies: F.V.-P., A.C.-L., I.D.F., S.R., M.W., F.H., O.U. Critical revision of the article for important intellectual content: I.N., C.G.H., A.H., I.N., M.M., S.L. All authors approved the final draft of this manuscript.

Acknowledgements

Francisca Verdugo-Paiva is a PhD candidate at the Doctorate Program on Biomedical Research and Public Health, Universitat Autònoma de Barcelona, Barcelona, Spain. Francisca Verdugo-Paiva wishes to express her gratitude to Vicente Wielandt for his invaluable support in the preparation of this manuscript.

Funding

F.V.-P. was funded by a scholarship (Doctorado en el Extranjero Becas Chile Convocatoria 2023) from the Chilean National Agency of Research and Development (ANID).

Disclosure

Study Registration: The study was registered in Open Science Framework ([10.17605/OSF.IO/W4KG7](https://doi.org/10.17605/OSF.IO/W4KG7)).

Ethics Statement

Ethical approval was not sought because the study protocol met the criteria for exemption from such review according to the Clinical Research Ethics Committee of the Hospital de la Santa Creu i Sant Pau and the Spanish legislation (Law 14/2007 of July 3, on biomedical research).

Consent

No incentives, monetary or otherwise, were offered for participation.

Conflicts of Interest

The authors declare no conflicts of interest.

Data Availability Statement

All relevant data from the study are included in the figures and tables in the manuscript and [Supporting Information](#).

References

1. World Health Organization, *WHO Handbook for Guideline Development*, 2nd ed. (World Health Organization (WHO), 2014).

2. Institute of Medicine (US) Committee on Standards for Developing Trustworthy Clinical Practice Guidelines, *Clinical Practice Guidelines we Can Trust*, ed. R. Graham, M. Mancher, D. Miller Wolman, S. Greenfield, and E. Steinberg (National Academies Press (US), 2011).
3. J. Moberg, A. D. Oxman, S. Rosenbaum, et al., "The GRADE Evidence to Decision (EtD) Framework for Health System and Public Health Decisions," *Health Research Policy and Systems* 16, no. 1 (2018): 45, <https://doi.org/10.1186/s12961-018-0320-2>.
4. *Global Guidance on Monitoring Public Health and Social Measures Policies During Health Emergencies* (World Health Organization, 2024), <https://www.who.int/publications/i/item/9789240094444>.
5. H. J. Schünemann, M. Reinap, T. Piggott, et al., "The Ecosystem of Health Decision Making: From Fragmentation to Synergy," *Lancet Public Health* 7, no. 4 (2022): e378–e390, [https://doi.org/10.1016/S2468-2667\(22\)00057-3](https://doi.org/10.1016/S2468-2667(22)00057-3).
6. M. C. Brouwers, K. Kerkvliet, K. Spithoff, and AGREE Next Steps Consortium, "The AGREE Reporting Checklist: A Tool to Improve Reporting of Clinical Practice Guidelines," *BMJ* (2016): i1152, <https://doi.org/10.1136/bmj.i1152>.
7. N. F. Deana, C. Zaror, A. Seiffert, et al., "Quality Appraisal of Clinical Practice Guidelines on Provision of Dental Services During the First Months of the COVID-19 Pandemic," *Journal of Evidence-Based Dental Practice* 21, no. 4 (2021): 101633, <https://doi.org/10.1016/j.jebdp.2021.101633>.
8. M. V. Madera Anaya, J. V. Franco, Á. M. Merchán-Galvis, C. R. Gallardo, and X. Bonfill Cosp, "Quality Assessment of Clinical Practice Guidelines on Treatments for Oral Cancer," *Cancer Treatment Reviews* 65 (2018): 47–53, <https://doi.org/10.1016/j.ctrv.2018.03.001>.
9. T. Tejani, S. Mubeen, J. Seehra, and M. T. Cobourne, "An Exploratory Quality Assessment of Orthodontic Clinical Guidelines Using the AGREE II Instrument," *European Journal of Orthodontics* 39, no. 6 (2017): 654–659, <https://doi.org/10.1093/ejo/cjx017>.
10. J. Arieta-Miranda, A. S. Alcaychahua, G. P. Santos, et al., "Quality Assessment of Clinical Practice Guidelines for the Management of Paediatric Dental Emergencies Applicable to the COVID-19 Pandemic, Using the AGREE II Instrument. A Systematic Review," *Heliyon* 6, no. 12 (2020): e05612, <https://doi.org/10.1016/j.heliyon.2020.e05612>.
11. C. Zaror, A. Seiffert, N. F. Deana, et al., "Emergency and Sequalae Management of Traumatic Dental Injuries: A Systematic Survey of Clinical Practice Guidelines," *BMC Oral Health* 23, no. 1 (2023): 704, <https://doi.org/10.1186/s12903-023-03409-w>.
12. P. Lancry, P. Lyra, J. J. Mendes, G. G. Nascimento, V. Machado, and J. Botelho, "Evaluating Reporting Completeness in Oral Health Clinical Guidelines: A Meta-Research Study," *JDR Clinical & Translational Research* (2025): 23800844251357235, <https://doi.org/10.1177/23800844251357235>.
13. F. Verdugo-Paiva, A. M. Rojas-Gómez, V. Wielandt, et al., "Evidence-Informed Guidelines in Oral Health: Insights From a Systematic Survey," *BMC Oral Health* 24, no. 1 (2024): 746, <https://doi.org/10.1186/s12903-024-04445-w>.
14. S. Sultan, M. R. Siedler, R. L. Morgan, et al., "An International Needs Assessment Survey of Guideline Developers Demonstrates Variability in Resources and Challenges to Collaboration Between Organizations," *Journal of General Internal Medicine* 37, no. 11 (2022): 2669–2677, <https://doi.org/10.1007/s11606-021-07112-w>.
15. K. Oliver, S. Innvar, T. Lorenc, J. Woodman, and J. Thomas, "A Systematic Review of Barriers to and Facilitators of the Use of Evidence by Policymakers," *BMC Health Services Research* 14, no. 1 (2014): 2, <https://doi.org/10.1186/1472-6963-14-2>.
16. F. Verdugo-Paiva, M. Wallach, D. Ortuño, M. Glick, and A. Carrasco-Labra, "Barriers to and Facilitators for the Use of Research Evidence in Oral Health Policies and Guidelines: An International Qualitative Study," *Community Dentistry and Oral Epidemiology* (2025), <https://doi.org/10.1111/cdoe.70007>.
17. F. Verdugo and A. Carrasco-Labra, "Evidence-Informed Guidelines and Policy Documents in Oral Health," 2022, <https://doi.org/10.17605/OSF.IO/W4KG7>.
18. S. S. McMillan, M. King, and M. P. Tully, "How to Use the Nominal Group and Delphi Techniques," *International Journal of Clinical Pharmacy* (2016), <https://doi.org/10.1007/s11096-016-0257-x>.
19. H. J. Schünemann, W. Wiercioch, I. Etzeandia, et al., "Guidelines 2.0: Systematic Development of a Comprehensive Checklist for a Successful Guideline Enterprise," *Canadian Medical Association Journal* 186, no. 3 (2014): E123–E142, <https://doi.org/10.1503/cmaj.131237>.
20. J. Petkovic, O. Magwood, T. W. Concannon, et al., "The GIN-McMaster Guideline Development Checklist Extension for Engagement," *Journal of Clinical Epidemiology* 181 (2025): 111727, <https://doi.org/10.1016/j.jclinepi.2025.111727>.
21. T. Piggott, M. W. Langendam, E. Parmelli, et al., "Integrating Quality Assurance and Quality Improvement With Guidelines: Systematic Stakeholder-Driven Development of an Extension of the Guidelines International Network–McMaster Guideline Development Checklist," *Annals of Internal Medicine* 175, no. 5 (2022): 735–739, <https://doi.org/10.7326/M21-3977>.
22. R. L. Morgan, I. Florez, M. Falavigna, et al., "Development of Rapid Guidelines: 3. GIN-McMaster Guideline Development Checklist Extension for Rapid Recommendations," *Health Research Policy and Systems* 16, no. 1 (2018): 63, <https://doi.org/10.1186/s12961-018-0330-0>.
23. E. A. Akl, V. Welch, K. Pottie, et al., "GRADE Equity Guidelines 2: Considering Health Equity in GRADE Guideline Development: Equity Extension of the Guideline Development Checklist," *Journal of Clinical Epidemiology* 90 (2017): 68–75, <https://doi.org/10.1016/j.jclinepi.2017.01.017>.
24. Guidelines International Network, "GIN Public Toolkit: Patient and Public Involvement in Guidelines," 2021, <https://g-i-n.net/resources/g-i-n-public-toolkit/>.
25. A. Qaseem, T. J. Wilt, and for the Clinical Guidelines Committee of the American College of Physicians, "Disclosure of Interests and Management of Conflicts of Interest in Clinical Guidelines and Guidance Statements: Methods From the Clinical Guidelines Committee of the American College of Physicians," *Annals of Internal Medicine* 171, no. 5 (2019): 354–361, <https://doi.org/10.7326/M18-3279>.
26. M. Klugar, T. Lotfi, A. J. Darzi, et al., "GRADE Guidance 39: Using GRADE-ADOLOPMENT to Adopt, Adapt or Create Contextualized Recommendations From Source Guidelines and Evidence Syntheses," *Journal of Clinical Epidemiology* 174 (2024): 111494, <https://doi.org/10.1016/j.jclinepi.2024.111494>.
27. WHO Regional Office for Europe, *Strengthening Countries' Capacities to Adopt and Adapt Evidence-Based Guidelines: A Handbook for Guideline Contextualization* (World Health Organization, 2023), <https://iris.who.int/server/api/core/bitstreams/63282011-3089-4189-b09d-40fc555fbafe/>.
28. Y. Chen, K. Yang, A. Marušić, et al., "A Reporting Tool for Practice Guidelines in Health Care: The RIGHT Statement," *Annals of Internal Medicine* 166, no. 2 (2017): 128–132, <https://doi.org/10.7326/M16-1565>.
29. Y. Xun, J. Estill, J. Khabsa, et al., "Reporting Conflicts of Interest and Funding in Health Care Guidelines: The RIGHT-COI&F Checklist," *Annals of Internal Medicine* 177, no. 6 (2024): 782–790, <https://doi.org/10.7326/M23-3274>.
30. Y. Song, P. Alonso-Coello, M. Ballesteros, et al., "A Reporting Tool for Adapted Guidelines in Health Care: The RIGHT-Ad@Pt Checklist," *Annals of Internal Medicine* 175, no. 5 (2022): 710–719, <https://doi.org/10.7326/M21-4352>.
31. R. W. M. Vernooij, P. Alonso-Coello, M. Brouwers, L. Martínez García, and CheckUp Panel, "Reporting Items for Updated Clinical Guidelines:

- Checklist for the Reporting of Updated Guidelines (CheckUp)," *PLoS Medicine* 14, no. 1 (2017): e1002207, <https://doi.org/10.1371/journal.pmed.1002207>.
32. K. Kolaski, L. R. Logan, and J. P. A. Ioannidis, "Guidance to Best Tools and Practices for Systematic Reviews," *Systematic Reviews* 12, no. 1 (2023): 96, <https://doi.org/10.1186/s13643-023-02255-9>.
33. E. A. Akl, J. Khabisa, J. Petkovic, et al., "'Interest-Holders': A New Term to Replace 'Stakeholders' in the Context of Health Research and Policy," *Cochrane Evidence Synthesis and Methods* 2, no. 11 (2024): e70007, <https://doi.org/10.1002/cesm.70007>.
34. T. Lotfi, A. Hajizadeh, L. Moja, et al., "A Taxonomy and Framework for Identifying and Developing Actionable Statements in Guidelines Suggests Avoiding Informal Recommendations," *Journal of Clinical Epidemiology* 141 (2022): 161–171, <https://doi.org/10.1016/j.jclinepi.2021.09.028>.
35. J. P. T. Higgins, J. Thomas, J. Chandler, et al., "Cochrane Handbook for Systematic Reviews of Interventions," version 6.5, 2024, www.trainin.cochrane.org/handbook.
36. P. Alonso-Coello, H. J. Schünemann, J. Moberg, et al., "GRADE Evidence to Decision (EtD) Frameworks: A Systematic and Transparent Approach to Making Well Informed Healthcare Choices. 1: Introduction," *BMJ* 353 (2016): i2016, <https://doi.org/10.1136/bmj.i2016>.
37. A. Movsisyan, S. Backhaus, A. Butchart, F. Gardner, B. Strahwald, and E. Rehfuess, "Applying the WHO-INTEGRATE Evidence-To-Decision Framework in the Development of WHO Guidelines on Parenting Interventions: Step-By-Step Process and Lessons Learnt," *Health Research Policy and Systems* 22, no. 1 (2024): 79, <https://doi.org/10.1186/s12961-024-01165-z>.
38. O. Dewidar, E. A. Akl, G. P. Morgano, et al., "GRADE Guidance: Update on Developing Good Practice Statements in Guidelines," *Annals of Internal Medicine* (2026), <https://doi.org/10.7326/ANNALS-25-00431>.
39. A. S. Bhosale, "Development of Living Evidence-Informed Guidelines: Part 2 Guideline Topic Prioritization," accepted for publication, 2025.
40. A. El-Harakeh, R. Z. Morsi, R. Fadlallah, L. Bou-Karroum, T. Lotfi, and E. A. Akl, "Prioritization Approaches in the Development of Health Practice Guidelines: A Systematic Review," *BMC Health Services Research* 19, no. 1 (2019): 692, <https://doi.org/10.1186/s12913-019-4567-2>.
41. L. Barnieh, M. Jun, A. Laupacis, B. Manns, and B. Hemmelgarn, "Determining Research Priorities Through Partnership With Patients: An Overview," *Seminars in Dialysis* 28, no. 2 (2015): 141–146, <https://doi.org/10.1111/sdi.12325>.
42. A. Carrasco-Labra, D. E. Polk, O. Urquhart, et al., "Evidence-Based Clinical Practice Guideline for the Pharmacologic Management of Acute Dental Pain in Children," *Journal of the American Dental Association* 154, no. 9 (2023): 814–825.e2, <https://doi.org/10.1016/j.adaj.2023.06.014>.
43. C. M. Pannuti, D. I. Sendyk, Y. T. D. Graças, et al., "Clinically Relevant Outcomes in Dental Clinical Trials: Challenges and Proposals," *Brazilian Oral Research* 34, no. suppl 2 (2020): e073, <https://doi.org/10.1590/1807-3107bor-2020.vol34.0073>.
44. E. A. Akl, M. Briel, J. J. You, et al., "LOST to Follow-Up Information in Trials (LOST-IT): A Protocol on the Potential Impact," *Trials* 10, no. 1 (2009): 40, <https://doi.org/10.1186/1745-6215-10-40>.
45. A. Carrasco-Labra, R. Brignardello-Petersen, M. Glick, G. H. Guyatt, I. Neumann, and A. Azarpazhooh, "A Practical Approach to Evidence-Based Dentistry: VII," *Journal of the American Dental Association* (1939) 146, no. 5 (2015): 327–336.e1, <https://doi.org/10.1016/j.adaj.2015.03.015>.
46. Z. Munn, C. Stern, E. Aromataris, C. Lockwood, and Z. Jordan, "What Kind of Systematic Review Should I Conduct? A Proposed Typology and Guidance for Systematic Reviewers in the Medical and Health Sciences," *BMC Medical Research Methodology* 18, no. 1 (2018): 5, <https://doi.org/10.1186/s12874-017-0468-4>.
47. G. Guyatt, T. Agoritsas, R. Brignardello-Petersen, et al., "Core GRADE 1: Overview of the Core GRADE Approach," *BMJ* 389 (2025): e081903, <https://doi.org/10.1136/bmj-2024-081903>.
48. G. H. Guyatt, A. D. Oxman, R. Kunz, et al., "GRADE Guidelines: 2. Framing the Question and Deciding on Important Outcomes," *Journal of Clinical Epidemiology* 64, no. 4 (2011): 395–400, <https://doi.org/10.1016/j.jclinepi.2010.09.012>.
49. Epistemonikos Project, G. Rada, D. Pérez, et al., "Epistemonikos: A Comprehensive Database of Systematic Reviews for Health Decision-Making," *BMC Medical Research Methodology* 20, no. 1 (2020): 286, <https://doi.org/10.1186/s12874-020-01157-x>.
50. J. P. A. Ioannidis, "The Mass Production of Redundant, Misleading, and Conflicted Systematic Reviews and Meta-Analyses," *Milbank Quarterly* 94, no. 3 (2016): 485–514, <https://doi.org/10.1111/1468-0009.12210>.
51. C. Lunney, S. Whitelaw, E. K. Reid, et al., "Exploring Decision-Makers' Challenges and Strategies When Selecting Multiple Systematic Reviews: Insights for AI Decision Support Tools in Healthcare," *BMJ Open* 14, no. 7 (2024): e084124, <https://doi.org/10.1136/bmjopen-2024-084124>.
52. B. J. Shea, B. C. Reeves, G. Wells, et al., "AMSTAR 2: A Critical Appraisal Tool for Systematic Reviews That Include Randomised or Non-Randomised Studies of Healthcare Interventions, or Both," *BMJ* (2017): j4008, <https://doi.org/10.1136/bmj.j4008>.
53. P. Whiting, J. Savović, J. P. T. Higgins, et al., "ROBIS: A New Tool to Assess Risk of Bias in Systematic Reviews Was Developed," *Journal of Clinical Epidemiology* 69 (2016): 225–234, <https://doi.org/10.1016/j.jclinepi.2015.06.005>.
54. Global Commission on Evidence to Address Societal Challenges, *Evidence Commission Update 2023: Strengthening Domestic Evidence-Support Systems, Enhancing the Global Evidence Architecture, and Putting Evidence at the Centre of Everyday Life* (McMaster Health Forum, 2023), accessed Jan 20, 2025, <https://www.mcmasterforum.org/networks/evidence-commission/domestic-evidence-support-systems>.
55. M. F. Neuppmann Feres, M. G. Roscoe, S. A. Job, J. B. Mamani, G. D. L. Canto, and C. Flores-Mir, "Barriers Involved in the Application of Evidence-Based Dentistry Principles," *Journal of the American Dental Association* (1939) 151, no. 1 (2020): 16–25.e16, <https://doi.org/10.1016/j.adaj.2019.08.011>.
56. I. Neumann, P. Alonso-Coello, P. O. Vandvik, et al., "Do Clinicians Want Recommendations? A Multicenter Study Comparing Evidence Summaries With and Without GRADE Recommendations," *Journal of Clinical Epidemiology* 99 (2018): 33–40, <https://doi.org/10.1016/j.jclinepi.2018.02.026>.
57. H. Benzian, M. P. Fox, and S. Naidoo, "Paralysis in Public Health and Policy: When Evidence Becomes an Alibi," *Lancet Public Health* 11, no. 4 (2026): e264–e267, [https://doi.org/10.1016/S2468-2667\(26\)00009-5](https://doi.org/10.1016/S2468-2667(26)00009-5).
58. I. Neumann and H. J. Schünemann, "Guideline Groups Should Make Recommendations Even if the Evidence Is Considered Insufficient," *Canadian Medical Association Journal* 192, no. 2 (2020): E23–E24, <https://doi.org/10.1503/cmaj.190144>.
59. H. Schünemann, J. Brožek, G. Guyatt, and A. Oxman, "Handbook for Grading the Quality of Evidence and the Strength of Recommendations Using the GRADE Approach," 2013, <https://gdt.gradeapro.org/app/handbook/handbook.html>.
60. *Medical Devices—Title 21 of the Code of Federal Regulations (CFR), Parts 800–898* (U.S. Food and Drug Administration. Department of Health and Human Services, 2023), <https://www.ecfr.gov/current/title-21/chapter-I/subchapter-H>.

61. Regulation (EU) 2017/745 of the European Parliament and of the Council of 5 April 2017 on Medical Devices, Amending Directive 2001/83/EC, Regulation (EC) no 178/2002 and Regulation (EC) no 1223/2009 and Repealing Council Directives 90/385/EEC and 93/42/EEC (European Parliament and Council of the European Union, 2017), <https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=CELEX%3A32017R0745>.

62. “Dental Products and Evidence-Based Dentistry,” *Quintessence International* 50, no. 5 (2019): 402–411, <https://doi.org/10.3290/j.qi.a42293>.

63. World Health Organization, “Global Strategy and Action Plan on Oral Health 2023–2030,” 2024, accessed Jun 2024, <https://www.who.int/publications/i/item/9789240090538>.

64. R. G. Watt, B. Daly, P. Allison, et al., “Ending the Neglect of Global Oral Health: Time for Radical Action,” *Lancet* 394, no. 10194 (2019): 261–272, [https://doi.org/10.1016/S0140-6736\(19\)31133-X](https://doi.org/10.1016/S0140-6736(19)31133-X).

65. G. H. Guyatt, A. D. Oxman, R. Kunz, et al., “Incorporating Considerations of Resources Use Into Grading Recommendations,” *BMJ* 336, no. 7654 (2008): 1170–1173, <https://doi.org/10.1136/bmj.39504.506319.80>.

66. E. A. Rehfuess, J. M. Stratil, I. B. Scheel, A. Portela, S. L. Norris, and R. Baltussen, “The WHO-INTEGRATE Evidence to Decision Framework Version 1.0: Integrating WHO Norms and Values and a Complexity Perspective,” *BMJ Global Health* 4, no. Suppl 1 (2019): e000844, <https://doi.org/10.1136/bmjgh-2018-000844>.

67. F. Xie, I. Shemilt, L. Vale, et al., “GRADE Guidance 23: Considering Cost-Effectiveness Evidence in Moving From Evidence to Health-Related Recommendations,” *Journal of Clinical Epidemiology* 162 (2023): 135–144, <https://doi.org/10.1016/j.jclinepi.2023.08.001>.

68. *A Scoping Review and Survey on Evidence To-Decision Frameworks in Public Health* (European Centre for Disease Prevention and Control, 2025), <https://www.ecdc.europa.eu/en/publications-data/scoping-review-and-survey-evidence-decision-frameworks-public-health>.

69. E. A. Bryant, A. M. Scott, H. Greenwood, and R. Thomas, “Patient and Public Involvement in the Development of Clinical Practice Guidelines: A Scoping Review,” *BMJ Open* 12, no. 9 (2022): e055428, <https://doi.org/10.1136/bmjopen-2021-055428>.

70. T. Dawson, S. Pahlke, A. Carrasco-Labra, and D. Polk, “Patient Values and Preferences for Managing Acute Dental Pain Elicited Through Online Deliberation,” *JDR Clinical & Translational Research* 9, no. 2 (2024): 104–113, <https://doi.org/10.1177/23800844231174398>.

71. M. Benecke, J. Kasper, C. Heesen, N. Schäffler, and D. R. Reissmann, “Patient Autonomy in Dentistry: Demonstrating the Role for Shared Decision Making,” *BMC Medical Informatics and Decision Making* 20, no. 1 (2020): 318, <https://doi.org/10.1186/s12911-020-01317-5>.

72. S. D. Kovács, A. S. Irawan, S. Zörgő, and J. Kovács, “The Conflict Between Oral Health and Patient Autonomy in Dentistry: A Scoping Review,” *BMC Medical Ethics* 25, no. 1 (2024): 150, <https://doi.org/10.1186/s12910-024-01156-3>.

73. T. Greenhalgh, C. Misak, R. Payne, and N. Swann, “Patient Involvement in Developing Clinical Guidelines,” *BMJ* 387 (2024): q2433, <https://doi.org/10.1136/bmj.q2433>.

74. *Global Oral Health Status Report - Towards Universal Health Coverage for Oral Health 2030* (World Health Organization, 2022), <https://www-who-int.proxy.library.upenn.edu/team/noncommunicable-diseases/global-status-report-on-oral-health-2022>.

75. H. Benzian and E. Beltrán-Aguilar, “The Return of Oral Health to Global Health Is Significant for Public Health Everywhere,” *Journal of Public Health Dentistry* 81, no. 2 (2021): 87–89, <https://doi.org/10.1111/jphd.12457>.

76. A. Qaseem, F. Forland, F. Macbeth, et al., “Guidelines International Network: Toward International Standards for Clinical Practice Guidelines,” *Annals of Internal Medicine* 156, no. 7 (2012): 525–531, <https://doi.org/10.7326/0003-4819-156-7-201204030-00009>.

Supporting Information

Additional supporting information can be found online in the Supporting Information section. **Figure S1:** Geographical distribution of participants. **Figure S2:** Flow diagram of the included barriers. **Data S1:** Glossary: evidence-informed clinical and public health guidelines in oral health.