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Enamel remineralization in pediatric dentistry: Scientific advances and clinical integration

Date & Timing: 14 Nov 2025 I 09:00 - 09:45
Venue: Madinat Jumeirah Arena & Conference Centre
Room: Ballroom Johara 3

Abstract
Enamel demineralization in children, whether due to caries, developmental enamel defects, or dietary factors remains a critical concern in clinical practice. With the ongoing paradigm shift toward preventive and minimally invasive dentistry, enamel remineralization has emerged as a cornerstone of contemporary pediatric dental care. This presentation will delve into the science and clinical application of evidence-based remineralization strategies aimed at preserving and strengthening the primary dentition. Key topics will include the pathophysiology of early demineralization, current methodologies for early lesion detection, and a critical review of the latest evidence supporting the use of remineralizing agents. Emphasis will be placed on the clinical efficacy of fluoride therapies, CPP-ACP, bioactive glass formulations, and emerging peptide-based technologies. Integrating current research with clinical protocols, the lecture will offer practical guidance on selecting and implementing remineralization strategies tailored to individual patient needs. Special attention will be given to treatment decision-making in complex cases, including those involving high caries risk and with developmental defects of enamel.

Learning objectives

- Differentiate between demineralization and developmental enamel defects and understand their implications for caries risk and management.
- Highlight patient-specific factors affecting enamel response.
- Develop a preventive and restorative care approach tailored to children with weakened enamel, incorporating risk assessment, behavior management, and minimally invasive dentistry.
- Apply evidence-based remineralization strategies in pediatric dental practice, including dietary counseling, oral hygiene reinforcement, and product recommendations.
- Evaluate current evidence on remineralization strategies, including fluoride-based therapies, calcium phosphate technologies, and biomimetic agents.