

Deep Caries Management: EFCD-ESE-ORCA S3-Level Clinical Practice Guideline.

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To develop an evidence-based S3-level clinical practice guideline for the management of deep and extremely deep caries in vital permanent teeth.

An evidence-based medical guideline based on systematically searched and appraised evidence as well as a structured consensus (S3-level) was jointly developed by the European Federation of Conservative Dentistry (EFCD), the European Society of Endodontology (ESE), the Organization for Caries Research (ORCA) and the German Society of Conservative Dentistry (DGZ), following the methodological framework of the Association of Scientific Medical Societies in Germany (AWMF) and the GRADE approach. Four working groups formulated key clinical questions regarding (1) caries removal strategies, (2) cavity liners, (3) management of exposed pulps and (4) materials for direct pulp capping and pulpotomy. Systematic reviews were conducted for each question, and evidence was synthesised and graded for quality. A structured consensus process was used to formulate recommendations. In order to encourage its wide dissemination, this article is freely accessible on Clinical Oral Investigations, International Endodontic Journal and Caries Research journals' websites.

Evidence supports selective (SE) or stepwise caries removal (SW) over non-selective removal (NSE) to reduce the risk of pulp exposure in deep caries. Routine use of cavity liners after caries removal showed no consistent clinical benefit and is not routinely recommended. For vital pulp therapy following pulp exposure, both direct pulp capping and pulpotomy are effective options in teeth without irreversible pulpitis, while pulpotomy is an acceptable alternative to pulpectomy in cases with signs of irreversible pulpitis. Hydraulic calcium silicate cements demonstrated superior clinical outcomes compared to calcium hydroxide and should be preferred for pulp capping and pulpotomy. The certainty of evidence ranged from very low to moderate across questions and outcomes.

For deep caries, maintaining pulp vitality by using less invasive management strategies is supported by current evidence. Implementation of this guideline requires clinician training, patient-centered decision-making and consideration of economic and practical factors. Further research is needed, particularly for extremely deep caries and towards long-term outcomes.