LITERATURE REVIEW

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Presentation:

This document contains the results of a literature review focused on understanding knowledge and practices on dental treatment protocols that researchers a Universitat de València plan to standardise, including those published by professional organisations, government agencies, and academic institutions in Spain. The reviewed literature covers documents from the last 15 years. While it provides a general overview of European Union or nation-wide best practice studies conducted across Europe or United States to reflect the European perspective, the literature review mostly focuses on documents produced in Spain. The literature includes studies published in English.

According to the structure proposed in the application form, this review is made up of three sections:
1) An overview of the dental treatment protocols in Spain;
2) Review of the best practices and evidence-based recommendations in Europe and Spain to help ensure that the dental treatment protocols are based on the latest research and knowledge in the field;
3) Review of the improvement areas evident from the literature.

A similar strategy was used in each of the sub-topics of the literature review addressed in sections 1, 2 and 3 as follows.

Those include the title structure as follows:

ENDODONTICS
Pulpal and periapical pathology

- Treatment of pulpal and apical disease: The European Society of Endodontology (ESE) S3-level clinical practice guideline
- Journal: International Endodontic Journal
- Year of publication: 2023.
- Authors: Duncan HF, Kirkevang LL, Peters OA, El-Karim I, Krastl G, Del Fabbro M, Chong BS, Galler KM, Segura-Egea JJ, Kebschull M.
- Link: https://doi. org/10.1111/iej.13974
- Extended summary:

  Background: The ESE previously published quality guidelines for endodontic treatment in 2006; however, there have been significant changes since not only in clinical endodontics but also in consensus and guideline development processes. In the development of the inaugural S3-level clinical practice guidelines (CPG), a comprehensive systematic and methodologically robust guideline consultation process was followed in order to produce evidence-based recommendations for the management of patients presenting with pulpal and apical disease. Aim: To develop an S3-level CPG for the treatment of pulpal and apical disease, focusing on diagnosis and the implementation of the treatment approaches required to manage patients presenting with pulpitis and apical periodontitis (AP) with the ultimate goal of preventing tooth loss. Methods: This S3-level CPG was developed by the ESE, with the assistance of independent methodological guidance provided by the Association of Scientific Medical Societies in Germany and utilizing the GRADE process. A robust, rigorous and transparent process included the analysis of relevant comparative research in 14 specifically commissioned systematic reviews, prior to evaluation of the quality and strength of evidence, the formulation of specific evidence and expert-based recommendations in a structured consensus process with leading endodontic experts and a broad base of external stakeholders. Results: The S3-level CPG for the treatment of pulpal and apical disease describes in a series of clinical recommendations the effectiveness of diagnosing pulpitis and AP, prior to investigating the effectiveness of endodontic treatments in managing those diseases. Therapeutic strategies include the effectiveness of deep caries management in cases with, and without, spontaneous pain and pulp exposure, vital versus nonvital teeth, the effectiveness of root canal instrumentation, irrigation, dressing, root canal filling materials and adjunct intracanal procedures in the management of AP. Prior to treatment planning, the

critical importance of history and case evaluation, aseptic techniques, appropriate training and re-evaluations during and after treatment is stressed. Conclusion: The first S3-level CPG in endodontics informs clinical practice, health systems, policymakers, other stakeholders and patients on the available and most effective treatments to manage patients with pulpitis and AP in order to preserve teeth over a patient's lifetime, according to the best comparative evidence currently available.

Dental Traumatology

- European Society of Endodontology position statement: endodontic management of traumatized permanent teeth
- Journal: International Endodontic Journal
- Year of publication: 2021.
- Authors: Krastl G, Weiger R, Filippi A, Van Waes H, Ebeleseder K, Ree M, Connert T, Widbiller M, Tjäderhane L, Dummer PMH, Galler K.
- Link: https://doi.org/10.1111/iej.13543
- Extended summary:

This position statement represents a consensus of an expert committee convened by the European Society of Endodontology (ESE) on the endodontic management of traumatized permanent teeth. A recent comprehensive review with detailed background information provides the basis for this position statement (Krastl et al. 2021, International Endodontic Journal, https://doi.org/10.1111/iej.13508). The statement is based on current scientific evidence as well as the expertise of the committee. Complementing the recently revised guidelines of the International Association of Dental Traumatology, this position statement aims to provide clinical guidance for the choice of the appropriate endodontic approach for traumatized permanent teeth. Given the dynamic nature of research in this area, this position statement will be updated at appropriate intervals.

Pulp exposition

- European Society of Endodontology position statement: Management of deep caries and the exposed pulp
- Journal: International Endodontic Journal
- Year of publication: 2019.
- Authors: Duncan HF, Galler KM, Tomson PL, Simon S, El-Karim I, Kundzina R, Krastl G, Dammaschke T, Fransson H, Markvart M, Zehnder M, Bjørndal L.

- Link: doi:10.1111/iej.13080
- Extended summary:

This position statement on the management of deep caries and the exposed pulp represents the consensus of an expert committee, convened by the European Society of Endodontology (ESE). Preserving the pulp in a healthy state with sustained vitality, preventing apical periodontitis and developing minimally invasive biologically based therapies are key themes within contemporary clinical endodontics. The aim of this statement was to summarize current best evidence on the diagnosis and classification of deep caries and caries-induced pulpal disease, as well as indicating appropriate clinical management strategies for avoiding and treating pulp exposure in permanent teeth with deep or extremely deep caries. In presenting these findings, areas of controversy, low-quality evidence and uncertainties are highlighted, prior to recommendations for each area of interest. A recently published review article provides more detailed information and was the basis for this position statement (Bjørndal et al. 2019, International Endodontic Journal, doi:10.1111/iej.13128). The intention of this position statement is to provide the practitioner with relevant clinical guidance in this rapidly developing area. An update will be provided within 5 years as further evidence emerges.

Antibiotics and endodontics

- European Society of Endodontology position statement: the use of antibiotics in endodonticsJournal: International Endodontic Journal
- Year of publication: 2018.
- Authors: Segura-Egea JJ, Gould K, Şen H, Jonasson P, Cotti E, Mazzoni A, Sunay H, Tjaderhane L, Dummer PMH.
- Link:
- Extended summary:

This position statement represents a consensus of an expert committee convened by the European Society of Endodontology (ESE) on Antibiotics in Endodontics. The statement is based on current scientific evidence as well as the expertise of the committee. The goal is to provide dentists and other healthcare workers with evidence-based criteria for when to use antibiotics in the treatment of endodontic infections, traumatic injuries of the teeth, revascularization procedures in immature teeth with pulp necrosis, and in prophylaxis for medically compromised patients. It also highlights the role that dentists and others can play in preventing the overuse of antibiotics. A recent review article provides the basis for this position statement and more detailed background information (International Endodontic Journal, 2017, https://doi.org/

10.1111/iej.12741). Given the dynamic nature of research in this area, this position statement will be updated at appropriate intervals.

CARIOLOGY

Caries Care

- CariesCare practice guide: consensus on evidence into practice
- Journal: British Dental Journal
- Year of publication: 2019.
- Authors: Martignon S, Pitts NB, Goffn G, Mazevet M, Douglas GVA, Newton JT, Twetman S, Deery C, Doméjean S, Jablonski-Momeni A, Banerjee A, Kolker J, Ricketts D, Santamaria RM.
- Link: https://doi.org/10.1038/s41415-019-0678-8
- Extended summary:

This CariesCare practice guide is derived from the International Caries Classifcation and Management System (ICCMS) and provides a structured update for dentists to help them deliver optimal caries care and outcomes for their patients. This ‘4D cycle’ is a practice-building format, which both prevents and controls caries and can engage patients as long-term health partners with their practice. CariesCare International (CCI™) promotes a patient-centred, risk-based approach to caries management designed for dental practice. This comprises a health outcomes-focused system that aims to maintain oral health and preserve tooth structure in the long-term. It guides the dental team through a four-step process (4D system), leading to personalised interventions: 1st D: Determine Caries Risk; 2nd D: Detect lesions, stage their severity and assess their activity status; 3rd D: Decide on the most appropriate care plan for the specifc patient at that time; and then, fnally, 4th D: Do the preventive and tooth-preserving care which is needed (including risk-appropriate preventive care; control of initial non-cavitated lesions; and conservative restorative treatment of deep dentinal and cavitated caries lesions). CariesCare International has designed this practice-friendly consensus guide to summarise best practice as informed by the best available evidence. Following the guide should also increase patient satisfaction, involvement, wellbeing and value, by being less invasive and more health-focused. For the dentist it should also provide benefts at the professional and practice levels including improved medico-legal protection.

Oral Healthcare

- EFCD Curriculum for undergraduate students in Integrated Conservative Oral Healthcare (ConsCare)
- Journal: Clinical Oral Investigations
- Year of publication: 2019.
- Authors: Meyer-Luecke H, et al..
- Link: https://doi.org/10.1007/s00784-019-02978-xExtended summary:

The consensus at the outset of the workshop on the need to update the term “conservative dentistry” to “integrated conservative oral healthcare” was a historic decision. The proposal that integrated conservative oral healthcare (conservative care/ConsCare) assumes a central position in general oral healthcare provision (Fig. 1) sets the scene for the highly interactive group and collective discussions which occurred during the workshop. Subsequently, the preparation of this paper was a dynamic, interactive process, involving all those who attended the workshop and the organizations they represented as well as the Board of the EFCD. It is acknowledged, as with any curriculum proposal, that domains and learning outcomes should be subject to regular review, especially given the many, different advances in oral and dental sciences which impact on the provision of integrated conservative oral healthcare. Also, it is recognized that it is for individual schools to decide what should be taught. On behalf of the EFCD, a group of renowned experts has outlined a curriculum for undergraduate students in Integrated Conservative Oral Healthcare (ConsCare), which should be discussed and developed in the context of existing guidelines and frameworks in other disciplines. It is hoped that the suggested curriculum will stimulate debate and actions to revise existing curricula within dental schools across Europe and elsewhere in the world. In addition, it is hoped that the proposed curriculum will be of assistance to practitioners in general oral healthcare settings and their professional bodies in updating their thinking on the provision of oral healthcare.

Carious lesion

- Managing Carious Lesions: Consensus Recommendations on Carious Tissue Removal
- Journal: Advances in Dental Research
- Year of publication: 2019.
- Authors: Schwendicke T, et al.
- Link: DOI: 10.1177/0022034516639271
- Extended summary:

The International Caries Consensus Collaboration undertook a consensus process and here presents clinical recommendations for carious tissue removal and managing cavitated carious lesions, including restoration, based on texture of demineralized dentine. Dentists should manage the disease dental caries and control activity of existing cavitated lesions to preserve hard tissues and retain teeth long-term. Entering the restorative cycle should be avoided as far as possible. Controlling the disease in cavitated carious lesions should be attempted using methods which are aimed at biofilm removal or control first. Only when cavitated carious lesions either are noncleansable or can no longer be sealed are restorative interventions indicated. When a restoration is indicated, the priorities are as follows: preserving healthy and remineralizable tissue, achieving a restorative seal, maintaining pulpal health, and maximizing restoration success. Carious tissue is removed purely to create conditions for long-lasting restorations. Bacterially contaminated or demineralized tissues close to the pulp do not need to be removed. In deeper lesions in teeth with sensible (vital) pulps, preserving pulpal health should be prioritized, while in shallow or moderately deep lesions, restoration longevity becomes more important. For teeth with shallow or moderately deep cavitated lesions, carious tissue removal is performed according to selective removal to firm dentine. In deep cavitated lesions in primary or permanent teeth, selective removal to soft dentine should be performed, although in permanent teeth, stepwise removal is an option. The evidence and, therefore, these recommendations support less invasive carious lesion management, delaying entry to, and slowing down, the restorative cycle by preserving tooth tissue and retaining teeth long-term.

Cariology. Curriculum

- Spanish Curriculum in Cariology for undergraduate dental students: Proceedings and consensus
- Journal: European Journal of Dental Education
- Year of publication: 2022.
- Authors: Cortés-Martinicorena FJ, et al. Spanish Curriculum of Cariology Expert Group
- Link: DOI: 10.1111/eje.12706
- Extended summary:

Introduction: Cariology is today a broad-based discipline and in the Spanish university teaching field, all this knowledge is not unified in a curriculum. Therefore, the aim was to develop a consensus text based on the European Core Curriculum, updated, and adapted to the characteristics of the Spanish university environment. Materials and Methods: A Spanish Cariology Curriculum Group (SCCG) was set up with members of the Spanish Society of Epidemiology and Oral Public Health (SESPO), Spanish Society of Conservative and Aesthetic Dentistry (SEOC) and Spanish Society of Paediatric Dentistry (SEOP) and university experts to adapt the European Core Curriculum in Cariology for undergraduate dental students (ECCC) for Spain. The work was carried out online during 2018 and 2019, and also face-to-face meetings took place to obtain a draft curriculum open for discussion that was presented to all the Spanish universities. The final modifications to the document were specified in a Consensus Conference of Spanish universities offering a Degree in Dentistry that took place in Madrid on 19 November 2019. Results: Thirty-eight university experts, under SCCG supervision, participated in the

elaboration of the new framework document. A total of 16 universities, from 23 invited, reached a consensus as to the contents of the Spanish Curriculum in Cariology for undergraduate dental students. This new Curriculum emphasises learning outcomes, uses a consensus-based terminology pertaining to caries and other hard-tissue conditions, and introduces a new domain of competence in Domain III of ECCC. Conclusion: This new Cariology Curriculum is the result of a very broad-based consensus of university experts in Spain and lays the foundation for the implementation of an integrated teaching of Cariology in Spain in adherence to Alliance for a Caries Free Future (ACFF) objectives.