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Topic 01. Dental anomalies

22 Dentists' knowledge and diagnostic confidence in molar–incisor hypomineralisation: a multi-country survey across income levels

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¹Alexandria University, Egypt, ²Paediatric Dentistry Department, Faculty of Dentistry, King Abdulaziz University, Jeddah, Saudi Arabia, ³Saba University, Sana'a, Yemen, ⁴Department of Orthodontics and Paediatric Dentistry Faculty of Dentistry Chiang Mai University, Chiang Mai, Thailand, ⁵Department of Orthodontics, Paediatric and Community Dentistry, College of Dental Medicine, University of Sharjah, United Arab Emirates, ⁶Department of Endodontics, School of Dentistry, Colombia, ⁷NYU Dentistry NYU Langone Health, United States, ⁸Department of Life, Health and Environmental Sciences University of L'Aquila, Italy, ⁹Private Practitioner, Italy, ¹⁰Faculty of Dentistry, Jordan University of Science and Technology, Jordan, ¹¹Faculty of Dentistry, Yeditepe University, Istanbul, Turkey, ¹²Saveetha Dental College, INDIA, ¹³Private Practitioner, Palestine, ¹⁴Universiti Teknologi MARA (UiTM), Malaysia **Aim:** To assess dentists' familiarity, knowledge, and diagnostic confidence regarding molar incisor hypomineralisation (MIH) across countries with different income levels and to identify predictors of MIH familiarity and diagnostic confidence.

Methods: A multi-country, cross-sectional, web-based survey was conducted between February 2024 and July 2025 among paediatric dentists, endodontists, and general dentists from 19 countries representing different World Bank income levels. A content-validated questionnaire (content validity index = 0.94) assessed self-reported familiarity with MIH, knowledge of diagnostic criteria, and diagnostic confidence using self-reported items. Group differences were analysed using chi-square tests. Generalised linear regression models with cluster-robust standard errors at the country level were used to estimate adjusted odds ratios (AORs) and 95% confidence intervals for predictors, including country income level, dental specialty, clinical experience, gender, and professional qualification.

Results: A total of 4,056 dentists participated. While 80.2% reported familiarity with MIH, only 41.2% correctly identified and applied diagnostic criteria. Diagnostic confidence was highest among dentists practicing in high-income countries. Compared with high-income countries, dentists from lower-middle- and upper-middle-income countries were significantly less likely to report familiarity with MIH (AOR = 0.429 and 0.376, respectively) and confidence in diagnosis (AOR = 0.517 and 0.451, respectively). Paediatric dentists and those with 5–20 years of clinical experience demonstrated significantly higher familiarity and diagnostic confidence ($p < 0.001$).

Conclusions: Substantial gaps persist in MIH knowledge and diagnostic confidence, particularly in non-high-income settings and among non-paediatric dentists, highlighting the need for standardised education, harmonised diagnostic guidelines, and targeted continuing professional development to strengthen global MIH diagnosis.

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36 From diagnosis to rehabilitation: a case series of different aesthetic management approaches for amelogenesis imperfecta

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¹KIMS, KBPD, Kuwait Background: Amelogenesis imperfecta (AI) is a genetic disorder affecting enamel development, resulting in discolouration, hypersensitivity, and increased susceptibility to enamel breakdown. AI is classified into four main types according to the stage of enamel formation affected. Management is challenging and requires an individualised approach to address functional and aesthetic concerns. Early intervention is important particularly during adolescents.

Case reports: Three medically fit adolescent patients diagnosed with AI were referred for management of dental sensitivity, enamel breakdown, and aesthetic concerns.

Case 1: A 14-year-old female diagnosed with Type I (hypoplastic) AI, presenting with thin but relatively hard enamel.

Case 2: A 15-year-old male diagnosed with Type III (hypocalcified) AI, presenting with severe enamel breakdown and hypersensitivity.

Case 3: A 14-year-old female diagnosed with Type III AI, presenting with generalised enamel loss.

Treatment: All treatments were carried out under local anaesthesia using either 2% lidocaine or 4% articaine with 1:100,000 epinephrine; in Case 2, inhalation sedation with nitrous oxide was additionally used to manage hypersensitivity and improve cooperation. Anterior teeth were restored using an injectable composite technique in Case 1, laboratory-made composite crowns in Case 2, and celluloid crown forms filled with composite resin in Case 3. Posterior teeth in Cases 2 and 3 were restored with Preformed Metal Crowns (PMCs) to provide a full coverage and durability.

Follow up: Short-term follow-up demonstrated reduced dental sensitivity and satisfactory function.

Conclusion: Restorative management tailored to AI type and clinical presentation can significantly improve function, aesthetics, and quality of life in adolescent patients.

42 Anterior zirconia crowns for management of progressive ECC with dentinogenesis imperfecta

Sarah Balal¹

¹Ministry Of Health, Kuwait Background: Early childhood caries (ECC) can significantly affect aesthetics, function, speech development, and psychosocial well-being in young

children. While silver diamine fluoride (SDF) is an accepted caries-arrest modality, disease progression may continue in high-risk patients, necessitating escalation of care. This report describes the management of progressive ECC in the presence of dentinogenesis imperfecta following failure of conservative therapy.

Case report: A 3 year-old female with no significant medical history other than seasonal allergies presented with severe ECC involving the maxillary primary incisors and clinical features consistent with dentinogenesis imperfecta. Due to young age and limited cooperation, initial management consisted of serial applications of 38% SDF. Despite this approach, continued clinical and radiographic caries lesion progression was observed, indicating failure of conservative management and increased risk for pulpal involvement, functional compromise, and psychosocial impact.

Treatment: Definitive treatment was performed under general anaesthesia. The maxillary primary anterior teeth were restored with prefabricated zirconia crowns following manufacturer guidelines and standard preparation protocols. Mandibular anterior crowns were not indicated due to anatomical considerations and disease distribution.

Follow-up: Postoperative evaluation demonstrated intact restorations with favourable gingival response, stable function, and improved aesthetics. Radiographic assessment revealed no pathology, secondary caries, or restoration failure.

Conclusion: This case underscores the importance of reassessing conservative caries strategies when disease progression persists. Full-coverage zirconia restorations represent a predictable option to restore function, improve quality of life, and support normal developmental outcomes in young children with progressive ECC and hereditary dentine defects.

47 Auto-transplantation of developing teeth: a case report

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¹Department of Paediatric Dentistry, Institute of Dentistry, Queen Mary University of London, London, United Kingdom, ²Department of Paediatric Dentistry, Ministry of Health, Malaysia, ³Manipal University College Malaysia, Malaysia Background: Dental auto-transplantation involves relocating a tooth within the same individual to replace a missing tooth. It may include transferring impacted or erupted teeth to extraction sites or surgically prepared sockets. The procedure offers functional and aesthetic benefits and should be evaluated alongside other surgical and restorative treatments during orthodontic planning.

Case report: A 12 year-old healthy boy was referred for dental caries. Orthopantomography revealed congenitally missing lower left first premolar and bilateral lower second premolars. Bilateral primary second molars were grossly decayed. A diagnosis of hypodontia of lower left first premolar and bilateral lower second premolar with poor prognosis of bilateral lower primary second molar was made. Treatment: Following a multidisciplinary discussion with the orthodontic team, removal of the open apex bilateral upper first premolars was planned to relieve crowding in the upper arch. Due to spacing in the lower arch, auto-transplantation was planned. After extracting the bilateral lower second primary molars, recipient sites were prepared for the donor teeth, which were then placed and secured with sling sutures.

Follow-up: Three weeks post-operation, transplanted teeth erupted into the occlusal plane, and the teeth were firm. At three-months, the Orthodontist started fixed appliance. Subsequently, root length of auto-transplanted teeth had increased, and fully formed with presence of lamina dura. Conclusion: Auto-transplantation can be successful treatment modality in selected young patients with hypodontia, particularly when coordinated through early multidisciplinary planning. It offers functional tooth replacement, continued root development and favourable aesthetic outcomes, and should be considered as an alternative approach in oral rehabilitation for young growing individuals.

50 Small teeth, big challenges: dental management of hypoplastic amelogenesis imperfecta in a 9 year-old child

Aisha Alrefaee¹, **Catrinel Gheorghiu**¹, **Lucy McClean**¹

¹University Dental Hospital of Manchester, Manchester, United Kingdom **Background:** Amelogenesis imperfecta is a group of inherited conditions characterised by qualitative and/or quantitative enamel defects. Several types of amelogenesis imperfecta are known, affecting in various degrees the quality of life of the patient: sensitivity, aesthetic complaints, post eruptive breakdown, carious lesions and sometimes loss of the affected teeth.

Case report: This Case report describes the management of a patient in early mixed dentition, presenting with marked hypersensitivity affecting the anterior teeth and impacting eating and drinking. Patient was fit and well and attended the University Dental Hospital of Manchester at age 7 years and 11 months for diagnosis. Clinical and radiographic examination confirmed amelogenesis imperfecta, hypoplastic type, affecting first permanent molars and permanent central incisors at the diagnosis appointment. The remaining teeth were caries free. A slight delay in eruption was noted during treatment, as his LR6, and LL6 were still not reaching occlusal level by age 9.

Treatment: The initial management focused on enhanced prevention and management of symptoms. Casein phosphopeptide amorphous calcium phosphate mouse was prescribed with success on pain management. Restorative intervention included resin composite onlays for the maxillary first permanent molars, and composite resin build-ups of the maxillary central incisors using celluloid preformed crowns.

Follow-up: The patient remains under regular review, with further restorative treatment planned following complete eruption of the mandibular first permanent molars and other permanent teeth.

Conclusions: This case highlights the importance of staged management of amelogenesis imperfecta patients, using composite resin to alleviate symptoms, preserve tooth structure, and improve quality of life.

52 A puzzling smile: multidisciplinary planning for a child with multiple dental anomalies

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¹University Dental Hospital of Manchester, Manchester, United Kingdom, ²Royal Manchester Children's Hospital, Manchester, United Kingdom **Background:** Combination dental anomalies are uncommon and pose significant clinical challenges, requiring careful multidisciplinary planning. This case describes a child with multiple dental anomalies and highlights the benefits and challenges of multidisciplinary management.

Case report: A fit and well 9 year-old male presented complaining of a large front tooth (UR1). Clinical and radiographic examination revealed a macrodont UR1 with an enlarged pulp chamber and broad root. The UL1 showed severe external root resorption. In the UL2 region, three incisor-shaped teeth were present: one resembling a central incisor, one palatally displaced with root dilaceration, and one peg-shaped lateral incisor.

Treatment: Following two MDT discussions, a management plan was agreed. The resorbed UL1 and the palatally displaced supplemental tooth were extracted. An upper removable appliance was fitted to maintain the position of the macrodont. Conservative reshaping and crown sectioning were considered but contraindicated due to pulpal exposure and root morphology risks. Long-term management includes extraction of the macrodont. Further coordinated orthodontic and restorative treatment will optimise anterior symmetry and aesthetics.

Follow-up: Ongoing review as the dentition develops will guide the timing of definitive interventions. A diagnostic wax-up will assist in visualising potential restorative outcomes. Retention of the macrodont has preserved the alveolar

bone, providing a favourable foundation for future prosthetic replacement.

Conclusion: This case highlights the complexity of managing multiple dental anomalies in a growing patient. It underscores the importance of specialist collaboration alongside a flexible, staged approach to treatment planning.

53 Multidisciplinary management of an adolescent with dens evaginatus

Shekhah Almutairi¹

¹**University College London, London, United Kingdom Background:** Dens evaginatus is an uncommon developmental anomaly that can present significant clinical challenges if not identified early. Fracture of the occlusal tubercle may lead to pulpal exposure, necrosis, and periapical pathology, particularly complicating management when immature apices are present.

Case report: A 12 year-old Asian male was referred by his general dental practitioner with recurrent swellings and pain associated with both lower second premolars. The patient was medically fit with no known allergies. Clinical examination revealed dental abscesses associated with two lower second premolars. Radiographic assessment demonstrated periapical pathology, open apices, and complex root canal morphology. A diagnosis of bilateral dens evaginatus with fractured occlusal tubercles was made, with pulpal necrosis likely secondary to direct pulpal exposure from tubercle fracture.

Treatment: Emergency extirpation of both teeth was undertaken to relieve acute symptoms. Given the complexity of the case—including immature apices and challenging root canal anatomy—specialist endodontic input was sought. Following multidisciplinary discussion, definitive management involved apexification using an apical plug technique.

Follow-up: The management has been successful so far according to the follow-up radiographs taken every visit and cessation of symptoms as well as resolution of draining sinus.

Conclusion: This case demonstrates that while early detection and conservative management remain ideal for dens evaginatus, endodontic intervention using apexification techniques can successfully retain teeth with immature apices when pulpal necrosis occurs. A multidisciplinary approach is crucial for managing complex developmental anomalies with compromised pulpal status.

56 Hall technique versus conventional technique for placement of pre-formed stainless steel crowns in mih-affected first permanent molars

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¹**Paediatric Dentistry Unit, Postgraduate Institute of Medical Education & Research, Chandigarh, India** **Aim:** To compare the clinical performance of SSCs placed using Hall Technique and the Conventional Technique in MIH affected first permanent molars (FPM).

Methods: Thirty children aged 7–12 years with MIH-affected FPMs were included. All teeth received standardised caries management using SMART technique and randomly allocated into Group A (Hall Technique) or Group B (Conventional Technique). In Conventional Technique, standard tooth preparation involving occlusal and proximal reduction was performed, whereas SSCs were placed without tooth preparation in the Hall Technique. Follow-up evaluations were at 24 h, 1 month, 3 months, and 6 months. Radiographic follow-up was done at 6 months.

Results: Both techniques demonstrated 100% crown retention with comparable marginal integrity, proximal contact, periodontal health, TMJ function, and pulpal vitality. Stainless Steel crown placement by Hall Technique required significantly less procedural time ($p=0.002$). Patient discomfort was also lower in the Hall group; however, not statistically significant ($p=0.104$). Mild Chewing difficulty at 24 h was observed in both groups but was significantly higher in the Hall group ($p=0.002$) that resolved by the 1-month follow-up.

Conclusion: The Hall Technique provides clinical outcomes comparable to the Conventional Technique with reduced chairside time and favourable patient acceptance. Despite transient occlusal discomfort, it represents a conservative and effective alternative for the management of MIH-affected first permanent molars.

71 Management of hypocalcification amelogenesis imperfecta

Arwa Khayat¹, Alexandra Lyne², Susan Parekh², Isabelle Holroyd², Cheryl Somani²

¹**University College London, London, United Kingdom,** ²**Eastman Dental Hospital, London, United Kingdom** **Background:** The present clinical case outlines the phased management of a seven year-old patient with hypocalcified-type amelogenesis imperfecta (AI). Her chief concern was tooth discoloration, which had a significant psychological impact. There was no known family history of AI, and genetic testing was declined.

Case report: Clinically, the presentation involved multiple challenges: a predisposition to heavy calculus and plaque accumulation, oedematous gingiva, and post-eruptive breakdown of the newly erupted first permanent molars (FPMs).

Treatment: A multi-phase treatment plan was initiated, considering her mixed dentition stage. The initial phase focused on stabilising the compromised dentition. This included placing preformed metal crowns on the upper FPMs and glass ionomer restorations on the lowers. Lesions in the primary dentition were addressed with restorations and extractions performed under local anaesthesia. Aesthetic concerns were managed by masking the dark yellowish-brown discoloration of the anterior teeth with resin composite build-ups.

Follow-up: Future considerations will include further aesthetic improvement through teeth whitening, to be offered following the eruption of the permanent canines, potentially combined with other options such as additional composite restorations.

Conclusion: This case underscores the importance of a tailored, staged approach in managing hypocalcified AI, balancing urgent functional needs with long-term aesthetic and psychological outcomes.

75 An investigation of amelogenesis imperfecta and its association with dental anomalies

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¹Sheffield Teaching Hospitals NHS Foundation Trust, Sheffield, United Kingdom, ²School of Clinical Dentistry, University of Sheffield, Sheffield, United Kingdom. **Aim:** To explore the presence of dental anomalies in children with amelogenesis imperfecta (AI) and to describe the distribution of dental anomalies across different AI genetic variants.

Methods: This cross-sectional study undertook secondary analysis of data from a primary study of children with AI below 18 years of age. After training and calibration, orthopantomograph radiographs (OPTs), and clinical photographs were reviewed. Enamel phenotype was assessed, and participants were screened for six dental anomalies (pre-eruptive crown resorption, eruption abnormalities, pulp calcifications, taurodontism, gingival enlargement, anterior open bite). Dental age was estimated using the Demirjian method and compared with chronological age. The genetic diagnosis was mapped to the identified dental anomalies.

Results: Thirty participants were assessed. 20 participants had hypomineralised enamel and 10 had hypoplastic enamel. Twenty-two (73%) had at least one dental anomaly. Sixteen participants had advanced dental age, twelve had delayed dental age, one had matching ages, and one was excluded. Genetic variants of FAM83H, LAMB3, ENAM,

COL17AI, AMBN, MMP20 and SP6 were observed, associated with a variety of dental anomalies.

Conclusion: Several dental anomalies were found to occur alongside AI. Dental age did not appear to vary substantially from chronological age in those with AI. The findings add to the emerging evidence-base of phenotype-genotype associations in AI. It provides a basis for future research, to strengthen the validity of the speculated association.

82 Intentional surgical repositioning of an inverted, impacted, and dilacerated maxillary central incisor: a Case report in a paediatric patient with MIH

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¹Department of Paediatric Dentistry, Erciyes University, Kayseri, Türkiye **Background:** Impacted maxillary central incisors have multifactorial aetiology with traumatic dental injuries to primary teeth representing the leading causative factor. This Case report presents a sequential management protocol for a complex case involving molar incisor hypomineralisation.

Case report: An 8 year-old-girl presented with delayed eruption of a maxillary incisor, resulting in psychosocial distress. A history of intrusion trauma to #51 was reported. Cone-beam computed tomography demonstrated an impacted and inverted immature right maxillary central incisor with dilacerated root and partial root formation.

Treatment: Orthodontic phase: In order to regain the space loss caused by delayed eruption, hypomineralised maxillary first permanent molars were restored and covered with stainless steel crowns, which were used as anchorage units by soldering orthodontic tubes. Surgical phase: Considering patient's limited cooperation, extraction of the impacted tooth was performed under deep sedation, followed by resection of dilacerated root portion. The short-rooted tooth was intentionally replanted slightly deeper into the alveolar bone to enhance biomechanical stability and splinted for two weeks. Endodontic phase: Due to pulp exposure during extraction and infection risk, apexification with mineral trioxide aggregate was performed. Restorative phase: The final functional and aesthetic alignment was achieved restoratively, preserving critical crown-root ratio.

Follow-up: At the 24 month follow-up, the tooth demonstrated excellent clinical and radiographic healing.

Conclusion: This case highlights that a pedodontist-led, staged treatment strategy enables successful management and preservation of an impacted incisor despite multifactorial clinical considerations. By individualising the protocol to patient-specific challenges, intentional surgical repositioning combined with creative orthodontic and restorative interventions provides stable functional and aesthetic outcomes.

83 Hybrid CAD/CAM resin composite restorations for molar-incisor hypomineralisation in children: a Case report

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¹Department of Paediatric Dentistry, Faculty of Dentistry Marmara University, Istanbul, Turkey **Background:** Molar incisor hypomineralisation (MIH) is a common developmental enamel defect that compromises tooth structure and complicates restorative decisions. Hypomineralised enamel is prone to breakdown, caries, and restoration failure. The optimal management of severely affected posterior teeth remains controversial. This case presents a multidisciplinary approach using CAD/CAM hybrid composite indirect restorations.

Case report: A 10 year-old female presented to the Paediatric Dentistry Clinic at Marmara University after trauma to teeth #11 and #21. Examination revealed an enamel-dentin fracture and internal resorption in #21. Brown-cream opacities on first permanent molars and incisors led to an MIH diagnosis. Deep dentinal caries related to hypomineralised enamel were detected in teeth #36 and #46.

Treatment: Root canal treatment of #21 was completed using an MTA-based material. Teeth #11 and #21 were restored using 37% orthophosphoric acid (Actino Gel), a universal adhesive (Cavex Quadrant Uni SE Bond), and resin composite (G-aenial A'CHORD). Tooth #36 presented with a deep subgingival carious lesion; a pulpotomy was performed under rubber dam isolation. Due to extensive structural loss in #36 and #46, CAD/CAM-fabricated hybrid composite restorations (VOCO Grandio Blocs) were placed. The internal surfaces were sandblasted and silanised (VOCO Ceramic Bond). Prior to cementation, 37% orthophosphoric acid was applied, and a dual-cure composite-based adhesive system (VOCO Bifix-QM) was used.

Follow-up: Clinical and radiographic evaluations at baseline, 6, 12 and 24 months showed good marginal adaptation, structural integrity, and no secondary caries or sensitivity.

Conclusion: CAD/CAM hybrid composite indirect restorations provided a conservative and durable solution for MIH-affected molars, with favourable outcomes over 24 months.

86 An audit to compare and assess dental appointments for 18 month-old cleft patients at St Thomas' Hospital Paediatric Dental Department

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¹King's College London, London, United Kingdom, ²Guy's & St Thomas NHS Trust, London, United Kingdom. **Aims:**

To assess whether clinicians caring for 18 month-old cleft patients achieve current care standards by comparing outcomes between face-to-face and telephone dental appointments.

Methods: Retrospective data collection from patient record system (Epic), including 18 month-old cleft patients attending or scheduled telephone dental appointments from April 2025–2026 at St Thomas' Hospital Paediatric Dental Department. Approval from the Clinical Audit department at GSTT was obtained. Collected data was anonymised. Variables measured included clinical findings (dental caries/dental anomalies/eruption sequence), oral hygiene habits, dietary habits, GDP registration, and the outcome of the dental appointment.

Results: A total of 100 patient records were obtained, and the majority of dental appointments were face-to-face rather than by telephone. Most patients were registered with a local GDP and the most common dental anomalies reported were enamel defects (such as hypomineralisation), supernumerary teeth, and delayed eruption. Regardless of the appointment type, appropriate oral hygiene, diet, caries risk, and anomalies advice was given targeted for cleft patients. The outcomes for both appointment modalities included a 3 year review or a 6 month review appointment.

Conclusion: Patients with cleft may benefit more from a telephone dental appointment at the 18 month-old cleft clinic, to receive appropriate advice and guidance. A face-to-face dental appointment at 3 years old is recommended.

93 Spontaneous eruption of a severely infraoccluded, deciduous mandibular first molar: Case report of a 6 year-old child

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¹Community Dental Services CIC, United Kingdom **Background:** Most commonly affecting mandibular primary molars in children aged 6–9 years, infraoccluded teeth are positioned below the occlusal plane. Most cases are classed as mild, whereas severe cases of more than 5 mm submersion is uncommon. It is thought to arise from environmental, developmental, or hereditary factors, frequently associated with ankylosis and anomalies in the periodontal ligament. Potential consequences of infraoccluded molars include occlusal disturbance, tipping of adjacent teeth, over-eruption of opposing teeth, and altered eruption of permanent successors. While mild cases may be monitored, severe infraocclusion rarely demonstrates spontaneous eruption, typically requiring surgical intervention.

Case report: A 5 year-old girl was referred to Derbyshire Community Dental Services CIC in January 2025 by her general dental practitioner, for extraction of an asymptomatic severely submerged left primary mandibular first

molar (LLD), with a history of progressive submersion. Clinical and radiographic assessment in June 2025 confirmed severe infraocclusion, with the unerupted permanent successor present. Extraction under general anaesthesia was planned due to anticipated surgical and cooperation difficulties related to a possible autism diagnosis. While awaiting treatment, spontaneous eruption was reported by the parent. Review in November 2025 confirmed full eruption of LLD into the occlusal plane, and extraction was no longer indicated.

Treatment: Images were taken following the spontaneous eruption and long-term monitoring with no intervention is recommended.

Follow up: Regular long-term reviews to monitor for further eruption anomalies.

Conclusions: Spontaneous eruption of severely infraoccluded primary molars can occur in very rare cases, highlighting importance of cautious extraction timing.

101 Management of an unerupted maxillary incisor associated with a supernumerary tooth in a patient with molar-incisor-hypomineralisation and dental caries

Colin Lee¹, **Cynthia Kar Yung Yiu**¹

¹The University of Hong Kong, Hong Kong Background: This Case report presents the comprehensive management of a 7 year and 4 month-old healthy Chinese boy with an unerupted maxillary right central incisor (tooth 11) associated with an inverted conical supernumerary tooth in relation to tooth 11, complicated by multiple carious lesions, and molar incisor hypomineralisation (MIH) affecting teeth 16, 21.

Case report: The MIH-affected teeth were characterised by demarcated opacities without enamel breakdown. The patient was assessed as having a high caries risk due to poor oral hygiene and a cariogenic diet.

Treatment: A staged treatment approach was implemented, starting with preventive measures including oral hygiene instructions, dietary counselling, fissure sealants, and 5% topical fluoride varnish application. Restorative treatments with direct resin composite for carious teeth 55, 54 and 65 were carried out under local anaesthesia. The MIH-affected teeth were managed with a preventive approach to prevent caries and post-eruption enamel breakdown. The surgical removal of the supernumerary tooth was carried out under monitored anaesthesia care (MAC).

Follow-up: The patient was kept under regular review postoperatively. Spontaneous eruption of the previously impacted tooth 11 was observed after two months and had fully erupted at 10 months.

Conclusion: This case highlights the importance of timely intervention and removal of obstructions to facilitate the eruption of the impacted incisor in young patients. It also demonstrates the significance of early detection and preventive care for MIH-involved teeth, particularly in a high caries risk patient.

102 More than an enamel defect: amelogenesis imperfecta associated with alopecia areata

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Background: Amelogenesis imperfecta (AI) is an inherited enamel condition that may occur in isolation or alongside other conditions and can lead to significant functional and psychosocial impact.

Case report: A 9 year-old female was referred by the Community Dental Services with a generalised enamel defect, sensitivity and aesthetic concerns. Medically, the patient suffers from alopecia areata, recurrent epistaxis and lacrimal gland abnormalities. Clinical examination revealed a caries-free permanent dentition with generalised opacities affecting all teeth, upper arch crowding, an anterior open bite of 10 mm and partial gingival coverage of multiple crowns. Clinical and radiographic assessment led to the diagnosis of hypoplastic-AI. Following assessment on a dedicated anomalies clinic, the patient was referred for genetic testing on a background of AI and alopecia areata.

Treatment: Due to the extent of treatment required, comprehensive dental care was provided under general anaesthesia. Electrosurgery was performed to remove excess gingival tissue and expose adequate crown height on multiple teeth. Preformed metal crowns were placed on all first permanent molars. Premolars were fissure sealed, and the developmental grooves of lower anterior teeth were sealed. A full-mouth professional mechanical plaque removal was carried out.

Follow-up: Following a genetic finding of unclear significance associated with ectodermal dysplasia, the patient was referred to clinical genetics. The patient was also referred to the joint Orthodontic-Paediatric Dentistry Advice and Guidance Clinic and remains under review.

Conclusion: This case highlights a rare presentation of hypoplastic-AI associated with alopecia areata and emphasises the importance of timely referral, specialist input and multidisciplinary management.

108 Vital and non-vital tooth bleaching in adolescents with trauma-related and developmental enamel and dentine discolouration: a case series

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¹Queen Mary University of London, London, United Kingdom Background: Tooth discolouration from dental trauma and developmental defects such as molar-incisor hypomineralisation (MIH), amelogenesis imperfecta (AI), and dentinogenesis imperfecta (DI) can seriously impact adolescents' self-esteem and oral health-related quality of life. Conventional restorative options are invasive, highlighting the appeal of more conservative aesthetic approaches. In the UK and EU, however, regulations restrict the use of hydrogen peroxide bleaching products to 0.1–6% in children under 18, except for disease prevention or treatment, creating ethical and legal uncertainty and limiting paediatric evidence.

Case report: This case series reports external (vital) bleaching in three adolescent girls with discolouration due to MIH (13 years), AI (14 years), and DI (13 years), and internal (non-vital) bleaching of a discoloured, endodontically treated maxillary tooth in a 13 year-old girl. All cases were treated with 10% carbamide peroxide, except the DI case, which received 16%, over periods ranging from two weeks to more than three months. Management included anti-sensitivity toothpaste, tailored gel placement, and close monitoring, with adjunctive micro-abrasion and/or resin infiltration and composite bonding where required.

Follow-up: Patients were reviewed at six months. All cases demonstrated clinically noticeable improvement in tooth colour and overall smile aesthetics, with adolescents reporting increased satisfaction and confidence. No sensitivity or other complications were reported. Bleaching reduced or delayed the need for irreversible restorative intervention.

Conclusion: When carefully planned and delivered, bleaching can be a safe, effective, minimally invasive option for adolescents with trauma-related or developmental discolouration, preserving tooth structure and deferring more invasive treatment.

114 The patient profile of a consultant-led paediatric amelogenesis imperfecta clinic—a retrospective cross-sectional study

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¹Glasgow Dental Hospital, NHS Greater Glasgow and Clyde, Glasgow, Scotland, ²Specialty Registrar in Paediatric Dentistry, Barts Health NHS Trust, London, England, ³Glasgow Dental Hospital, NHS Greater Glasgow and Clyde, Glasgow, Scotland. Aim: To describe patient demographics, AI phe-

notypes, and associated dental anomalies in a cohort of children attending a consultant led NHS paediatric AI clinic at Glasgow Dental Hospital, Scotland.

Methods: A cross-sectional retrospective review of clinical records from a designated AI clinic was undertaken. Where available, patient notes, radiographs, and photographs were reviewed. Data recorded included age at referral, gender, AI phenotype, and the presence of associated dental anomalies.

Results: Ninety patient records were analysed. The mean age at referral was 8.5 years (range 1–15), and 63% of patients were female (n = 57). Hypomaturation was the most common phenotype (n = 57, 64%), followed by hypoplastic (n = 21, 24%), hypocalcified (n = 7, 8%), and mixed hypomaturation–hypoplasia (n = 4, 4%). Where relevant records were available, the incidence of the following dental anomalies was assessed: taurodontism (27%, n = 18/67), anterior open bite (20%, n = 17/87), delayed eruption (23%, n = 13/56), gingival hyperplasia (7%, n = 6/86), hypodontia (14%, n = 11/80), pulp stones (4%, n = 3/70), dens invaginatus (9%, n = 6/66), coronal resorption (1%, n = 1/70) and periodontitis (2.4%, n = 2/83).

Conclusions: In this cohort of children with amelogenesis imperfecta, hypomaturation was the predominant phenotype. Concomitant dental anomalies occurred frequently with taurodontism having the highest incidence. This may add to the complexity of dental treatment required and level of input required from specialist teams.

121 From pitted to polished: minimally invasive management of severe dental fluorosis in an 8 year-old child: a Case report

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¹Department of Paediatric Dentistry and Dental Public Health, Faculty of Dentistry, Alexandria University, Alexandria, Egypt Background: Dental fluorosis is characterised by hypomineralisation of enamel due to excessive fluoride intake during tooth development, presenting as white and/or brown stains, and in severe cases, pitted enamel. Minimally invasive techniques, such as bleaching, microabrasion, macroabrasion, and resin infiltration, have been increasingly advocated in the management of dental fluorosis. In more severe cases, a combination of these strategies could provide an effective treatment approach.

Case report: An 8 year-old female patient presented for aesthetic management of her fluorotic lesions. Clinical examination revealed brownish and chalky white lesions with enamel pitting affecting her maxillary central incisors, with a Tooth Surface Index of Fluorosis (TSIF) score of 6.

Treatment: Microabrasion was performed using Opalustre (Ultradent) three times under rubber dam isolation until

the brown lesions were markedly reduced, followed by selective macroabrasion limited to the pitted enamel areas. Resin infiltration was performed according to the manufacturer's instructions (ICON, DMG), followed by a final resin composite increment to the pitted defects to enhance surface integrity. Finishing and polishing were performed as needed.

Follow-up: Satisfactory aesthetic outcomes were achieved with significant masking of the lesions, which remained stable over a one month follow-up period. Further long-term data are required to evaluate the stability and predictability of this combined approach.

Conclusions: This case highlights the efficacy of minimally invasive approaches in managing dental fluorosis, even in severe cases with pitted enamel. Additionally, these approaches are well-suited for paediatric patients, as they provide marked aesthetic improvement within a short chair-side time, without the need for local anaesthesia.

135 Amelogenesis imperfecta type i: two Case reports

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¹**Kütahya Health Sciences University, Kütahya, Türkiye Background:** Amelogenesis imperfecta (AI) is a hereditary enamel disorder affecting both dentitions, leading to functional, aesthetic, and psychosocial challenges in children. This Case report presents the clinical findings and management of two paediatric patients with AI.

Case reports: Two systemically healthy children, a 10 year-old girl and a 10 year-old boy, presented with dental pain and cold sensitivity, respectively. Clinical and radiographic examinations revealed generalised enamel thinning and yellow–brown discoloration affecting both dentitions. In the first patient, multiple carious lesions, gingival inflammation, reduced occlusal vertical dimension, and decreased enamel thickness with preserved enamel–dentine contrast were observed. In the second patient, pitted enamel surfaces affecting both anterior and posterior teeth, with minimal posterior enamel loss, were noted. Family history was negative for similar dental findings. A provisional diagnosis of AI type I was established, and genetic evaluation confirmed autosomal recessive AI, identified as Type 1G in the first patient and Type 1C in the second.

Treatment: The first patient received scaling, vital pulp and endodontic treatment, and stainless steel crowns, whereas the second patient was managed with resin composite restorations, fissure sealants, and stainless steel crowns. Oral hygiene instructions and fluoride varnish applications were provided to both patients.

Follow-up: Both patients reported improved oral health-related quality of life, were asymptomatic, and showed intact

restorations and improved oral hygiene. Regular follow-up visits were scheduled at six-month intervals.

Conclusion: AI requires individualised management based on disease severity and genetic findings. Early intervention and appropriate restorative strategies improve function, symptom control, and clinical outcomes in children.

136 Temporal management of amelogenesis imperfecta in a growing child: a Case report

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¹**Section of Paediatric Dentistry, Department of Dentistry Orthodontics, University Medical Centre Groningen (UMCG), University of Groningen, Netherlands, ²Department of Paediatric Dentistry, Academic Centre for Dentistry Amsterdam (ACTA), Netherlands, ³Section of Cariology, Department of Dentistry Orthodontics, University Medical Centre Groningen (UMCG), University of Groningen, The Netherlands Background:** Amelogenesis imperfecta (AI) is a rare multi-phenotypical disorder of enamel affecting both the primary and permanent dentitions; commonly associated with hypersensitivity and rapid tooth surface loss. In children, management can be challenging due to limited restorative options and behavioural limitations. A staged, minimally-invasive patient-focused approach is recommended to stabilise the dentition during childhood.

Case report: A 6 year-old girl (G) (ASA I) presented at her first dental visit (2022) with generalised enamel defects, hypersensitivity and early posterior tooth surface loss. Clinical examination revealed rough, opaque enamel affecting both primary and erupting permanent teeth, with post-eruptive enamel loss. Radiographic assessment demonstrated reduced enamel radiodensity and poor enamel–dentine contrast. Following consideration of differential diagnoses and report of a family history of AI, a mixed hypoplastic–hypomaturation phenotype of AI was proposed as the diagnosis.

Treatment: Management focused on tooth stabilisation, not definitive restoration which was postponed to accommodate growth and development. Caries-risk management included parental counselling regarding diet and oral hygiene optimisation, and topical fluoride application. Severely affected primary and permanent molars were protected using preformed metal crowns (Hall technique). Cavitated lesions and hypersensitivity were managed using minimally invasive techniques, including silver diamine fluoride and glass ionomer cement restorations.

Follow-up: At present, G has reduced hypersensitivity, maintenance of function and limited progression of enamel loss during transition to the permanent dentition.

Conclusion: Longitudinal minimally invasive holistic management can successfully stabilise AI-affected molars

in children. Early diagnosis and careful management planning allow preservation of tooth structure whilst maintaining future restorative options.

140 Multiple mesiodentes in both primary and permanent dentition

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¹KU Leuven, Leuven, Belgium **Background:** A mesiodens is a supernumerary tooth centrally positioned in the upper jaw. Timely detection, diagnosis, and management are essential for optimal eruption of the permanent incisors. **Case report:** A 5 year-old, healthy (ASA 1) boy presented after accidental avulsion of tooth 51. Routine dental trauma management included periapical radiography of teeth in the traumatised region and revealed the presence of 3 mesiodentes. The patient is not known to have any syndromic disease.

Treatment: A CBCT was taken to localise the supernumerary teeth precisely. 3D planning was performed using advanced AI image segmentation and visualisation. The treatment consisted of surgical extraction of the mesiodentes. The surgery was carried out under general anaesthesia. A buccal flap was raised, and the extraction of the erupted supernumerary A and the partially erupted supernumerary B was performed. Finally, the third supernumerary element, C, was surgically removed. A transalveolar transplantation of element 21 was performed by uprighting the incisal edge of element 21. To finish the procedure, 3.0 Vicryl sutures were placed.

Follow-up: The patient was seen at 10 days, 4 months, 12 months, and 18 months for follow-up. At each consultation, the clinical and radiographic findings were assessed.

Conclusion: Early detection and removal of mesiodentes is essential for the alignment of the permanent dentition. The use of 3D imaging and planning simplifies and increases the predictability of minor surgical procedures in children.

154 Parental awareness and knowledge about molar incisor hypomineralisation (MIH)

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¹Ajman University, Ajman, United Arab Emirates **Aim:** The aim of this study is to assess parental awareness and knowledge of MIH. A cross-sectional survey of parents with children aged 3–12 years was conducted at the dental clinics of the College of Dentistry, Ajman University, using a questionnaire distributed in person.

Methods: The questionnaire assessed sociodemographic characteristics and evaluated parental awareness and

knowledge of MIH, including recognition of its signs from clinical photographs and understanding of its causes, prevention, and management. Content validity was established through review and approval by subject matter experts, and the questionnaire demonstrated acceptable reliability for assessing parental knowledge and awareness of MIH. Data were analysed using descriptive statistics, chi-square tests and regression models.

Results: Of the 480 respondents, only 6.5% had heard of MIH and 64.8% reported noticing white or yellow patches on their children's teeth, but most attributed these to poor oral hygiene or dental decay. When shown photographs of MIH-affected teeth, most parents misidentified them as cavities (77% for molars, 17% for incisors). Parental awareness about MIH was uniformly low across gender and education level. Among parents familiar with MIH (6.5%), dental professionals were the primary source of information (87.1%). This group of parents demonstrated high knowledge of characteristics, causes, prevention, and management of MIH affected teeth.

Conclusion: Parental awareness of MIH was low despite a well-educated sample, and signs of the condition were often unrecognised or misinterpreted. Targeted education for parents through dental professionals and community programs is needed to improve knowledge, facilitate earlier detection, and ensure appropriate management of this condition.

156 Measuring tooth hypersensitivity in children with miH: psychometric evaluation of a new measure

Joana Monteiro¹, Fiona Gilchrist¹, Helen Rodd¹

¹University of Sheffield, Sheffield, United Kingdom **Aim:** Children with molar incisor hypomineralisation (MIH) often experience tooth hypersensitivity (TH), which affects eating, drinking, and toothbrushing. Current TH assessment methods are often pain-inducing or adapted from adult or generic measures, limiting their relevance for children with MIH. A child-centred, MIH-specific measure of TH was developed. The aim was to evaluate the measurement properties of the MIH-TH, a child-reported oral health-related quality of life (OHRQoL) measure assessing MIH-related TH.

Methods: Following ethical approval (REC 23/SC/0368) and consent/assent, 104 children aged 6–16 years with MIH completed the MIH-TH alongside the CPQ11–14-ISF:16 at baseline. Test–retest reliability was assessed in 24 children over a mean interval of 30 days. Responsiveness was evaluated in 38 children at a post-treatment review (mean 19 weeks post-treatment). Psychometric evaluation followed

COSMIN recommendations using both classical test theory and Rasch analysis.

Results: Rasch analysis supported unidimensionality, good model fit, and invariance across sex, ethnicity, and deprivation. Internal consistency was good (McDonald's $\omega = 0.87$) and test–retest reliability was moderate to good (ICC = 0.74). Disordered thresholds were resolved by collapsing response categories, improving category functioning. Construct validity was supported by strong correlation with the global TH question ($r = 0.78$) and moderate correlation with CPQ11–14-ISF:16 scores ($r = 0.49$). The MIH-TH demonstrated responsiveness, with a minimal important difference of approximately 1.7 points.

Conclusions: The MIH-TH is a valid, reliable, and responsive OHRQoL measure. As the first child-centred instrument developed specifically for MIH-related TH, it has application for both clinical practice and research.

159 Aesthetic and functional rehabilitation of amelogenesis imperfecta in a paediatric patient: a 2 year follow-up Case report

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¹Paediatric Dentistry, Faculty of Dentistry, Sakarya University, Sakarya, Turkey **Background:** Amelogenesis imperfecta (AI) is a rare hereditary disorder affecting enamel formation in both primary and permanent dentitions. It is commonly associated with enamel defects, tooth discoloration, hypersensitivity, impaired masticatory function, and significant aesthetic concerns. Early and appropriate restorative management is essential in paediatric patients to restore function, reduce sensitivity, and improve psychosocial well-being.

Case report: A 12 year-old female patient presented to the Department of Paediatric Dentistry, Sakarya University Faculty of Dentistry, with complaints of severe pain during eating and aesthetic dissatisfaction. Clinical and radiographic examinations led to a diagnosis of amelogenesis imperfecta. Prior to restorative treatment, oral hygiene instructions were provided, and no clinical procedures were performed until periodontal health was achieved.

Treatment: Following gingival recovery, all teeth except the molars were restored using strip crowns to address aesthetic concerns and dentine hypersensitivity. Charisma® resin composite (shade A2) was used for all restorations. Due to insufficient vertical dimension and functional requirements, stainless steel crowns were placed on the molar teeth to restore occlusal stability and masticatory function.

Follow-up: At the 2 year follow-up, the restorations demonstrated satisfactory clinical performance with maintained function, acceptable aesthetics, and high patient satisfaction.

Conclusion: Minimally invasive restorative approaches, such as strip crowns and stainless-steel crowns, can provide effective and predictable medium-term treatment outcomes for paediatric patients with amelogenesis imperfecta. Long-term follow-up remains essential to monitor occlusal development and plan definitive restorative treatment.

169 A multidisciplinary approach to dental care under general anaesthetic in a child with complex congenital heart disease

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¹University Hospitals Bristol and Weston NHS Foundation Trust, Bristol, United Kingdom **Background:** Children with complex congenital heart disease (CHD) pose significant challenges. This case is noteworthy due to the complexity of cardiac physiology, anticoagulation management and the influence of infective endocarditis (IE) risk on dental decision-making.

Case report: 7 year-old male requiring care under general anaesthetic. Medical history: 22q11.22 duplication syndrome and CHD including tricuspid atresia, large ventricular septal defect, hypoplastic right ventricle and mechanical mitral valve. Previously undergone multiple cardiac surgeries including a Fontan procedure. This was complicated by a perioperative stroke, resulting in residual left-sided weakness and chronic cerebral infarcts. Medications included warfarin (target INR 2.5–3.5). Dental diagnosis included severely hypomineralised first permanent molars. Cardiology advised delayed treatment posed a significant threat to survival due to high IE risk. Extraction of all first permanent molars was planned despite early dental development.

Treatment: Warfarin was paused and the patient admitted pre-operatively, under cardiology, for heparin bridging. He was first on the list, under a cardiac anaesthetist and managed with head-up positioning to accommodate Fontan physiology. Treatment included examination, bitewings, replacement of PMCs, fissure sealants, and extraction of first permanent molars. Antibiotic prophylaxis was administered. All sockets were packed and sutured.

Follow-up: Post-operative challenges with haemostasis and stabilising INR necessitated prolonged inpatient care. He was discharged five days post-operatively with an INR of 5.1, followed up by both cardiology and dental teams.

Conclusion: This case highlights the critical importance of multidisciplinary team planning in managing these patients. Close collaboration between dental, cardiology, nursing and anaesthetic teams was essential to deliver safe care.

175 Evaluation of dental anomalies and potential use of optical coherence tomography in children with osteogenesis imperfecta

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¹Department of Surgical Sciences, C.I.R. Dental School—Section of Paediatric Dentistry, University of Turin, Turin, Italy **Aim:** To evaluate dental anomalies and enamel and dentin microstructural characteristics in children with Osteogenesis Imperfecta (OI) using optical coherence tomography (OCT), compared with age-matched healthy controls.

Methods: Children aged 3–15 years with OI and matched healthy controls were consecutively enrolled at the Paediatric Dentistry Section, Dental School, Turin. Clinical examination and panoramic radiographs were used to identify dental anomalies. OCT sagittal scans of maxillary central incisors were performed. Enamel thickness, mean grey value, and integrated signal intensity of enamel and dentin were measured in the cervical and middle thirds. Visibility of the dentino-enamel junction (DEJ) was descriptively assessed. Statistical analysis included Wilcoxon tests; significance was set at $p \leq 0.05$.

Results: Twenty-five OI patients and 25 controls (mean age 10.7 ± 2.4 years) were enrolled. Dental anomalies were significantly more common in OI ($p \leq 0.0223$) including malposition, taurodontism and crown narrowing. OCT analysis (288 images per group) showed reduced cervical enamel thickness in OI ($p = 0.018$) and significantly higher dentin optical density and signal intensity ($p < 0.001$; $p = 0.0026$). In the middle third, enamel thickness was similar but optical properties differed, while dentin changes were less evident. Higher dentin optical density was observed in OI patients with dentinogenesis imperfecta. DEJ visibility was comparable between groups but correlated with dentin signal intensity.

Conclusion: Children with OI exhibited a higher prevalence of dental anomalies and OCT-detected microstructural alterations, even without clinical DI. OCT may help bridge the diagnostic gap by identifying subclinical abnormalities and could be applicable to other pathological conditions involving ultrastructural dental changes.

180 Management of deep brown mih opacities on maxillary central incisors using a modified resin infiltration protocol: a Case report

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¹Department of Paediatric Dentistry, Aristotle University of Thessaloniki, Thessaloniki, Greece **Background:** Resin infiltration was initially introduced for masking enamel white spot lesions caused by dental caries. Its use was later

extended to white developmental enamel defects of non-carious origin. In molar incisor hypomineralisation (MIH), modifications such as repeated etching cycles and prolonged application time have been proposed in the literature to enhance resin penetration and improve masking. However, evidence regarding the management of deep brown opacities remains limited. This Case report presents the management of severe brown MIH lesions using a modified resin infiltration protocol.

Case report: A 10 year-old patient presented with aesthetic concerns due to brown opacities on the maxillary central incisors. Both incisors were affected by severe MIH, while first permanent molars were mildly involved. Medical history was clear and non-contributory. Treatment: For the maxillary central incisors, enamel macro-abrasion was performed to remove the demarcated brown opacities. Three cycles of 15% HCl (Icon Etch) and Icon Dry (ethanol) were applied. After sufficient masking of the lesions was achieved, the resin infiltrant was administered twice (1 min for each application) and light cured for 40 s. Due to enamel loss, a composite material (Admira 5, VOCO, Germany) was placed over the infiltrated surfaces.

Follow-up: At the two-year follow up, colour stability and masking effect were clinically satisfactory.

Conclusion: Macro-abrasion combined with modified resin infiltration and composite restoration may represent a promising approach for managing deep brown MIH opacities. Further clinical studies are required.

181 An unexpected finding: pulp stones in unerupted permanent teeth associated with multiple dental anomalies

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¹Newcastle Dental Hospital, Newcastle upon Tyne, United Kingdom, ²School of Dental Sciences, Newcastle University, Newcastle upon Tyne, United Kingdom **Background:** Pulp stones are usually associated with caries, ageing and response to restorative procedures. They are not normally detected in unerupted teeth.

Case report: A fit and well 8 year-old female was referred for caries management, with ethnicity recorded as 'other ethnic group'. Following clinical and radiographic examination, diagnoses included dental caries, enamel dentine fracture (UL1), hypodontia (LL5 & LR5), taurodontism (UL6 & UR6), an erupted supplemental primary lateral incisor with an unerupted supplemental permanent lateral incisor, and pulp stones in erupted and unerupted permanent teeth. No family history of dental/genetic anomalies was identified.

Treatment: Prevention, in line with Delivering Better Oral Health guidance, was reinforced. Resin-bonded fissure sealants (UR6/UL6/LL6/LR6), composite restoration (UL1), preformed metal ‘Hall’ crowns (LLE/LRE/URE/ULE, URD, ULD) and extractions (LLD/LRD) were undertaken. Orthodontic opinion was to maintain LLE/LRE and monitor dental development. Due to increased risk of loss of vitality and challenging future endodontic management, endodontic opinion was to monitor permanent teeth with pulp stones.

Follow-up: The patient remains under review to monitor dental development, specifically exfoliation/eruption of supplemental teeth and possible impaction, and sequelae associated with traumatic dental injuries. Shared care continues with their primary care dentist to optimise prevention. A genetics referral was proposed but declined by parents.

Conclusion: This case highlights rare occurrence of pulp stones in unerupted permanent teeth in a paediatric patient with multiple dental anomalies. Their presence, without typical predisposing factors, raises the possibility of underlying genetic influence. Interdisciplinary input and long-term monitoring of dental development is essential.

182 Oral microbiota in association with enamel defects: a scoping review

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¹University of Leeds, Leeds, United Kingdom, ²School of Dentistry, University of Leeds, Leeds, United Kingdom **Aim:** To gather available evidence on the association between oral microbiota and developmental enamel defects, including amelogenesis imperfecta (AGI), molar–incisor hypomineralisation (MIH), and dental fluorosis, and to identify knowledge gaps.

Methods: A scoping review was conducted using Joanna Briggs Institute methodology and PRISMA-ScR guidance. MEDLINE, Embase, and CINAHL were searched without date limits and restricted to English and Arabic publications. Eligible studies were clinical investigations using any microbiome profiling method in individuals with AGI, MIH, or fluorosis. Two-stage screening and standardised data extraction were completed. Findings were summarised using descriptive tables and narrative synthesis.

Results: Three studies met the inclusion criteria. Two cross-sectional studies investigated dental fluorosis using 16S rRNA gene sequencing, and one Case report about MIH using metagenomic shotgun sequencing. Compared with healthy controls, individuals with enamel defects showed differences in overall microbial community composition based on beta-diversity measures, using Bray–Curtis dissimilarity. Studies also reported variation in the relative abundance of several bacterial genera including *Streptococcus*, *Haemophilus*, *Prevotella*, *Fusobacterium*, and *Pseudomonas*,

indicating altered microbial community profiles. However, reported results were not consistent across studies and varied according to defect type and sampling method.

Conclusion: Evidence linking developmental enamel defects with oral microbiome alterations is limited and heterogeneous, with inconsistencies. Existing sequencing studies suggest possible microbial community shifts in fluorosis and MIH. No microbiome studies were identified for AGI. Current evidence indicates potential microbiome variation, but is insufficient to define a consistent microbial signature or clinical implication.

186 Dental manifestations and genotype–phenotype associations in children with osteogenesis imperfecta

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¹University College London, Eastman Dental Institute, London, United Kingdom, ²University of Malaya, Faculty of Dentistry, Kuala Lumpur, Malaysia, ³Whittington Health NHS Trust, London, United Kingdom **Aim:** To investigate dental genotype–phenotype relationships in a paediatric OI cohort.

Method: This study comprised a structured scoping review followed by a genotype–phenotype analysis of dental anomalies using clinical records from 218 children with OI (2020–2024), with associations evaluated using logistic regression.

Results: The scoping review (n = 26 studies) identified frequent hypodontia and enamel defects, alongside the well-known dental anomalies such as DI and malocclusion. Among 218 children with OI (0.5–18 years), 62.8% presented with ≥ 1 dental anomaly, including enamel defects (10.6%), tooth impaction (10.1%), hypodontia (5.1%), cross-bite (12.4%) and class III malocclusion (9.2%). Genetic variants were identified in 78% of patients. COL1A2 variants carried significantly higher odds of DI than COL1A1 (OR 10.9, 95% CI 3.7–32.4, p < 0.001), while non-COL1 genes showed markedly lower odds of DI (OR 0.05, 95% CI 0.004, 0.62). Truncating mutations increased DI odds 20-fold compared to missense mutations (95% CI 4.4, 90.9, p < 0.001). Among children with hypodontia (5.1%, n = 12), 75% had a pathogenic variant which was most commonly COL1A1 (66.7%); where permanent teeth were affected, second premolars were consistently absent. Bisphosphonate exposure was associated with hypodontia (OR 7.16, 95% CI 1.56–32.81), likely reflecting disease severity. Tooth impaction most frequently involved permanent canines and molars; dominant COL1A1/2 variants were typically associated with limited impaction (1–2 teeth), whereas recessive variants (*SERPINF1*, *BMP1*, *LEPRE1*)

demonstrated a substantially higher impaction burden, affecting approximately 4–13 teeth.

Conclusion: Dental anomalies in OI extend well beyond DI, highlighting the importance of early recognition and multidisciplinary management in this medically complex population.

198 Early interceptive management of maxillary permanent incisor eruption disturbances due to local obstructive factors: a case series

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¹Kuwait Institute for Medical Specialisations, Kuwait Board of Paediatric Dentistry, Ministry of Health, Kuwait Background: Eruption disturbances of maxillary permanent incisors may occur in paediatric patients and are frequently associated with local obstructive factors, including supernumerary teeth or retained primary teeth. These disturbances may result in displacement or impaction, requiring timely interceptive management to facilitate eruption.

Case reports: Three healthy male paediatric patients presented with eruption disturbances of maxillary permanent incisors secondary to local obstructive factors. Case-1 a 9 year-old with buccal displacement of tooth 21 caused by an erupted conical mesiodens located palatal to teeth 21 and 22, Case-2 a 7 year-old with impaction of tooth 11 associated with an impacted conical mesiodens and a retained primary tooth 51 accompanied by skeletal class III pattern, Case-3 a 9 year-old with palatal displacement of tooth 12 due to retained primary tooth 52, resulting in a single-tooth anterior crossbite.

Treatment: In Case-1, surgical removal of the supernumerary tooth was performed to eliminate the obstruction. In Case-2, surgical removal of the supernumerary tooth and retained 51 was performed under general anaesthesia, followed by rapid maxillary expansion and face mask therapy. In Case-3, extraction of retained tooth 52 was performed, followed by removable orthodontic appliance therapy.

Follow-up: Spontaneous realignment was observed in Case-1 following the removal of the obstructive factor. In Case-2, position of tooth 11 improved and spontaneous eruption is anticipated. Case-3 is undergoing active orthodontic treatment to correct incisor displacement.

Conclusion: Early diagnosis and interceptive removal of local obstructive factors may facilitate spontaneous eruption, reduce treatment complexity, and improve outcomes in growing patients.

205 Developing an international clinical excellence network for inherited enamel/dentine defects

Susan Parekh¹, **Joana Monteiro**², **Fiona Lafferty**³, **Katherine O'Donnell**⁴, **Richard Balmer**⁴, **Francesca Fong**⁵, **Cheryl Soamni**¹, **David Drysdale**⁵, **Alan Mighell**⁴

¹UCL, London, United Kingdom, ²University of Sheffield, Sheffield, United Kingdom, ³Edinburgh Dental Institute, Edinburgh, United Kingdom, ⁴University of Leeds, Leeds, UK, ⁵QMUL, London, United Kingdom Background: A Clinical Excellence Network (CEN) for clinicians with a special interest in Amelogenesis Imperfecta (AI) and Dentinogenesis Imperfecta (DI) was set up in 2019 in the UK. In the last 5 years, the CEN has produced multi-centred research, developed management pathways and provided training for dentist-led genetic testing for AI. In-person and hybrid study days have attracted dentists from Europe, South America and Singapore, highlighting an appetite for international collaboration.

Aim: To highlight the research undertaken by the CEN and identify opportunities for international collaboration. To discuss the challenges of managing dental care for AI/DI patients and how to overcome them. To further open discussion on developing international relationships in this field and where the CEN can assist and strengthen this aim.

Methods: This innovative talk will provide an opportunity to bring together the European paediatric dental community to discuss the importance and feasibility of developing an international CEN for AI/DI. This is a unique opportunity for the EAPD community to foster research collaboration and standardisation of management protocols.

Conclusion: This presentation will allow participation from the paediatric dental audience as part of the CEN values to improve AI/DI care for patients and support professionals in the process.

206 Two-cycle audit to assess maxillary canine palpation in the community dental service (CDS) for paediatric and paediatric special care patients

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¹University of Manchester, Greater Manchester, ²Salford Community Dental Services, Greater Manchester, United Kingdom Aim: To assess whether maxillary canine palpation in 8–11 year-olds is appropriately performed, documented and investigated within the CDS.

Methods: A two-cycle audit was conducted at Pendleton Gateway (07/07/2025–10/02/2026). Children aged 8–11 attending for IHS/GA pre-assessment or routine examinations, where both permanent maxillary canines were unerupted, were included. Uncooperative patients were

excluded. Cycle one (07/07/2025—07/10/2025) and cycle two (10/11/2025—10/02/2026) each collected three months of data from all clinicians using R4 + software, recorded in Excel. Data included patient age, palpation documentation, canine location and completion of radiographs or orthodontic referrals. Following cycle one, interventions were implemented to improve compliance with RCS (2022) guidelines. Clinicians were informed of findings, attended a parallax technique tutorial, and updated clinical templates were introduced to standardise documentation.

Results: Cycle one ($n = 83$), showed palpation documented for 13 patients (15.66%), 4 non-palpable (two aged 8–9, one aged 10 with no radiographs/referral, one aged 11 with referral completed). Of the 70 without documented palpation, 14 were aged 10–11 with no radiographs or referral. Cycle two ($n = 62$), showed palpation documented for 55 patients (88.71%), 12 non-palpable (nine aged 8–9, three aged 10–11 requiring further investigations: one uncooperative for PAs, one with no investigations planned, one planned for parallax PAs). Of the seven without documented palpation, none were aged 10–11 years. Documentation of maxillary palpation improved significantly from cycle 1 to cycle 2 ($\chi^2(1, N = 145) = 76.10, p < 0.001$).

Conclusion: Targeted interventions significantly improved documentation of maxillary canine palpation and appropriate investigations, though full compliance with RCS guidelines remains incomplete.

217 Post-COVID19 pandemic presentation of impacted first and second permanent molars in a paediatric cohort: a case series

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¹Barts Health NHS Trust, London, United Kingdom, ²Barts Health NHS Trust, London, United Kingdom **Aim:** Impaction of first and/or second permanent molars is an uncommon but clinically significant finding in paediatric patients. Several aetiological factors have been suggested, including ankylosis, genetic predisposition, mechanical factors and primary failure of eruption. Whilst rare, the condition requires early detection and timely intervention, as its layered nature can complicate both diagnoses and management, particularly when detection is delayed.

Methods: In our Orthodontic department, we have observed an increase in the presentation of paediatric patients with impacted first and second permanent molars, many of whom were diagnosed or referred to the service later than would have been ideal. A retrospective case series was therefore conducted. The clinical records and radiographs of these patients were reviewed. Subsequent data collected included patient age at presentation, referral source,

stage of dental development, associated complications and recommended treatment plans.

Results: We are aware that this cohort of patients had limited access to primary dental care due to the disruption to healthcare services during the COVID-19 pandemic. While a direct causative relationship cannot be established, the association is noteworthy. Through this case series, we present several paediatric patients who presented as such. We highlight that continued discussion and dissemination of such clinical cases are important in reinforcing awareness, especially with our colleagues who remain at the forefront of early detection.

Conclusion: This case series presents the importance of increased vigilance, early diagnosis and continued clinical monitoring to facilitate simpler and more predictable outcomes for the paediatric patients and their families.

224 Clinical and radiographic characteristics of molar–root incisor malformation (MRIM) and possible aetiological factors: a cross-sectional study

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¹Marmara University, Department of Paediatric Dentistry, Istanbul, Türkiye **Aim:** Molar–root incisor malformation (MRIM) is a rare developmental condition affecting tooth root formation, primarily affecting first permanent molars (FPM), occasionally primary second molars (PSM) and maxillary central incisors (MCI). The aim was to describe the clinical and radiographic features of MRIM and explore potential associated etiological factors.

Methods: This study included 12 children (6 females, 6 males; 5–14 years; mean: 10.8 ± 2.6) diagnosed with MRIM at Marmara University between February 2024– February 2026. Diagnosis was based on standardised clinical and radiographic evaluation. Medical histories were assessed via structured questionnaires. Dental status was evaluated using DMFT/dft indices.

Results: MRIM was identified in 12 systemically healthy children among 850 examined. 8 patients (66.7%) were diagnosed incidentally, while 4 (33.3%) presented with pain, infection, or abscess. FPMs were affected in 91.7% of patients (11/12; 42/44 teeth), PSMs in 41.7% (5/12; 18/24 teeth), and hypoplastic notches on MCIs were observed in 58.3% (7/12; 14/24 teeth). Affected molars exhibited reduced, flattened pulp chambers and short, thin, tapered, or absent roots; incisors exhibited crown deformities. Mean DMFT and dft scores were 2.67 ± 2.93 and 2.92 ± 2.79 , respectively. Caesarean section and postnatal frequent MRI exposure were reported in 66.7% of cases; premature birth in 50%; long-term medication use and neonatal intensive care unit admission in 33.3%; and surgery within the first three years of life in 41.6%.

Conclusion: While causality cannot be established, the co-occurrence of early-life systemic factors suggests a developmental contribution to MRIM. Early recognition is essential to reduce complications and unnecessary interventions.

225 Chronological enamel hypoplasia associated with early childhood vitamin d deficiency: a Case report

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¹KBPD—KIMS, Kuwait Background: Vitamin D is essential for calcium–phosphate homeostasis and development of mineralised tissues, including enamel formation. Deficiency during critical stages of odontogenesis has been associated with developmental enamel defects, particularly chronological enamel hypoplasia. These defects may present as pitting and reduced enamel thickness, increasing hypersensitivity, plaque retention, and caries susceptibility.

Case report: A 12 year-old female presented with dental hypersensitivity. Medical history revealed severe vitamin D deficiency at 2 years-of-age, treated with supplementation. Intraoral examination showed full permanent dentition with chronological enamel hypoplasia, characterised by generalised irregular pitting of all first permanent molars and a horizontal defect band involving the middle third of maxillary and mandibular incisors, with cusp-tip involvement of canines. Additional findings included high caries risk, biofilm-induced gingivitis, and recurrent caries.

Treatment: Management was completed under local anaesthesia and focused on symptom control, prevention, and structural protection. Care included preventive counselling, recommendation of desensitising fluoride toothpaste, oral hygiene reinforcement with biofilm control, stainless steel crowns for first permanent molars, and direct resin composite restorations of affected anterior teeth to restore aesthetics and function. Restorative treatment was planned as staged care, with current restorations serving as interim management until definitive adult treatment options are considered.

Follow-up: The patient was placed on a 3 month recall for preventive reinforcement and restoration monitoring.

Conclusion: This case highlights the potential impact of early childhood vitamin D deficiency on enamel quality. Early recognition, risk-based prevention, and staged restorative rehabilitation are essential to reduce hypersensitivity, limit caries progression, and minimise long-term restorative burden.

230 From sensitivity to smile: comprehensive management of molar incisor hypomineralisation in a paediatric patient

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¹Kuwait Board in Paediatric Dentistry (KBPD), Kuwait Background: Molar incisor hypomineralisation (MIH) is a challenging developmental defect primarily affecting first permanent molars, with or without incisor involvement. Patients often present with enamel opacities, post-eruptive breakdown, pain, sensitivity, compromised oral hygiene, and aesthetic concerns. Management requires a tailored approach, ranging from preventive care to restorative and surgical interventions delivered at the appropriate time.

Clinical report: An 8 year-old girl presented primarily with dental hypersensitivity and significant aesthetic concerns. Clinical examination revealed poor oral hygiene, multiple carious lesions, and defective restorations affecting both primary and permanent teeth. Demarcated opacities were noted on teeth 12, 21, and 22, with post-eruptive enamel breakdown of teeth 16 and 26 (FDI system), supporting the diagnosis of MIH.

Treatment: Our treatment strategy employed a patient-centred, stepwise protocol, initially addressing hypersensitivity through preventive measures including fluoride varnish (22,600 ppm) and casein phosphopeptide–amorphous calcium phosphate (CPP-ACP), followed by restorative care. Aesthetic concerns were primarily managed by microabrasion of the affected incisors and subsequent composite restorations. Teeth 16 and 26 showed severe MIH involvement and were restored with stainless steel crowns. Preventive fissure sealants were applied to the remaining permanent molars. Additional carious lesions were managed accordingly, resulting in improved aesthetics and resolution of hypersensitivity with high patient satisfaction.

Follow-up: The 12 month follow-up demonstrated resolution of hypersensitivity, satisfactory clinical outcomes, and improved oral hygiene.

Conclusion: Early diagnosis and severity-based management of MIH can reduce sensitivity, prevent further enamel breakdown, and improve aesthetic outcomes.

245 Service evaluation: when we use inhalation sedation for sixes care, what do we do and why?

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¹King's College London, London, United Kingdom, ²Department of Paediatric Dentistry, King Abdullah Medical Complex, Ministry of Health, Jeddah, Saudi Arabia Aim: To report on the condition and management of compromised

first permanent molars (cFPMs) when inhalation sedation (IS) is used in 6 to 16 year-olds.

Methods: A retrospective service evaluation between January 2016 and December 2020 at the paediatric dental departments of King's College Hospital (KCH) and St Thomas' Hospital (GSTT). A trained and calibrated researcher scored radiographs using ICDAS and recorded case note entries regarding diagnosis of MIH and PEB as well as the treatments performed.

Results: From 6684 patients, 544 were included. 178 from GSTT and 366 from KCH. Mean age was 10.98 years. Most (26.7%) had a positive attitude to treatment. In total, 1324 first permanent molars were treated, 577 FPMs (43.6%) were diagnosed with caries. Regarding each patient's worse affected FPM (n = 544), most had a radiographic ICDAS score of 6 (179) with caries being most common (277). 379 teeth were extracted, 162 of them had a radiographic ICDAS score of 6. 961 teeth were restored, 207 had a radiographic ICDAS score of 3. An orthodontic assessment was recorded in 16.7% of patients. Crowding was most common (82 patients), midline shift (42 patients) and 37 had spaced dentition. In patients who had FPMs restored under IS, most (205 patients) had class I, 118 class II and 40 class III incisal relationships.

Conclusion: This study showed that the clinical prognosis of FPMs seemed to guide the clinician's approach to treatment rather than the diagnosis. It reinforces the need for a multidisciplinary approach when treating compromised FPMs.

250 Application of talon cusp management approaches to more complex dental anomalies of tooth shape and form

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¹Leeds Dental Institute, Leeds, United Kingdom, ²University of Leeds, Leeds, United Kingdom **Background:** Early diagnosis and management of dental evaginations are critical in reducing sequelae including pulp necrosis. Treatment approaches include selective grinding and elective removal with/without partial pulpotomy, and may be applied to more complex dental anomalies.

Case reports: Case 1: 9 year-old boy with a large talon cusp on UL1, causing Class II division I malocclusion and 7 mm overjet, with pulpal extension demonstrated on cone-beam computed tomography (CBCT). Case 2: 8 year-old girl with UL1 and palatal supernumerary fusion, resulting in anterior displacement and occlusal interference. Case 3: 12 year-old boy with KBG syndrome with palatal and labial talon cusps on UR1 and UL1, with pulpal extension demonstrated on CBCT.

Treatment: Case 1: Evagination size, pulpal involvement and excellent cooperative ability, allowed elective talon cusp removal and partial pulpotomy. Case 2: Limited cooperative ability guided initial selective grinding approach. After four visits over 11 months, treatment burden precluded this option. Case 3: Initial selective grinding, followed by elective cusp removal from both teeth, completed without pulpal exposure.

Follow-up: Case 1: At 22 months, UL1 remained vital with continued root development and no radiographic pathology. Case 2: The UL1 remains vital. With further cooperation, elective removal of the anomaly and partial pulpotomy is intended. Case 3: At 19 months, UR1 was symptomatic with periapical pathology. Root canal treatment is planned.

Conclusion: Talon cusp treatment principles are transferable to more complex anomalies depending on position, size, pulpal involvement and patient cooperative ability. Elective reduction, with/without pulpotomy based on contemporary CBCT findings, reduces treatment burden.

253 Exploring children's perceptions of dental defects and the accuracy of online information

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¹School of Dentistry, University of Liverpool, Liverpool, United Kingdom **Aim:** The purpose of this qualitative descriptive study was to explore children's perceptions of dental defects, focusing on how the validity of online information may influence what is considered a 'normal' appearance.

Methods: A patient participation questionnaire approach was used to determine where children would seek information if their teeth matched a provided image of hypomineralised incisors, and what they would search online. The three most common search terms were used to inform Google™ searches to reflect the language used by children. Searches were then conducted in a private browser to exclude bias from previous search history. The first 100 results of each search were included.

Results: 10 questionnaires were returned. 80% (n = 8) suggested they would speak to parents/guardians about the appearance of their teeth before searching online. The three most common search terms included "why are my teeth yellow even if I brush", "why are my teeth yellow or brown", and "why do my teeth have spots or stains". After removing duplicates, 247 unique websites were reviewed. 23% (n = 58) of websites mentioned dental defects, of which 14% (n = 34) proposed a differential diagnosis. Causes of discolouration and treatment were the most frequently included topics, appearing on 79% (n = 196) of websites. 100% (n = 10) of website-based chat

forums contained inaccurate information. When repeating the searches using a child-safe setting, 80% (n = 198) of the websites were included.

Conclusion: The information children might find online regarding dental defects provides limited explanations about their condition. This may contribute to misconceptions which negatively influence opinions of what is considered a 'normal' appearance.

257 Management of non-syndromic oligodontia during craniofacial development: a 4 year follow-up Case report

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¹University of Guadalajara, Guadalajara, Mexico Background: Dental agenesis is a numerical anomaly that can be identified in both dentitions. The most severe variant, oligodontia, is referred to as non-syndromic oligodontia when it presents as an isolated clinical finding.

Case report: A 2 year and 6 month-old male patient from Guadalajara, Mexico, presented to the Paediatric Dentistry Clinic at the University Centre for Health Sciences (CUCS), University of Guadalajara (UdeG) in September 2021. Perinatal history reported a normal pregnancy; the patient is an only child with a negative family history of dental anomalies. Extraoral examination revealed harmonious facial proportions. Intraoral examination showed ten primary teeth, alveolar ridge atrophy, and loss of space. Radiographic evaluation confirmed the absence of ten primary teeth. Following a general evaluation by Genetics and Pathology departments (CUCS, UdeG) a diagnosis of non-syndromic oligodontia was established.

Treatment: Rehabilitation was performed using removable prostheses, replacing the missing teeth and incorporating expansion screws to promote maxillomandibular growth and development.

Follow-up: Prostheses were remade on two subsequent occasions to accommodate craniofacial growth. Radiographic follow-up via dental panoramic radiograph and CT scans revealed the absence of nine permanent teeth. Current management involves a mandibular appliance with an expansion screw and a maxillary appliance with a three-directional expansion screw to shape the dental arches transversally and sagittally. The patient shows excellent adaptation to the prostheses, increased self-acceptance and favourable social integration.

Conclusion: In patients with non-syndromic oligodontia, early intervention is essential to improve masticatory and phonetic functions, as well as to guide and stimulate maxillomandibular growth, significantly enhancing the patient's self-esteem.

274 Preparedness of newly qualified dentists to manage patients with cleft lip ± palate: a national cross-sectional study of dental foundation trainees in wales

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¹University of Bristol, Bristol, United Kingdom, ²University Hospitals Bristol and Weston, Bristol, United Kingdom, ³University of Manchester, Manchester, United Kingdom, ⁴Cardiff University, Cardiff, United Kingdom **Aim:** To evaluate the teaching, knowledge, confidence, and perceived preparedness of Dental Foundation Trainees (DFTs) in Wales in managing patients with cleft lip ± palate (CLP), and to assess the need for additional structured training within the Dental Foundation Training (DFT) programme.

Methods: A national cross-sectional anonymous survey was distributed to DFTs undertaking training in Wales via Health Education and Improvement Wales (HEIW). The questionnaire explored undergraduate exposure to CLP teaching (duration and format), self-reported confidence in managing patients with CLP, understanding of multidisciplinary cleft services and referral pathways in Wales and interest in further education, including a dedicated study day delivered in collaboration with the Welsh Cleft Centre.

Results: Respondents represented graduates from across the United Kingdom completing foundation training in Wales. Most reported receiving fewer than five hours of undergraduate CLP teaching, primarily lecture-based. The majority did not feel confident in their knowledge of CLP management, multidisciplinary team roles, restorative and surgical considerations, or psychosocial aspects of care. Awareness of referral pathways and how to contact the Welsh Cleft Centre was limited. Strong interest was expressed in a dedicated CLP study day, with particular emphasis on multidisciplinary collaboration and clinical management. Many trainees also reported aspirations toward hospital-based and specialty training.

Conclusion: DFTs in Wales report limited undergraduate exposure and low confidence in managing patients with CLP. A dedicated study day, developed in collaboration with the Welsh Cleft Centre, may enhance clinical preparedness, improve awareness of referral pathways, and strengthen engagement with multidisciplinary cleft services.

277 Diagnosing structural dental anomalies: knowledge, training and o-rares network awareness in France

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Methods: An anonymous online questionnaire, including representative clinical photographs, was distributed via professional social media platforms and dental associations in France.

Results: A total of 145 dentists responded, of whom 61% were general practitioners and 39% reported exclusive practice in paediatric dentistry. Professional experience ranged evenly from < 5 years to > 20 years across groups. Awareness of the O-Rares network was significantly higher among paediatric dentists (73%) and early-career practitioners compared to general dentists (27%). Paediatric dentists were nearly twice as likely to have received specific training on structural dental anomalies. When presented with three clinical photographs, the majority of respondents accurately diagnosed amelogenesis imperfecta and molar incisor hypomineralisation (MIH). In contrast, dentinogenesis imperfecta was more frequently and correctly identified by paediatric dentists and recently graduated practitioners. Respondents expressed a strong demand for further training, particularly in administrative support, diagnostic skills and multidisciplinary management of rare conditions.

Conclusions: Overall, participating dentists demonstrated good diagnostic performance for common structural enamel and dentin anomalies. The deployment of the O-Rares rare diseases network appears to have effectively raised awareness, enhanced training among young professionals and paediatric dentists, and promoted better integration into specialised care pathways. These findings highlight the value of targeted education and referral networks in improving early recognition and management of rare orofacial disorders.

282 A Case report of molar-incisor malformation management using an essix splint

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¹Department of Paediatric Dentistry, School of Dentistry, National and Kapodistrian University of Athens, NKUA, Athens, Greece, ²Department of Orthodontics, School of Dentistry, NKUA, Athens, Greece **Background:** Molar-incisor

malformation (MIM) is a non-hereditary developmental anomaly affecting the crown and the root development of first permanent molars, central incisors, and second deciduous molars. It is associated with medical complications early in life and is diagnosed clinically and radiographically. The aim of this study is to present the management of such a case.

Case report: A 7 year-old boy was referred to the Post-graduate Paediatric Dental Clinic at NKUA, with mobility in the permanent lower molars. His medical history included prematurity, cardiac surgery, hypoalbuminemia, and controlled heart failure. Clinical examination revealed permanent incisors and first permanent molars with normal crown morphology, no caries lesions, and an Angle Class III malocclusion with traumatic occlusion. Radiographic examination revealed hypoplastic or absent roots of the anterior permanent teeth and the first permanent molars indicating molar-incisor malformation.

Treatment: To protect the teeth from excessive pressure and possible injury, transparent Essix splints were constructed for both arches. The patient was advised to wear them continuously and was scheduled for follow up every four months.

Follow-up: During the eight-month follow-up, several teeth erupted with enamel hypoplasia and increased mobility was recorded for mandibular anterior teeth. A new splint was fabricated to accommodate the erupting teeth. Good oral hygiene and no carious lesions were recorded.

Conclusion: The placement of Essix splints addressed the biological and functional demands, but mobility could not be fully controlled due to the anatomical root defect. Follow-ups are required due to ongoing eruption changes and the unpredictable behaviour of the affected teeth.

284 The influence of allogeneic hematopoietic stem cell transplantation on dental development in the permanent dentition

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¹University of Copenhagen, Copenhagen, Denmark, ²Copenhagen University Hospital, Rigshospitalet, Copenhagen, Denmark, ³Aarhus University Hospital, Aarhus, Denmark, ⁴Aarhus University, Aarhus, Denmark **Aim:** Evaluation of the influence of allogeneic hematopoietic stem cell transplantation (HSCT) on dental development by mainly focusing on age at transplantation and underlying diagnosis (malignant or benign disease).

Methods: 60 patients (< 14 years) who underwent HSCT and who had at least one panoramic x-ray (OPT). Dental abnormalities (DA) were registered using standardised

criteria. Binomial logistic regression was used to assess the influence of age at HSCT and diagnosis on DA.

Results: The following DAs were observed; short roots ($n=56$), microdontia ($n=35$), hypoplasia of enamel ($n=24$), aplasia ($n=18$) and peg-shaped teeth ($n=9$). Age at HSCT is a significant variable for the development of most DAs. The prevalence of missing teeth/aplasia, microdontia, peg-shaped teeth, and enamel defects decreased with increasing age at HSCT. Odds decreased 36.0% for missing teeth/aplasia, 10.8% for microdontia, 41.3% for peg-shaped teeth, and 41.6% for enamel defects per extra year of age at HSCT. Malignant diagnosis was only a significant risk factor for developing short roots. The most frequent microdontic tooth was the permanent second molar (maxillary > mandibular). The most commonly missing tooth was the permanent second premolar (maxillary < mandibular).

Conclusion: Young age at HSCT is associated with impaired dental development. Malignant diagnosis may further increase the risk of short roots. Baseline dental assessment, including OPT, should be performed prior to HSCT in patients younger than 14–15 years. Yearly follow-up and OPT is recommended until dental development is completed to assess any DAs for timely treatment planning.

310 Investigating dentist's perceptions of appearance-related distress in children with enamel defects

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¹University College London Hospitals NHS Foundation Trust, London, United Kingdom, ²University College London, London, United Kingdom, ³University of Nottingham, Nottingham, United Kingdom, ⁴University of the West of England, Stoke Gifford, United Kingdom **Aim:** Appearance-related distress (ARD) refers to the psychological distress experienced by individuals with a visible difference. Enamel defects (ED) occur commonly in children and include conditions like molar incisor hypomineralisation and amelogenesis imperfecta. Existing evidence demonstrates that the appearance of affected teeth has a negative impact on oral-health related quality of life, but the presence and extent of ARD in this population is unknown. Scales are essential in appearance research and practice, but none currently measure ARD in children with ED. Although dentists often treat affected patients, most have limited understanding of ARD. Aims are to investigate: Dentists' knowledge of ARD; their ability to diagnose it in children with ED; perceived usefulness of a scale; what the scale should include; and barriers and facilitators to its use.

Methods: The study used a qualitative approach, interviewing dentists who treat children with ED. Participants

were recruited via UK dental networks. Interviews were transcribed verbatim and analysed thematically.

Results: Nineteen specialist, community and general dentists were interviewed. All had experience of children with ARD and partially understood the condition ($n=19$). Participants identified the need for a scale to identify children with ARD ($n=19$), that could identify those requiring psychological support and aid specialist referrals. Educating dental professionals, creating patient resources and developing a pathway for management were key to implementation of the scale ($n=19$). Dentists were willing to provide psychological interventions if trained ($n=10$).

Conclusion: There is a need to educate dentists about ARD. Further research is required to develop a scale.

319 Prevalence of MIH and HSPM among 6 and 7 year-old children in Austria

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¹Department of Paediatric Dentistry, University Clinic of Dentistry, Medical University of Vienna, Vienna, Austria, ²Austrian National Public Health Institute, Vienna, Austria **Aim:** The aim of this study was to determine the prevalence of molar incisor hypomineralisation (MIH) and hypomineralised second primary molars (HSPM) among 6 and 7 year-old children in Austria.

Methods: The analysis was based on a nationally representative sample of first-grade primary school children. A two-stage sampling procedure was applied in accordance with the World Health Organisation (WHO) Basic Oral Health Survey guidelines. Clinical examinations were conducted using the diagnostic criteria of the European Academy of Paediatric Dentistry (EAPD) for MIH and HSPM.

Results: A total of 4,084 children were included in the analysis. The prevalence of MIH was 13%, while HSPM was diagnosed in 5% of the children. Hypomineralisation affecting both dentitions was observed in 15% of cases. Most affected permanent molars and incisors presented with demarcated opacities (90%), whereas post-eruptive enamel breakdown was detected in 7% of MIH cases. Significant regional differences in the prevalence of MIH, HSPM, and their combined occurrence were observed across the Austrian federal states. Children without a migrant background showed a slightly higher prevalence of MIH (14%) compared with children with a migrant background (12%), whereas no relevant differences were found for HSPM.

Conclusion: In Austria, approximately every seventh child aged 6–7 years is affected by MIH. The prevalence is consistent with international data, while HSPM prevalence appears slightly lower than global estimates.

339 Use of lasers in the management of dentin hypersensitivity and its impact on the quality of life of children with molar-incisor hypomineralisation

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¹University of São Paulo, São Paulo, Brazil, ²Royal College of Surgeons in Ireland, Dublin, Ireland **Aim:** To evaluate pain reduction following treatment for dentin hypersensitivity (DH) using the Er:YAG laser in children with molar incisor hypomineralisation (MIH), and to assess the impact of the interventions on oral health-related quality of life (OHRQoL).

Methods: This randomised clinical trial included 134 teeth allocated into two intervention groups: G1 (control): low-power laser combined with fluoride varnish (Duraphat®); and G2 (test): Er:YAG laser combined with fluoride varnish (Duraphat®). Pain reduction was the primary outcome and was assessed using the adapted Pimenta Facial Pain Scale. OHRQoL was evaluated using the Molar Incisor Hypomineralisation Impact Scale questionnaire. Statistical analyses were performed to compare intragroup and intergroup differences over time, with significance set at $p < 0.05$.

Results: A significant reduction in pain was observed at the end of treatment ($p < 0.0001$), with an overall mean score of $1.83 (\pm 0.96)$, without statistically significant differences between groups. After one month, pain reduction was maintained (mean scores: 1.9 in G1 and 1.4 in G2), with no significant intergroup difference ($p = 0.2027$). A significant overall improvement in OHRQoL was observed, with a reduction in the total mean score from 43.9 at baseline to 33.7 at the end of treatment, maintained after 30 days (33.5) ($p < 0.0001$). Although G1 showed a greater reduction in total score compared with G2, no statistically significant differences were found between groups at any evaluated time point.

Conclusion: Both low- and high-power laser protocols combined with fluoride varnish promoted significant pain reduction and improvement in OHRQoL in children with MIH.

356 Regenerative endodontic management of oehlers type IIIb dens invaginatus in an immature maxillary central incisor: a Case report

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resulting in complex root canal morphology and increased susceptibility to early pulpal necrosis. Oehlers Type IIIb represents a severe form in which the invagination extends through the root and communicates with the periodontal tissues via a secondary apical foramen. This anatomical configuration presents significant diagnostic and therapeutic challenges, particularly in immature permanent teeth with incomplete root development.

Case report: A 10 year-old patient presented with pain and a sinus tract associated with a maxillary central incisor. Periapical radiographic examination revealed an immature tooth with an open apex and periapical radiolucency. Due to the suspected complex anatomy, cone-beam computed tomography (CBCT) was performed which confirmed the diagnosis Oehlers Type IIIb dens invaginatus with apical communication. In addition, comprehensive clinical and radiographic evaluation revealed generalised microdontia and taurodontism affecting multiple teeth.

Treatment: Canal disinfection was achieved using sodium hypochlorite irrigation and intracanal medication. At the subsequent visit, apical bleeding was induced to establish an autologous scaffold. Mineral trioxide aggregate (MTA) was placed as a coronal barrier, followed by definitive restoration.

Follow-up: After 8 months, the tooth was asymptomatic, with complete resolution of the sinus tract. Radiographic evaluation demonstrated significant periapical healing and continued root development. The patient was referred to the genetics evaluation due to the generalised dental anomalies.

Conclusion: Regenerative endodontic therapy represents a conservative and biologically based approach for managing complex Type IIIb dens invaginatus in immature teeth while supporting continued root maturation.

361 Effect of resin infiltration time on MIH enamel

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¹Department of Paediatric Dentistry, Academic Centre for Dentistry Amsterdam (ACTA), Amsterdam, The Netherlands, ²Department of Dental Material Sciences, Academic Centre for Dentistry Amsterdam (ACTA), Amsterdam, The Netherlands, ³Section of Cariology, Department of Dentistry Orthodontics, University Medical Centre Groningen (UMCG), University of Groningen, Groningen, The Netherlands **Aim:** Molar incisor hypomineralisation (MIH) is characterised by porous, hypomineralised enamel with reduced mechanical properties and compromised resin adhesion. Resin infiltration (Icon®) has been proposed to reinforce MIH-affected enamel; however, the influence of infiltration time on the physical characteristics of MIH-affected enamel remains

unclear. The aim was to evaluate the effect of two Icon® application times (3 and 10 min) on shear bond strength (SBS), microhardness, and failure mode of resin composite bonded to MIH-affected enamel.

Methods: Nine extracted MIH-molars were sectioned, yielding 18 specimens. Samples were allocated to three groups (n = 6): untreated control, '3-min' and '10-min' Icon® application times. Universal adhesive and resin composite were applied for SBS testing. Vickers microhardness was measured on enamel surfaces. Data were analysed using one-way ANOVA and Tukey post hoc tests ($\alpha = 0.05$).

Results: Untreated MIH enamel showed significantly lower SBS (15.9 ± 9.1 MPa) than sound enamel (34.7 ± 6.5 MPa; $p = 0.017$). Icon® treatment increased SBS to 30.6 ± 7.8 MPa (3-min) and 37.6 ± 9.6 MPa (10-min). The 10-min application showed significantly higher SBS than untreated MIH enamel ($p = 0.007$), with no difference compared to sound enamel ($p > 0.05$). Hardness increased significantly only after 10-min infiltration ($p = 0.009$). Failure mode distribution differed significantly amongst groups ($p = 0.029$), with fewer cohesive enamel failures after Icon® treatment.

Conclusion: Resin infiltration enhances bond strength and partially improves hardness in a time-dependent manner. Extending Icon® application to 10 min may improve resin bonding performance in MIH-affected enamel.

379 When primary molars fail to erupt: a two-Case report of complex infra-occluded mandibular Es requiring multidisciplinary care

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¹Community Dental Services CIC Bedfordshire, Bedford, United Kingdom, ²Community Dental Services CIC Leicestershire, Leicester, United Kingdom, ³Community Dental Services CIC, United Kingdom, ⁴JDFCT, Community Dental Services CIC Bedfordshire, Bedford, United Kingdom **Background:** Infraoccluded primary molars are frequently ankylosed and may cause space loss, mesial tipping of permanent molars, ectopic displacement of successors, and disturbance of alveolar development. Progressive infraocclusion increases surgical difficulty and risk to adjacent developing teeth and the inferior alveolar nerve.

Case reports: Case 1: A 6 year-old patient was noted to have a clinically absent LLE at routine examination. Radiographs confirmed LLE was severely infraoccluded, with an unerupted LL6 and mesially ectopic developing LL5. CBCT imaging was undertaken to guide surgical planning. Case 2: An 8 year-old boy presented with a severely infra-occluded LRE, mesially tipped LR6 and potential severe lower right quadrant crowding. CBCT imaging demonstrated intimate

contact between LRE roots and the inferior dental canal, with hooked root morphology and displacement of the developing LR5.

Treatment: In Case 1, surgical removal under general anaesthesia was performed with flap elevation and tooth sectioning for controlled extraction. In Case 2, orthodontic distalisation and up-righting of LR6 preceded surgical sectioning and removal of LRE to minimise neurovascular risk.

Follow-up: Healing was uneventful in both cases. A 2 week follow-up of follow-up of Case 1 demonstrated good soft tissue healing, complete and unaltered inferior alveolar nerve function, and eruption of the LL6 was progressing. LR6 up-righted well in Case 2 with space maintenance in situ. Ongoing monitoring of successor eruption and occlusal development is planned.

Conclusion: Severely infraoccluded Es require early diagnosis, appropriate imaging, and multidisciplinary planning to protect adjacent structures, support eruption of successors and minimise long-term occlusal impacts for affected children.

387 Comprehensive clinical management of an 11-year-old boy with taurodontism, molar incisor hypomineralisation (MIH), and hypomineralisation of other permanent teeth (HOPT)

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¹Department of Paediatric Dentistry, School of Dentistry, Aristotle University of Thessaloniki, Thessaloniki, Greece **Background:** Taurodontism is a developmental dental anomaly characterised by enlarged pulp chambers and apically displaced furcations. Molar incisor hypomineralisation (MIH) and hypomineralisation of other permanent teeth (HOPT) are qualitative enamel defects, clinically presenting as well-demarcated enamel lesions, characterised by colour changes and variable crown involvement. The coexistence of taurodontism and MIH/HOPT can complicate diagnosis and management strategies in paediatric patients.

Case report: This Case report describes an 11 year-old boy without any syndrome or systemic condition, who attended the postgraduate clinic of Paediatric Dentistry of Aristotle University of Thessaloniki. Clinical examination revealed previous composite resin restoration on tooth #16, hypomineralisation in canines, premolars, and molars, presenting as white demarcated lesions, initial occlusal caries lesions on teeth #27 and #47, and cavitated carious lesions on teeth #12, #11, #21, #26, #36, #37 and #46 on a possible substrate of hypomineralised enamel. Panoramic radiographic examination revealed taurodontism in all first and second permanent molars.

Treatment: The treatment plan included indirect pulp capping on posterior teeth and upper central incisors, and partial pulpotomy on tooth #12. Preformed stainless steel crowns, resin restorations and restorations using computer-aided design and manufacturing (CAD/CAM) technology were decided as final restorations. Preventive resin restorations were performed on teeth #27 and #47.

Follow up: The patient was scheduled for 3 monthly check-ups. After 2 years, no clinical or radiographic pathological signs were found.

Conclusion: This Case report underscores the importance of early diagnosis, the challenges of a comprehensive treatment approach, and regular follow-up evaluation to ensure long-term effectiveness and minimise postoperative complications.

389 Prospective case series: evaluating a governance-compliant bleaching pathway for paediatric patients with pathological tooth discolouration

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¹Paediatric Dental Department, Barts Health NHS Trust, London, United Kingdom **Aim:** To prospectively evaluate the psychosocial impact, safety, and feasibility of a legally compliant bleaching pathway for paediatric patients with pathological tooth discolouration, in accordance with EU Directive 2011/84/EU and General Dental Council guidance.

Methods: Provision of bleaching for under-18 s had ceased locally due to regulatory uncertainty and limited evidence. A multidisciplinary initiative, including Trust legal and governance teams, developed a Standard Operating Procedure (SOP) to enable safe reinstatement. The pathway mandated specialist prescription confirming pathological indication; structured consent addressing legal restrictions; pre-treatment photographs, radiographs, and sensibility testing; standardised electronic documentation via autotext templates; and integration of Patient-Reported Outcome Measures (PROMs). Trust-approved patient information leaflets, Artificial Intelligence (AI) -generated instructional videos, and a database linked to the Clinical Record System supported governance and longitudinal monitoring. Twenty-seven patients (aged 10–19 years) accessed treatment between 02.01.2025 and 20.11.2025. PROMs were collected pre- and post-treatment where available.

Results: Patients were treated for traumatised non-vital incisors (n = 13), amelogenesis imperfecta (n = 10), Molar incisor hypomineralisation (n = 2), and other anomalies (n = 2). Early PROM data indicated high psychosocial burden: all pre-treatment participants reported embarrassment and reduced confidence due to discolouration, while post-treatment feedback suggested improved satisfaction and self-esteem.

Conclusion: This prospective service evaluation demonstrates that a governance-compliant bleaching pathway can safely restore access to care while generating original data on psychosocial benefit. Integration of SOP guidance, structured documentation, PROMs, AI-supported education, and electronic tracking provides a scalable framework transferable to other specialist units. Ongoing PROM collection will strengthen the evidence base and guide safe, clinically indicated paediatric bleaching.

394 Developmental defects of enamel and dental status among children with cystic fibrosis

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¹Paediatric Dentistry Department, Faculty of Dental Medicine, Hebrew University and Hadassah Hospital, Jerusalem, Israel, ²Paediatric Pulmonology Institute, Schneider Children's Medical Centre of Israel, Petah Tikva, Israel **Aim:** To evaluate DDE, DMFT/dmft, and plaque index among CF children, in comparison to Healthy children.

Methods: 30 CF children and 30 healthy children were examined. DDE index, Dmft/dmft and plaque index were recorded. A questioner was field by one of the parents regarding: medications taken by the child, hospitalisations, tooth brushing habits and nutrition habits. Data from the medical documentation was collected regarding medications and hospitalisations until age 36 months.

Results: Average age was 9.97 years (SD 4.47), 15 males and 15 females. 51.7% of the CF children presented with DDE (48% control group), the most prevalent defect was Diffuse Patchy Opacities. No statistical correlation was found between number of hospitalisations before age three or antibiotics consumption before this age. Average DMFT/dmft was 2.28 (SD 3.385) in CF group, and 8 in control group.

Conclusion: Children suffering from CF presented slightly high values of DDEs in comparison to healthy children while DMFT/dmft values were lower in CF children in comparison to healthy children, the reason might be excessive use of antibiotics and high awareness of parents to caries prevention.

401 "Ghost Teeth": a staged multidisciplinary paediatric approach to maxillary regional odontodysplasia

Anum Kayani¹, Dania Siddik¹

¹Guy's and St. Thomas Hospitals, London, United Kingdom **Background:** Regional odontodysplasia (RO), or "ghost teeth", is a rare developmental anomaly affecting the

enamel and dentine of both primary and permanent dentition within a localised segment, most commonly in the maxilla. Management is challenging due to infection risk, impaired eruption and challenges in growth-related prosthetic considerations. This report outlines an ongoing five-year patient journey requiring staged, multidisciplinary care tailored to symptoms, dental development and functional needs.

Case report: A 9 year-old boy was referred with absence of erupted teeth in the upper left quadrant (ULQ), halitosis and intermittent pain. Medical history was unremarkable. Family history revealed supernumerary teeth in the father and two siblings and a younger sibling under investigation for hypodontia. Clinical and radiographic examination confirmed RO affecting the ULQ. The patient was managed through shared care between his general dentist and the paediatric dental department with six monthly reviews. As symptoms evolved and dental development progressed, treatment planning was reassessed and delivered in phased by the multidisciplinary team.

Treatment: Input from paediatric, hypodontia and oral surgery teams guided each stage. Following initial management involving extraction of a non-vital UL6 under general anaesthesia, subsequent surgery was planned to remove dysplastic remnants, eliminate chronic infection and perform ridge reduction to facilitate interim removable prosthetic rehabilitation. Definitive implant-based reconstruction is anticipated following skeletal maturity.

Follow-up: Post-surgical healing was satisfactory. The patient remains under multidisciplinary review for growth monitoring and staged rehabilitation.

Conclusion: Coordinated multidisciplinary planning and phased intervention are essential to optimise functional, developmental and psychosocial outcomes in children with RO.

406 What is the clinical performance of a fluoride-releasing, resin-based sealant applied with universal adhesive on first permanent molars with molar-incisor hypomineralisation (MIH)?

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¹Department of Paediatric Dentistry, Medical Centre for Dentistry, University Medical Centre Giessen and Marburg (Campus Giessen), Justus-Liebig-University Giessen, Giessen, Germany, ²Zahnzentrum Tübingen Süd (private dental practice), Tübingen, Germany, ³Department of Conservative Dentistry, Periodontology and Digital Dentistry, University Hospital, Ludwig-Maximilians-Universität München, Munich, Germany **Aim:** While resin-based pit and fissure sealants (PFS) are indicated as a non-invasive treatment for first permanent molars (FPMs) with MIH (Bekes et al.

2023), there is limited information on how well they perform clinically when applied with a universal adhesive to MIH-affected FPMs. Therefore, this retrospective study with prospective follow-up aimed to assess the clinical performance of applying a fluoride-releasing, resin-based sealant with universal adhesive on MIH-affected FPMs compared with its conventional application on healthy FPMs.

Methods: We reviewed dental records of 339 patients aged 6–19 years who received PFS on either MIH-affected FPMs (MIH-TNI 1/2a/3/4a; UltraSeal XT Plus with Prime&Bond active; N = 33) or healthy FPMs (UltraSeal XT Plus; N = 96) in a private dental practice (2018–2024). During a prospective follow-up, two calibrated operators evaluated sealant retention (Heinrich-Weltzien and Kühnisch 1999). Statistical analysis was conducted using linear mixed model (LMM) and logistic regression analysis ($\alpha = 0.05$).

Results: Seventy-two patients (11.5 ± 3.1 years; 48.6% girls) with 129 sealed FPMs were analysed (mean follow-up 1077 ± 931 days). All PFS margins were caries free. Satisfactory occlusal sealant retention (complete retention + minimal loss) was 87.8% in the MIH group and 82.3% in the control group, without significant influence of the group assignment on occlusal sealant retention (LMM, $p = 0.71$). MIH, however, was associated with a higher likelihood of marginal gap formation (OR = 3.819; 95% CI [1.206, 12.098]).

Conclusion: Using a fluoride-releasing, resin-based sealant with universal adhesive on MIH-affected FPMs offers satisfactory occlusal sealant retention and caries prevention, like healthy FPMs, although marginal adaptation may decline over time.

419 Endodontic and restorative management of fused primary maxillary incisors: a twelve month follow-up Case report

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¹Sakarya University, Sakarya, Türkiye **Background:** Dental fusion in the primary dentition may lead to complex root canal morphology, increased caries susceptibility, and restorative challenges. Proper diagnosis and comprehensive management are essential to preserve function, aesthetics, and arch integrity.

Case report: A 4.5 year-old female patient presented with pain, sensitivity, and morphological irregularity affecting the maxillary left primary incisors. Clinical and radiographic examination revealed fusion of teeth #61 and #62 with two distinct root canals and associated caries with pulpal involvement. Due to limited cooperation, comprehensive dental treatment was performed under general anaesthesia.

Treatment: After complete caries removal, pulpectomy procedures were carried out considering the altered canal

anatomy of the fused teeth. To re-establish appropriate morphology and enable individual restoration, the coronal portion was separated at the cervical level using a bur. Each tooth was subsequently restored with strip crowns to achieve functional and aesthetic rehabilitation.

Follow-up: At the 12 month follow-up, the teeth remained asymptomatic and functional. Radiographic evaluation showed no signs of periapical infection or pathological root resorption, and no developmental disturbances were observed in the permanent successors. The aesthetic integrity of the strip crowns was successfully maintained.

Conclusion: Comprehensive endodontic management combined with crown separation and aesthetic restoration represents a viable and effective approach for treating fused primary teeth providing favourable clinical and functional outcomes. Early diagnosis and tailored endodontic–restorative strategies are critical in managing developmental dental anomalies in the primary dentition.

424 Planning orthodontic care in children with x-linked hypophosphataemia: multidisciplinary and shared decision-making

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¹Sheffield Teaching Hospitals, Sheffield, United Kingdom, ²University of Sheffield, Sheffield, United Kingdom, ³Sheffield Children's Hospital, Sheffield, United Kingdom **Background:** X-linked hypophosphataemia (XLH) is a rare inherited disorder causing renal phosphate wasting and defective mineralisation of bones and teeth. Burosumab, a monoclonal antibody targeting fibroblast growth factor 23, is an increasingly recommended first-line therapy in children, improving phosphate homeostasis and skeletal mineralisation. Nevertheless, altered skeletal and dental development may affect orthodontic treatment, with limited evidence on bone response to orthodontic forces.

Case report: A 14 year-old male with autism and a recent diagnosis of XLH was assessed at a joint paediatric dentistry, orthodontic and restorative clinic with crowding causing aesthetic concerns. Clinical examination revealed a mild Class III skeletal pattern, bilateral posterior crossbite and moderate crowding. Radiographs showed enlarged pulp chambers and reduced mineralisation consistent with XLH.

Treatment: Management options, including rapid maxillary expansion, were discussed within a team involving paediatric dentistry, orthodontics, orthopaedics and metabolic bone specialists. Literature review confirmed limited evidence, and previous authors were contacted. Preventive strategies were prioritised due to the recognised risk of spontaneous dental abscesses, including enhanced caries prevention, remineralising agents and minimally invasive

measures. Consideration was given to the theoretical risk that orthodontic tooth movement in structurally compromised teeth may precipitate pulpal pathology and abscess formation. Shared decision-making addressed uncertainty, risk and ethics.

Follow-up: Given the recent diagnosis, systemic optimisation was advised before orthodontic intervention. The patient remains under joint care with enhanced prevention, regular review and planned reassessment.

Conclusion: Orthodontic planning in children with XLH is challenging due to limited evidence. Multidisciplinary collaboration and shared decision-making are essential for safe, ethical care.

433 Repair of molar incisor hypomineralisation with prefabricated metal crowns and strip crowns: a Case report

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¹Bezmialem Vakif University, Faculty of Dentistry, Department of Paediatric Dentistry, Istanbul, Türkiye **Background:** Molar incisor hypomineralisation (MIH) is a developmental enamel defect characterised by demarcated hypomineralisation of at least one first permanent molar and may also involve the incisors. The clinical presentation ranges from yellow–brown opacities to post-eruptive enamel breakdown.

Case report: A 12 year-old patient presented with aesthetic concerns and dentin hypersensitivity. Clinical examination revealed MIH consistent yellow–brown opacities and post-eruptive enamel breakdown on teeth 16, 26, 36, and 46. White opaque lesions were observed on the anterior teeth, with deep caries affecting the upper central incisors. Gingival hypertrophy was also observed. Residual roots and incisal abrasion were also detected. Tooth sensitivity was present.

Treatment: Oral hygiene instructions were provided, and a treatment plan was developed with parental consultation. As part of the planned treatment, the patient's residual roots were extracted. Scaling and root planing with curettage were performed in the hypertrophic region, and prefabricated metal crowns were placed on all four permanent first molars. Strip crowns were applied to the upper central incisors, and aesthetic composite restorations were completed on the upper lateral incisors.

Follow-up: Postoperative evaluation demonstrated restoration of both functional and aesthetic outcomes. Resolution of dentin hypersensitivity resulted in improved oral hygiene.

Conclusion: Comprehensive treatment can restore both function and aesthetics in patients with MIH.

434 A symptomatic primary maxillary central incisor and what lies beneath: utilising the community dental service to avoid hospital waiting list delays

Flora Brown¹

¹Warwickshire Special Care Community Dental Service, Heathcote, United Kingdom **Background:** The case involves a necrotic primary incisor, and the subsequent discovery of an impacted upper central adult incisor (UL1) and unerupted inverted supernumerary. Full assessment is essential for diagnosis and treatment planning. Paediatric patients can be managed by Community Dental Services (CDS) with specialist support.

Case report: A dentally anxious 8 year-old was referred to the CDS concerning a necrotic upper left central primary incisor (ULA) after failed attempts to extract under local anaesthesia by the general dental practitioner (GDP). On initial assessment, the decision was made to monitor the asymptomatic ULA. However, he re-presented to his GDP and a radiograph with his second referral showed an inverted midline supernumerary. Advice was sought from a Paediatric Specialist, consent was obtained for extraction of ULA, and he was referred to the regional dental hospital regarding the supernumerary.

Treatment: The ULA was extracted without complication under inhalation sedation with nitrous oxide in the community dental setting. The sound UL1 was visualised post-extraction and eruption was closely monitored.

Follow-up: He was reviewed in the community while his referral to the dental hospital regarding his supernumerary tooth was pending. The consultant-led clinic advised to continue monitoring clinically and radiographically. Intervention may be indicated if there is any sign of cystic change or if it impedes any orthodontic treatment.

Conclusion: Specialist level support can enable excellent care in the community setting and reduce waiting lists into tertiary care. Consent was obtained for imaging and case discussion to be shared for presentation and education purposes.

438 Comprehensive management of concurrent dens invaginatus, dens evaginatus, and a diminutive tooth in an immature dentition

Suman Aachi¹, Sajida Mamdani¹, Mitul Patel¹, Franchesca Fong¹

¹The Royal London Dental Hospital, London, United Kingdom **Background:** Developmental anomalies including dens evaginatus and dens invaginatus predispose immature teeth to pulp necrosis and endodontic challenges. Management of immature teeth with periapical pathology remains

controversial. This case highlights a modified apexification approach using self-mix Pulpdent® calcium hydroxide as an interim apical barrier and antimicrobial strategy in a tooth with incomplete apical closure and significant periapical infection.

Case report: A medically fit 12 year-old British Chinese patient presented with dens evaginatus affecting both mandibular second premolars and dens invaginatus in a diminutive maxillary lateral incisor. Tooth 45 exhibited a draining sinus, incomplete root development, and extensive periapical pathology.

Treatment: Mandibular second premolars were extirpated. CBCT confirmed a wide, immature apex in tooth 45. Pulpdent® calcium hydroxide was placed in tooth 45; its high concentration of active calcium hydroxide (pH > 12) enhances disinfection, and the absence of a radiopacifier eliminates potential interference with apical healing. This approach aimed to provide sustained antimicrobial action and apical stability in the presence of a large apical diameter and periapical pathology. Tooth 35 received a bioceramic apical plug (TotalFill) with gutta-percha obturation. The diminutive maxillary lateral incisor was restored with composite.

Follow-up: Post-operative radiograph of tooth 35 demonstrated resolution of periapical pathology. One-year review is planned.

Conclusion: In immature teeth with periapical lesions, Pulpdent® calcium hydroxide may provide a useful interim strategy to enhance disinfection and apical control before definitive obturation. This staged approach may reduce extrusion and support biological healing in dens evaginatus cases. Further research should assess its predictability compared with conventional apexification techniques.

487 Integrating paediatric dentistry within metabolic bone services: a four year service evaluation

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¹University of Sheffield, Sheffield, United Kingdom, ²Sheffield Teaching Hospitals, Sheffield, United Kingdom, ³Sheffield Children's Hospital, Sheffield, United Kingdom **Aim:** To describe the development and impact of a joint paediatric dentistry/metabolic bone clinic in a tertiary children's hospital.

Methods: Since 2022, a monthly joint clinic has been delivered at Sheffield Children's Hospital, a UK tertiary referral centre for rare metabolic bone disorders. Service development included structured referral patient information material and care pathways, standardised dental assessment proformas and a centralised patient database. Shared care pathways were established with regional hospitals and

community dental services. Service activity, referral processes and access to specialist dental care were evaluated over four years.

Results: Over four years, 143 children were jointly assessed, with diagnosis most commonly including osteogenesis imperfecta, X-linked hypophosphataemia, hypophosphatasia and muscular dystrophy. A significant burden of dental disease was identified, including dentinogenesis imperfecta, spontaneous dental abscesses, premature exfoliation and dental caries. Complications related to systemic therapies were discussed, and joint medical–dental management plans supported optimisation of care. Patients required a range of preventive, orthodontic, restorative and surgical interventions. Integration improved care pathways, enabling earlier identification of oral disease, timely specialist assessment and coordinated multidisciplinary management. Communication and shared care improved, supporting continuity closer to home. Coordinated appointments reduced hospital visits, travel and school absence. Outputs included four service evaluations, conference presentations and one peer-reviewed publication.

Conclusion: Embedding paediatric dentistry within metabolic bone services improved access, prevention and equity of care for children with rare and complex conditions. This integrated, patient-centred model strengthens multidisciplinary collaboration and may inform future service design across tertiary centres.

501 Prevalence and clinical characteristics of enamel defects in patients with cleft lip and palate: a case series

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¹**Department of Dentistry and Maxillofacial Surgery Hospital Infantil Universitario Niño Jesus, Madrid, Spain** **Background:** Developmental enamel defects are frequently observed in patients with cleft lip and palate (CLP), particularly in teeth adjacent to the cleft site. These alterations may compromise aesthetics, increase caries susceptibility, and complicate restorative and orthodontic treatment. Early diagnosis and management are essential.

Case reports: This case series reports a sample selected from a total of 100 patients (males and females) aged 4 to 15 years with non-syndromic unilateral or bilateral cleft lip and palate, treated by a multidisciplinary team at the Hospital Infantil Universitario Niño Jesús (Madrid). Clinical evaluation of both primary and permanent dentition was performed by two calibrated examiners following established clinical guidelines. A high prevalence of enamel defects was observed, predominantly affecting maxillary incisors near

the cleft site. The most frequent findings included demarcated opacities, diffuse opacities, and enamel hypoplasia of variable severity. Structural involvement was generally more pronounced in the permanent dentition. Some patients also presented associated dental anomalies.

Treatment: Management was individualised according to defect severity and patient age. Preventive strategies included topical fluoride application, fissure sealants, and oral hygiene reinforcement. Minimally invasive restorative treatments were performed when indicated. Orthodontic planning was integrated into comprehensive care.

Follow-up: Periodic follow-up demonstrated stable aesthetic and functional outcomes, with preservation of tooth structure and no significant progression of enamel breakdown.

Conclusion: Enamel defects are highly prevalent in CLP patients, particularly in teeth adjacent to the cleft. Early diagnosis and conservative management within a multidisciplinary approach are essential to optimise long-term outcomes.

506 Cleft lip with or without palate in seven countries with two income levels

Manal Almalik¹

¹**King Fahad Armed Forces Hospital, Jeddah, Saudi Arabia** **Background:** Cleft lip with or without palate (CL/P), including cleft lip (CL) and cleft lip with palate (CLP), rank among the most prevalent congenital anomalies globally.

Aim: To report the phenotypic patterns of CL/P across the geographic area of seven Middle Eastern and Asian countries with two different economic levels.

Methods: Cross-sectional, multicentre descriptive study was carried out in seven Middle Eastern and Asian countries at major government and university cleft care referral centres including children from 0 to 2 years. Detailed cleft phenotypes were classified using the LASHAL system, and severity was categorised into seven grades, from unilateral incomplete CL (mild) to bilateral complete CLP (severe).

Results: A total of 1,100 NSOFC patients were included (30.6% CL, 24% CP, 45.4% CLP; Pierre Robin Sequence was identified in 23 (2.1%) of CP cases. Associated anomalies were present in 22.2% of patients. Hearing disabilities were found in 11.5%. Family history of clefts was reported in 31.1% overall, with no significant difference across cleft types ($p=0.432$). Subgroup analysis showed anomalies were more frequent in bilateral complete CL and CP subtypes ($p=0.002$). Multivariable analysis indicated lower- to middle-income countries had higher odds of CLP versus CL (AOR = 2.026, $p=0.032$) and lower odds of severe cleft phenotypes (AOR = 0.431, 95% CI: 0.202, 0.917, $p=0.029$).

Conclusion: This study showed that socioeconomic level influences both cleft type and severity. Collaborative research focusing on genetic, environmental, and healthcare access factors is recommended to better explain the socioeconomic variations observed and guide targeted prevention and policy strategies.

512 A multi-modality approach to hypomature amelogenesis imperfecta

Esme Grange¹

¹Edinburgh Dental Institute, Edinburgh, United Kingdom **Background:** Hypomature amelogenesis imperfecta (AI) is a genetic enamel defect characterised by impaired mineralisation. Although enamel thickness is typically normal, it commonly presents with a mottled appearance and may demonstrate increased susceptibility to chipping or surface breakdown. Aesthetics is a common patient concern. Management in adolescents can be challenging. Expectations are often high and minimally invasive strategies are preferred. Additionally, access to treatment modalities varies across UK services. This Case report demonstrates a staged combination of microabrasion, bleaching, and resin infiltration as a conservative and successful approach.

Case report: A 15 year-old female patient presented with generalised white speckled enamel and characteristic “snow-tipped” cusps, consistent with hypomature AI. The appearance had a significant psychosocial impact. There was no history of excessive fluoride exposure, and the patient was fit and well. Clinical and radiographic examinations revealed an otherwise intact dentition with no caries or structural breakdown.

Treatment: Initial enamel microabrasion was undertaken to remove superficial irregularities, followed by external bleaching to harmonise the overall shade. Due to persistent aesthetic concerns, resin infiltration was subsequently performed to improve optical uniformity. There was a more uniform appearance, however a slightly darker shade, post-infiltration, emphasising the importance of managing patient expectations. Further bleaching was undertaken despite the theoretical diffusion barrier posed by infiltrated resin.

Follow-up: Review appointments demonstrated stable shade, preserved enamel integrity, healthy gingival tissues, and high patient satisfaction with improved self-confidence.

Conclusion: This staged, minimally invasive protocol achieved significant aesthetic improvement and offers a practical, conservative pathway for managing hypomature AI in adolescents.

516 Multiple progressive idiopathic root resorptions in an otherwise healthy adolescent—a case report

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¹University of Oslo, Oslo, Norway **Background:** Progressive resorptions of the roots with no apparent reason are rarely seen. Without known cause, treatment is difficult/impossible. Presenting this Case report will draw attention to the condition and maybe recruit similar patients for a case series, hopefully bringing clarity to possible causes and treatment alternatives.

Case report: Multiple root resorptions on several permanent molars were discovered during routine check up of a 17.5 year old boy, late 2024. No previous history of trauma, caries, orthodontic treatment or extractions. Symptom free and otherwise healthy patient. Normal clinical appearance of the teeth.

Treatment: Referred to specialist in oral radiology Jan 2025. Radiographic examination with intra oral and panoramic x-rays revealed resorptions on teeth 22, 36, 45, 46, 47 mainly in the apical 1/3 or apical 1/2 of the roots, without other signs of pathology. Follow up dec 2025. Blood sample revealed low values in vit D and Iron (patient started supplements). Panoramic and intra-oral x-rays revealed progression of resorptions and also new resorption on distal 2/3 of root 35. Still asymptomatic patient and no obvious cause of resorptions. Positive response to thermic sensibility test. CBCT Jan 2026 revealed resorptions on roots 17, 16, 22, 24, 26, 27, 37, 36, 35, 45, 46, 47.

Conclusion: As of today no know cause of these resorptions has been identified. Some of the resorptions seem to have stopped, while others are progressing. There is uncertainty whether other teeth/roots will be affected as well. With no known cause there is no know therapy.

Topic 02. Behaviour management

11 A comparative evaluation of midazolam, ketamine and their combination as sedative agents in paediatric dentistry: a systematic review and meta-analysis

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¹Islamic Azad University, Tehran Dental Branch, Tehran, Islamic Republic of Iran, ²Iran University of Medical Sciences, Tehran, Islamic Republic of Iran **Aim:** Sedation is often required to manage uncooperative paediatric dental patients. Midazolam, ketamine and their combination are widely used, but their comparative effectiveness and safety in dentistry remain unclear. This systematic review and

meta-analysis evaluated sedation success, behaviour, onset and recovery characteristics, and adverse events for these regimens in paediatric dental care.

Methods: Medline, PubMed, Cochrane CENTRAL and the WHO-ICTRP were searched up to 31 August 2023. Randomised controlled trials in English (1990–2023) involving children ≤ 14 years (ASA I) receiving midazolam, ketamine or their combination for dental treatment were included. Manuscripts with incomplete data, non-randomised designs, non-human or non-dental studies and Case reports were excluded. Two reviewers independently performed study selection, data extraction and Cochrane RoB-2 risk-of-bias assessment. A one-stage random-effects dose–response meta-analysis examined the association between oral midazolam dose and treatment duration. The protocol was registered in PROSPERO (CRD42022359539).

Results: Twenty trials (780 children) were eligible; three RCTs (215 children) contributed to meta-analysis. Treatment duration increased with oral midazolam up to about 0.8 mg/kg. Across administration routes, the midazolam–ketamine combination generally produced deeper sedation, better cooperation and easier treatment completion than either drug alone. Ketamine-containing regimens had faster onset, whereas midazolam alone gave shorter recovery. Reported adverse events were mostly mild and transient, with no serious respiratory events.

Conclusion: The midazolam–ketamine combination appears to provide superior, reliable sedation and behaviour control in paediatric dentistry without major additional safety concerns. Larger, standardised RCTs are required to refine optimal doses and route-specific recommendations.

14 Picture exchange communication system (PECS) in low-compliance children with limited or no functional speech in an Italian paediatric dental setting

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¹ASST Melegnano-Martesana, Melegnano-Martesana, Italy **Aim:** to improve communication with low-compliance children who have limited or no functional speech because of severe physical, neuromuscular or cognitive deficit (i.e. autism, mental retardation, cerebral palsy) or because of language barrier.

Methods: In our paediatric dental setting, that is in the suburbs area of Milano, 60% of our patients are immigrant children from different linguistic and cultural backgrounds. Moreover, we work side-by-side with children neuropsychiatry unit who often send us patients for dental therapies.

This study required 2 phases: (1) the creation of four sets of pictures explaining the sequence of actions in four basic dental procedures to serve as a mediation instrument

for low-compliance children with comprehension gaps; and (2) their testing in a clinical setting (specifically, in the waiting room and the dental office).

Results: Changes in the children's approaches were observed and they demonstrated better compliance with dental procedures.

Conclusions: PECS is an augmentative and alternative communication (AAC) system that can assist paediatric dentists in bridging language or cognitive gaps and creating the friendliest and most comfortable conditions for small patients, consequently improving treatment outcomes.

19 Dental treatment in children under general anaesthesia: a 24 year retrospective study

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¹Children's Hospital of Queen Fabiola, Paediatric Dentistry Department, Free University of Brussels, Brussels, Belgium **Aim:** General anaesthesia (GA) is frequently used in paediatric dentistry for children with extensive dental decay, behavioural difficulties, or medical conditions preventing conventional care. This study presents a 24 year retrospective analysis of dental treatments performed under GA at a children's hospital.

Methods: A retrospective review was conducted on dental treatments performed under GA between January 1, 2001, and December 31, 2024. Data included patient age, sex, dental procedures, medical status, and postoperative follow-up. Statistical analyses included descriptive statistics, linear regression, Pearson's correlation, the Mann–Kendall trend test, Student's t-tests, and Chi-square tests.

Results: A total of 4,062 patients underwent dental treatment under GA, representing 1.59% of hospital admissions. The proportion of GA treatments increased significantly over time ($p = 0.008$). Mean age was 6.29 years for girls and 5.98 years for boys ($p < 0.0001$). Boys represented 53.77% of patients ($p = 1.55 \times 10^{-6}$). Overall, 39,818 teeth were treated, mainly restorations (65.84%) and extractions (22.68%), with no sex-related differences. Most patients were healthy (80.96%), while 12.08% had disabilities and 6.96% systemic conditions. Healthy children had significantly more treated teeth ($p < 0.0001$). Follow-up attendance decreased from 56.57% at one month to 3.80% at nine months. Only 1.87% required GA after failure of nitrous oxide sedation.

Conclusions: The use of GA for paediatric dental treatment has increased over the past 24 years. Despite its importance for complex cases, postoperative follow-up rates remain low and require improvement.

21 The role of a robot cat in supporting children with autism spectrum disorder during dental visits: an exploratory study

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¹Department of Paediatric Dentistry, The Institute for Post-graduate Dental Education, Region Jönköping County, Jönköping, Sweden, ²Department of Computer Science and Engineering, Chalmers University of Technology, Gothenburg, Sweden **Aim:** With two explorative studies, with mixed-methods design, investigate whether a robot cat could support children aged 5–10 y with Autism Spectrum Disorder (ASD) during dental care visits.

Methods: The first study followed 10 children over a year across 3–5 visits, in total 37 visits, with the robot cat. The second study employed a between-subjects design with 26 children, comparing the effects of a robot cat and a plush toy cat. All children were already familiar with the dental care environment. The severity of autism varied and several children had multiple diagnoses. Data collection included observation charts by a dental hygienist and feelings charts by the children, after every visit. Moreover, in the first study, semi-structured interviews with guardians, after first and last visits.

Results: Results indicated an increase in concentration levels over time and a reduction in stress for several children. All guardians expressed willingness to continue using the robot cat. No significant differences were observed between the robot cat and the plush toy cat.

Conclusion: These findings suggest that a robot cat may be a valuable tool for improving concentration and reducing stress in children with ASD during dental visits, particularly with repeated exposure.

25 VR goggles & general anaesthetic management case

Louise Davidson¹, Lisa Andrews Davies¹, Joseph Davidson²

¹Hertfordshire Community Trust, Welwyn Garden City, United Kingdom, ²University of Birmingham Medical School, Birmingham, United Kingdom **Background:** A case study of an 11-year-old presenting with a grossly carious UL2 and first permanent molars. The patient has complex social care circumstances and additional needs. He is a caregiver for his mother and has autism and dental phobia for any interventions including needles.

Case report: A patient focused approach was taken to assess triggers and causes of his dental anxieties and a comprehensive treatment plan formed. A combined pharmacological and non-pharmacological behavioural plan was

followed to accommodate high level of dental need and high anxieties precluding his dental treatment. Inhalation sedation was declined due to fears of claustrophobia and feeling ‘out of control’.

Treatment: UL2 was successfully filled using the wand delivery for LA and VR goggles. The VR goggles were instrumental for the patient to accept dental care when conscious. They offered different scenic and auditory distractors which were modified as treatment progressed to distract relax and impart autonomy and control. The UL2 subsequently necrosed and was deemed poor prognosis with the patient requiring hospital intravenous antibiotic treatments for a facial infection. GA was planned for extractions of the UL2 and adult molars. An upper immediate denture was fitted.

Follow-up: The patient enjoyed using the VR goggles and they were a vital non-pharmacological adjunct to receiving dental treatment in a timely way.

Conclusion: Exploring patient specific anxiety triggers and mapping a staged treatment approach enabled treatment delivery securing oral health while preserving dental engagement and positive dental experience. A combined behavioural management approach optimised tailored dental care.

98 Evaluation of the effectiveness of video modelling on dental anxiety during dental treatment in preschool children

Merve Nur Gür¹, Pınar Kinay Taran¹

¹Bezmialem Vakif University, Faculty of Dentistry, Department of Paediatric Dentistry, Istanbul, Türkiye **Aim:** This study aimed to evaluate the effectiveness of the video modelling behaviour guidance technique compared with the tell-show-do method in children aged 4–6 years with high levels of dental anxiety.

Methods: A total of 44 children with no previous dental treatment experience, requiring at least one single-surface restoration, and classified as definitely negative (1) or negative (2) according to the Frankl behaviour rating scale were included. Participants were randomly assigned to either a study group or a control group. The study group viewed a video modelling intervention demonstrating a single-surface, light-cured posterior composite restoration using the tell-show-do technique, whereas the control group received the same restoration using the tell-show-do technique alone. Anxiety levels were assessed at the initial examination, before treatment, and after treatment using the Facies Image Scale (FIS) and the Venham Picture Test (VPT). Salivary alpha-amylase and cortisol levels were measured before and after treatment. Appropriate parametric and nonparametric

statistical tests were applied, and statistical significance was set at $p < 0.05$.

Results: No statistically significant differences were observed between the groups in physiological anxiety parameters (cortisol and alpha-amylase) after treatment ($p > 0.05$). In both groups, significant decreases in FIS scores were observed across time points ($p < 0.05$). In the control group, post-treatment FIS scores were also significantly lower than pre-treatment scores ($p = 0.049$). No significant between-group differences were found in VPT scores at any time point ($p > 0.05$).

Conclusion: Both tell-show-do and video modelling are effective behaviour guidance techniques that may facilitate children's adaptation to dental treatment.

112 A safeguarding jigsaw puzzle: a paediatric dentistry perspective

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¹Birmingham Children's Hospital, Birmingham, United Kingdom **Background:** Dental neglect can be an early visible marker of wider child neglect, particularly in medically vulnerable children who require consistent caregiving. Paediatric dental teams are uniquely positioned to identify safeguarding concerns and contribute critical information to multidisciplinary safeguarding processes.

Case presentation: A child with DiGeorge syndrome (22q11 deletion), complex congenital heart disease requiring multiple cardiac surgeries, renal dysplasia, and thoracic scoliosis presented with extensive dental caries affecting multiple permanent teeth, severe plaque-induced gingivitis, and a persistently high-sugar diet including daily fizzy drink consumption, including bedtime exposure. Despite repeated oral health education, dietary counselling, and prescription of high-fluoride toothpaste, adherence was inconsistent, with ongoing access to sugary snacks and beverages and repeated missed appointments. Social care involvement revealed a history of domestic abuse, parental substance misuse, missed health appointments, and longstanding concerns regarding neglect. Dental treatment under general anaesthesia was required, including multiple extractions, restorations, fissure sealants, and fluoride therapy. Ongoing safeguarding management required coordinated communication between paediatric dentistry, cardiology, social services, school, and community dental services within a Child Protection framework.

Discussion: This case demonstrates how dental findings and parental engagement patterns form crucial "pieces" of the safeguarding jigsaw. It highlights the challenges of effecting behaviour change in complex family environments and the ethical responsibility of dental professionals to escalate concerns.

Conclusion: Dental neglect in medically complex children should prompt consideration of wider safeguarding concerns. Robust documentation, multidisciplinary collaboration, and advocacy by paediatric dental teams are essential to protect vulnerable children and improve long-term health outcomes.

115 Factors for N₂O/O₂ sedation outcomes in pre-school children

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¹Department of Operative, Preventive and Paediatric Dentistry, Charité—Universitätsmedizin Berlin, Berlin, Germany, ²Department of Paediatric Dentistry, University Medicine Greifswald, Greifswald, Germany **Aim:** To evaluate the efficacy of nitrous oxide-oxygen inhalation (N₂O/O₂) sedation in preschool children and to identify determinants for treatment success.

Methods: A retrospective analysis was conducted in children aged 2–5 years who dental treatment under N₂O/O₂ sedation in a specialised university paediatric dentistry clinic in Germany between 2022 and 2025. Patient characteristics, caries levels (dmft, dt), treatment-related variables (type of procedure, number of treatments, radiographic examination), and previous dental experience were recorded. Treatment success/failure (defined by completion of the planned therapy, no requirement for further intervention in general anaesthesia, and absence of adverse events) were assessed at patient and treatment levels, and the association between potential influencing factors were analysed using multivariate analysis.

Results: A total of 115 children (43.5% girls) aged 2–5 years (mean 4.3 ± 0.79) underwent 203 dental treatments under N₂O/O₂ sedation. The dmft and dt values of patients were 8.31 and 7.86. Treatment success was high at the patient (82.6%) and treatment (87.2%) level. In multivariate analysis, the number of N₂O/O₂ sedation sessions as inversely associated with treatment success ($p = 0.01$; OR = 0.53, 95% CI: 0.33, 0.86), whereas the number of treated teeth showed a strong positive association ($p < 0.001$; OR = 3.60, 95% CI: 1.82, 7.12). No adverse effects were reported.

Conclusions: Nitrous oxide sedation is a safe and effective method for dental treatment in pre-school children, with high success rates supporting its use as alternative to general anaesthesia in this age group.

120 Satisfaction of parents and guardians of children treated by undergraduate dental students

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¹University Dental Hospital of Manchester, Manchester, United Kingdom, ²University of Manchester, Manchester, United Kingdom **Background:** At the University Dental Hospital of Manchester final year undergraduate dental students from the University of Manchester provide treatment for paediatric patients on dedicated clinics. Undergraduate students provide a range of treatments under the supervision of qualified dentists.

Aim: To assess the satisfaction of parents and guardians of children treated by undergraduate final year dental students at the University Dental Hospital of Manchester.

Method: All parents and guardians were invited to complete an anonymous questionnaire following treatment of their children by undergraduate students. The questionnaire assessed satisfaction across various domains including: information given by dental students during the appointment; the quality of the treatment provided; the opportunity to book appointments at convenient times and the timeliness of appointments. Responses were collected from April to November 2025 and analysed with descriptive statistics.

Results: Fifty responses were collected during the data collection period. Analyses of the responses revealed positive levels of satisfaction across the surveyed service areas. 100% of respondents were satisfied with the treatment provided, 94% strongly agreed that they would recommend the undergraduate clinic to family and friends, and 98% felt they were treated with respect. 94% were able to make appointments at convenient times and 96% were given sufficient information during appointments by students.

Conclusions: Parents and guardians indicated high levels of satisfaction with treatment provided by undergraduate dental students across various domains. Undergraduate treatment clinics offer dental students hands on experience to aid their development as well providing high-quality treatment which was acceptable to parents and guardians.

123 Can technology replace tradition? A randomised controlled trial on smartphone-mediated behaviour guidance vs. tell-show-do for child dental anxiety

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¹Kafrelshiekh University, Kafr Elsheikh, Egypt, ²Alexandria Paediatric Centre, Alexandria, Egypt, ³Pharos University, Alexandria, Egypt **Aim:** To evaluate the immediate and follow-up effectiveness of a smartphone-app mediated behav-

iour guidance technique (Dentist for children) versus Tell Show and Do on dental anxiety in children.

Methods: This RCT enrolled 100 children (4–6 years) with no previous dental experience. The children were randomly allocated to a smartphone-app (Dentist for children) group or a TSD group (n = 50 each). Anxiety was measured by an independent observer using the Venham Clinical Anxiety Scale preoperatively (T1), post-treatment (T2), and at follow-up (T3). Analysis used Fisher's exact and Mann–Whitney U tests ($\alpha = 0.05$).

Results: Groups were comparable at baseline. Both techniques reduced anxiety immediately (Median VCAS: 3 to 2). Critically, at follow-up (T3), the TSD group demonstrated significantly lower anxiety (Median: 1 vs. 2; $p = 0.0014$). More children in the TSD group were categorised as 'relaxed' (16% vs. 2%).

Conclusion: Although both behaviour guidance techniques were effective in initial anxiety reduction, smartphone apps did not match the sustained benefit of TSD. This study provides practically significant evidence that TSD remains the cornerstone of behaviour guidance, with digital tools serving as potential adjuncts rather than alternative. This guidance is vital for contemporary, evidence-based paediatric dental practice.

148 Vital signs in cleft children undergoing nitrous oxide conscious sedation

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Aim: To assess vital signs, course and procedures in children with cleft lip and/or palate undergoing nitrous oxide conscious sedation compared with non-cleft children.

Methods: The study was approved by the Local Ethics Committee. In this pilot study, 30 cleft children (16♀, 14♂; age 9.43 ± 2.52 years) and 30 non-cleft children (11♀, 19♂; age 8.72 ± 2.97 years) undergoing nitrous oxide conscious sedation at the Cleft Centre Prague were compared. Vital signs, including heart rate and oxygen saturation, were recorded before and after sedation. Additionally, behaviour during sedation was assessed using the SEM scale, behaviour management during mask placement, sedation depth using the Ramsay scale, type and extent of dental procedure, amnesia, age, and gender were documented. Statistical significance was set at $p = 0.05$ to compare the two groups.

Results: Statistically significant differences were observed in oxygen saturation before sedation ($p = 0.03$),

heart rate after sedation ($p=0.02$), and amnesia ($p=0.03$). No significant differences were found in behaviour during sedation, behaviour management during mask placement, oxygen saturation after sedation, heart rate before sedation, or sedation depth. Of 60 planned sedations, 59 were completed. A total of 110 teeth were extracted and 21 teeth filled, with no significant differences between groups.

Conclusions: Children with cleft lip and/or palate had statistically lower oxygen saturation levels before sedation, though without clinical impact, and experienced lower incidence of amnesia following sedation. No differences were observed in the number of procedures performed.

150 Effect of photobiomodulation therapy on post-extraction pain management of mandibular primary molars

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¹Faculty of Dentistry, Alexandria University, Alexandria, Egypt **Aim:** This study aimed to evaluate the efficacy of photobiomodulation therapy as an adjunctive treatment to manage post-extraction pain in children.

Methods: This double-blind, split-mouth, randomised controlled clinical trial involved 36 primary mandibular molars extracted from 18 children with a mean age 6.5 years. Eligible sides were randomly assigned to either the Test group or the Placebo group, with a washout period of one week between extractions. Immediately after extraction, children in the Test group underwent 660 nm diode laser irradiation with an output power of 100 mw and 6 J of energy in continuous emission mode, held 3 mm away from the extraction socket for 60 s. Post-extraction pain was measured via an Arabic validated self-reported questionnaire over one week. Data were analysed using the McNemar test, with significance defined as $p < 0.05$.

Results: On the first day post-extraction, the Test group showed reduction in the subjective feeling of discomfort at the extraction site compared to the Placebo group, which was statistically significant ($P=0.02^*$). Over the one-week follow-up, the Test group showed no analgesic consumption compared to 33.3% in the Placebo group ($P=0.03^*$), it also reported significantly less difficulty with chewing on the extraction site, chewing soft food and difficulty with taking a big bite compared to the Placebo group; with percentages (38.9% vs.88.9%, $P=0.03^*$), (0% vs.33.3%, $P=0.004^*$), and (33.3% vs.72.2%, $P=0.04^*$) respectively.

Conclusion: Low-level laser therapy is an effective adjunctive treatment following primary mandibular molar extraction. It significantly reduces discomfort, and improves functional recovery by substantially eliminating the need for post-operative analgesics.

163 Parental acceptance of behaviour guidance techniques in paediatric dentistry in Greece: a 10 year follow-up cross-sectional study

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¹Department of Paediatric Dentistry, School of Dentistry, Aristotle University of Thessaloniki, Thessaloniki, Greece **Aim:** To assess parental acceptance of behaviour guidance techniques (BGTs) used in paediatric dentistry in Greece and to explore its association with parental and child demographics, previous dental experience, dental anxiety, educational level, and family income.

Methods: A cross-sectional questionnaire-based study was conducted among parents accompanying their children to the Postgraduate clinic of Paediatric Dentistry of Aristotle University of Thessaloniki and five private paediatric dental clinics. Data were collected using a structured questionnaire, which including demographic information, the Modified Corah Dental Anxiety Scale (MDAS) for parental dental anxiety, and a 0–10 rating scale to assess parental acceptance of thirteen BGTs, after viewing a standardised video-based presentation of each technique.

Results: A total of 294 parents agreed to participate in this study (147 from the University Clinic and 147 from private practice). Positive reinforcement and tell-show-do received the highest acceptance scores, whereas general anaesthesia and passive restraint were the least accepted techniques. Acceptance of each BGT was not associated with parental or child age and gender, children's dental experience or parental dental anxiety. However, there was statistically significant associations between acceptance of more invasive and advanced BGTs and parental dental experience, educational level, and annual family income.

Conclusion: Over the last ten years, the parental acceptance of BGTs has not changed significantly in Greece, with basic techniques—particularly communication guidance techniques—ranking first in parents' preferences.

164 Effect of pre-restorative glass-ionomer sealing on dentine sensitivity in children with MIH: a pilot study

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¹Bezmailem Vakıf University, Faculty of Dentistry, Department of Paediatric Dentistry, Istanbul, Türkiye **Aim:** To evaluate the effectiveness of temporary sealing with glass-ionomer cement (GIC) in reducing dentin sensitivity prior to restorative treatment in children with MIH.

Methods: Twelve children with MIH lesions with a severity score ≥ 5 and a Treatment Need Index ≥ 3 were

included in the study. Baseline dentin sensitivity was determined as Schiff Cold Air (SCA) Scale > 1. Patients were divided into two groups. In the GIC group (n=6), cavities were temporarily sealed with GIC for two weeks during the first visit and restorative treatment was performed at the second visit. In the control group (n=6), restorative treatment was performed directly at the first visit. After local anaesthesia, the SCA and Wong–Baker assessments were repeated. Intraoperative-pain behaviour was evaluated using the FLACC scale, and the number of treatment interruptions due to dentine sensitivity was recorded.

Results: After local anaesthesia, SCA scale and Wong–Baker assessment were repeated. In the GIC group, 5 patients reported “no hurt,” whereas this number was 2 in the control group. During the procedure, FLACC scores were recorded as 0 in 4 patients in the GIC group, while a score of 0 was not observed in the control group. The number of interruptions due to sensitivity was recorded as once in only 1 patient in the GIC group, whereas in the control group, 4 patients required 2 interruptions and 2 patients required 1 interruption.

Conclusion: Preliminary findings suggest that pre-restorative GIC sealing may reduce post-anaesthetic dentine sensitivity and improve intraoperative comfort in children with MIH.

184 Dental management of paediatric patients with autism using a sensory-adapted dental clinic and various sensory-adaptive tools: case series

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¹Department of Paediatric Dentistry, Kuwait Board of Paediatric Dentistry, Ministry of Health, Kuwait **Background:**

Autistic children often demonstrate sensory sensitivities and behavioural challenges that complicate dental care delivery. Sensory-Adapted Dental Environments (SADE) and tailored behavioural strategies may enhance cooperation and reduce the need for general anaesthesia.

Report: Five patients with ASD (ages 4–10 years) presenting for dental treatment in SADE clinic at the Kuwaiti Board of Paediatric Dentistry unit were included. All demonstrated sensory sensitivities (sound, light, vibration) and varying baseline cooperation (Frankl F1–F3). Dental histories included first dental visits and previous treatment under sedation or general anaesthesia. Assessment comprised clinical examination and radiographic evaluation when feasible. Sensory-adaptive tools and behaviour guidance techniques were individualised for each case, including desensitisation visits, dimmed lighting, distraction techniques, Tell–Show–Do, weighted blankets, and protective stabilisation when required.

Treatment: Dental treatment was delivered within the SADE and individualised according to each patient’s behavioural tolerance and clinical diagnosis. Treatment approaches ranged from preventive care to biologically oriented caries management techniques (Hall/modified Hall technique and silver diamine fluoride application), as well as restorative procedures and extractions.

Follow-up: Behaviour improved across cases, often progressing to Frankl F3–F4. Four patients completed all planned treatment within the SADE clinic and were placed on regular monthly follow-up. One patient’s care was partially completed due to an external scheduling interruption.

Conclusion: Implementation of SADE and individualised sensory-adaptive tools facilitated successful comprehensive dental care in patients with ASD, significantly improving cooperation and reducing reliance on general anaesthesia. These findings support broader adoption of SADE strategies for patients with special health care needs.

189 A multi-centre evaluation assessing endodontic treatment provided under general anaesthesia in paediatric patients at the Eastman Dental Hospital and the Royal London Dental Hospital

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¹The Royal London Hospital, London, ²The Eastman Dental Hospital, London, United Kingdom **Background:**

Endodontic treatment under general anaesthesia (GA) may be required when children are unable to cooperate in the dental chair. In such cases, treatment under GA can offer an appropriate solution. Current practice varies across centres, and there is limited multicentre data on care pathways and treatment delivery.

Aim: This collaborative project aims to evaluate current practices. The objectives are to assess indications for GA use, treatment staging and completion, and the number of GA episodes required, with the intention of identifying opportunities to optimise and standardise care pathways.

Methods: A retrospective review of digital records from January 2024 to December 2024.

Results: EDH, 22 episodes of endodontic treatment were delivered under GA in 19 patients (mean age 10 years; 53% neurodiverse). Dental trauma was the predominant aetiology (95%). A peri-operative radiograph was obtained in 73% of cases, and 53% had attempted root canal treatment (RCT) under alternative modalities before GA. Extirpation was performed in 59% of episodes, and 79% required subsequent treatment under GA. RLH, 11 episodes were delivered in 11 patients (mean age 13 years; 73% neurodiverse). Dental trauma accounted for 63% of cases. Pre-operative radiographs were obtained in 73%, prior RCT attempts occurred in 18%,

extirpation was undertaken in 55%, and 27% required further treatment under GA.

Conclusion: This multicentre evaluation provides an insight into current practice across different hospital settings. Its findings will support service development, inform standardised protocols, and aim to reduce repeated GA exposure while maintaining safe and effective patient care.

191 Evaluation of stress levels of intern dentists and dentists during paedodontic treatment procedures

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¹Necmettin Erbakan University Faculty of Dentistry, Konya, Türkiye, ²Private Dental Practice, Türkiye **Aim:** The aim of the study is to comparatively evaluate the physiological and psychological stress levels of intern dentists performing paedodontic treatments and dentists undergoing specialty training in paediatric dentistry.

Methods: The study included voluntary 4th- and 5th-year dental interns and residents who had completed the first or second year of their pedodontics residency. Participants were randomly assigned to perform either restorative or surgical procedures, with an equal distribution of case types. Stress levels were assessed using the Paediatric Dentistry Practice Stress Scale (PDPSS). Systolic and diastolic blood pressure, pulse rate, and peripheral oxygen saturation were recorded before the procedure, at the fifth minute during the procedure, and five minutes after completion. Statistical significance was set at $p < 0.05$.

Results: No significant differences were observed in physiological parameters according to treatment type ($p = 0.128$). However, professional experience was significantly associated with stress levels ($p < 0.001$). Increased experience corresponded with lower PDPSS scores and reduced physiological stress indicators. The highest stress levels were found in 4th year students, while the lowest were observed in second-year residents. Additionally, a significant negative correlation was identified between peripheral oxygen saturation and subjective stress scores ($p = 0.017$).

Conclusion: Stress levels decreased with increasing professional experience in paedodontic practice, whereas treatment type had no significant effect on physiological stress parameters. These findings highlight the need for stress management support, particularly for young clinicians during their clinical training.

204 Repping the RAP clinic: development and evaluation of a reasonable adjustments pathway (RAP)

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¹Royal London Dental Hospital, London, United Kingdom, ²Paediatric Dentistry, Royal London Dental Hospital, London, United Kingdom, ³Paediatric Dentistry, Royal London Dental Hospital, London, United Kingdom **Aim:** To evaluate the impact of introducing a structured Reasonable Adjustments Pathway (RAP) on patient experience, assessment completion and clinic efficiency for an increasing demographic of severely autistic and special needs children (SNC) attending Paediatric New Patient Clinics (NPCs).

Methods: Baseline data (August 2025) and staff questionnaires identified disruption, incomplete assessments, prolonged waiting times and limited prior knowledge of patients' triggers and communication needs. A pathway was developed and piloted across two weeks. Referrals were screened to identify children with severe autism or challenging behaviour. Identified patients received a structured pre-appointment telephone consultation using a standardised proforma to generate a dental passport. Reasonable adjustments included side room allocation, a dedicated nurse, 45-min appointments and clinical psychology input. Charity entertainer support was arranged to complement the clinics. Parent and staff feedback was collected, and outcomes were re-evaluated in October 2025.

Results: During the pilot ($n = 50$), 34/50 (68%) were SNC patients; 23/34 (68%) met criteria for this pathway and 19/23 (83%) had clear benefit. Eligibility was identifiable from referral in 22/23 (96%) cases. Re-evaluation demonstrated increased patients benefiting (59% vs 47% baseline) and improved identification from referrals (89% vs 77%). Qualitative questionnaire evaluations reported increased staff-preparedness and efficiency and a 50% decrease in clinic incidents. Parental satisfaction with telephone consultations was 100%.

Conclusions: Implementation of this pathway was associated with improved anticipation of needs and enhanced patient and staff experience. Further evaluation of now standard practice across NPCs is planned, alongside funding applications for a play specialist and sensory-adapted waiting area.

246 Physiological stress responses to protective stabilisation in children with autism spectrum disorders during dental treatment

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¹University of Milan, Milan, Italy, ²University of Padua, Padua, Italy **Aim:** Dental anxiety is common in children with autism spectrum disorders (ASDs) and often leads to behavioural resistance and increased stress during dental procedures. Objective assessment of physiological responses may support better clinical management. This study evaluated autonomic stress responses in children with ASDs during dental care and investigated whether protective stabilisation influences autonomic activation.

Methods: Thirty-six children aged 3–12 years with ASDs attending the Dental Clinic of the University of Milan were enrolled. Electrodermal activity (EDA), heart rate (HR), and heart rate variability (HRV) were continuously recorded using an Empatica E4 wristband. Measurements were collected before (T1), during (T2), and after treatment (T3). Non-parametric tests (Kruskal–Wallis and Mann–Whitney U) assessed the effects of behavioural cooperation (Frankl Behaviour Score), ASD severity, verbal ability, visual supports, previous dental experience, carious lesions, and protective stabilisation. Linear regression evaluated age effects.

Results: Thirty-one children were included in the analysis. None of the demographic or clinical variables significantly affected EDA, HR, or HRV ($p > 0.05$). No significant differences were found between children treated with and without protective stabilisation at any phase ($p > 0.05$). HR increased during treatment, particularly in stabilised children, but without statistical significance.

Discussion: Behavioural and clinical factors did not influence physiological stress responses. Protective stabilisation did not increase autonomic stress compared with behavioural management alone and appears to be a safe strategy to facilitate dental care in children with limited cooperation.

271 Efficacy of behaviour management in supporting provision of child friendly scheme in dental practice

Mawj Alalawi¹

¹North Manchester General Hospital, Manchester, United Kingdom **Aim:** To evaluate how effective behaviour management techniques are in helping an early-career dentist successfully treat dentally anxious paediatric patients within an NHS primary care setting.

Methods: The Child Friendly Dental Practice Scheme (CFDP) is a Manchester based initiative that allows children

access into primary care settings and reduces the load on specialist paediatric services¹. During Foundation Training, referrals for inhalation sedation (IHS) or general anaesthesia (GA) were triaged within a CFDP-accredited practice. Application of behaviour guidance techniques including Tell-Show-Do, positive reinforcement, distraction and parental involvement supported successful treatment outcomes under Local Anaesthetic only. A retrospective evaluation of Child friendly interventions was carried out to assess the percentage of successful treatment and discharge compared to need for further intervention from a specialist setting. Data collected included patient's age ranging from 3 to 16 years old, referral reason & treatment provided.

Results: Over a 6 month period (02.01.2025—14.07.2025) 69 paediatric patients were seen. 33 patients (47.8%) successfully completed treatment and were discharged within primary care. 25 patients (36.2%) required onward referral for specialist management under inhalation sedation or general anaesthesia. 11 patients (15.9%) were not brought for their scheduled appointments.

Conclusion: These findings suggest that, with appropriate application of behaviour management techniques, early-career dentists can effectively facilitate child-friendly services within primary care.

279 Using virtual reality to support local anaesthetic management of paediatric oral and maxillofacial emergencies: a case series

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¹Alder Hey Children's Hospital, Liverpool, United Kingdom **Background:** Children frequently present to emergency oral and maxillofacial services with facial trauma or odontogenic infection requiring urgent treatment. Anxiety, dental phobia and neurodiversity can make cooperation under local anaesthetic (LA) difficult and may lead to admission or escalation to general anaesthesia (GA). Virtual reality (VR) is increasingly used in outpatient paediatric dentistry as a non-pharmacological adjunct to reduce procedural anxiety, however its use in acute emergency and ward based settings remains limited.

Case reports: As part of a patient experience initiative supported by charitable funding, VR headsets were introduced within the paediatric dental unit at Alder Hey Children's Hospital. In selected cases, VR was used during urgent LA procedures in emergency department and ward settings, with infection prevention measures followed to allow safe use during invasive treatment. A case series of four patients aged 10 to 15 years is presented in whom VR was used during urgent LA procedures.

Treatment: Three patients were managed following facial or dental trauma and one for an odontogenic infection

when access to theatre was delayed. Procedures included lip laceration repair, dentoalveolar repositioning and splinting, wound revision, degloving injury repair and incision and drainage. The feasibility, patient tolerance, successful completion of treatment and immediate outcome following treatment were reviewed. All procedures were completed successfully.

Follow-up: Patients were discharged the same day with positive family feedback. VR could be delivered by a single operator with basic training.

Conclusions: These cases suggest that VR may support timely management and reduce the need for escalation to GA in selected paediatric emergencies.

301 Little teeth, big voices: opinions of professionals on challenges and enablers of dental GA in neurodiverse children

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¹Alder Hey Children's Hospital, Liverpool, United Kingdom **Aim:** General anaesthesia (GA) is a key modality for delivering dental care to children who are unable to tolerate treatment whilst awake. A multiprofessional approach is required to ensure children who are neurodiverse and have additional needs receive this treatment in an effective and safe manner. This project aimed to explore the views of healthcare professionals involved in the dental GA pathway to identify challenges, areas for improvement, and factors contributing to successful GA provision for neurodiverse patients.

Methods: Three virtual focus groups were conducted with healthcare professionals including paediatric dentistry, pre-operative nursing, the learning disability team, surgical day-case play specialists, and anaesthetists. Focus groups were recorded, transcribed and analysed using thematic analysis.

Results: Nine key themes relating to challenges in providing dental GA for neurodiverse patients were identified: burden of dental disease, volume of patients, patient complexity, time (both spent with patients and theatre list time), pre-medication, unpredictability, documentation, and staffing. Four themes were identified as key contributors to successful GA provision: time, planning, staff, and documentation.

Conclusion: Time, staffing, and documentation were identified both as major challenges and critical determinants of successful dental GA provision, highlighting the importance of optimising these elements. The need for better assessment framework and planning tools for this patient cohort was also identified. A high level of agreement across professional groups was observed, suggesting a shared understanding and

presenting opportunities for improved collaboration to enhance care for neurodiverse patients undergoing dental GA.

312 Assessing the anxiolytic efficacy of nitrous oxide inhalation sedation in paediatric patients: a clinical study

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¹Department of Paediatric Dentistry, School of Dentistry, National and Kapodistrian University of Athens, N. Iraklio, Attica, Greece, ²Department of Statistics, Athens University of Economics and Business, Greece **Aim:** Evaluate anxiolytic effect of nitrous oxide (N₂O) sedation in paediatric patients with co-operation difficulties during dental treatment. Secondary objectives were to evaluate subjective pain perception and the effect of treatment- and patient-related factors to the outcome.

Methods: Eighty-five administrations during treatment of forty anxious patients, aged 6–16 years (mean: 11.1 years, SD 2.68) were recorded. Anxiolytic effect was assessed by changes in heart (HR) and oxygen saturation rates (spo₂), pre- and post-operatively and during treatment. Post-operatively success (i.e. Completion of the scheduled treatment in a relaxed way) was also evaluated using Modified Venham scale and pain perception using Wand-Baker Scale. Objective measures were analysed using linear mixed-effects models (Imms), while subjective using both LMMS and ordinal generalised linear mixed-effects models (glmms). Statistical significance was set at $p < 0.05$.

Results: Overall mean HR showed a significant downward trend pre- and post-operatively, while there was no effect in spo₂ at any point. No significant differences in HR were seen during gas titration, while during treatment critical stressors, such as local anaesthesia, caused a significant increase. A significant reduction in pain perception was recorded, with mean values decreasing up to 2.15 points. Overall success was significantly improved at successive visits, supporting the number of administrations as the only significant predictor for a successful outcome.

Conclusion: The observed anxiolytic effect establishes N₂O sedation as an effective behaviour management technique, reducing the need for general anaesthesia, while its cumulative effect enables clinicians to progressively enhance patient cooperation within a patient-centred care framework.

345 Utilisation and outcomes of intravenous sedation in paediatric dental emergencies: a retrospective review

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¹Department of Family Oral Health, Faculty of Dentistry, The National University of Malaysia, Bangi, Malaysia **Aim:** To evaluate the utilisation of intravenous (IV) sedation in the management of paediatric dental emergency cases presenting to our institution's emergency department (ED).

Methods: Electronic dental records of children presenting to our institution's hospital ED with dental emergencies between January 2025 and January 2026 were retrospectively reviewed. A standardised data collection form was used to extract demographic data, reasons for referral, treatment rendered, type of IV sedation administered, and any intra- or post-operative complications. Data were analysed using IBM SPSS Statistics and summarised descriptively.

Results: Ninety-four children were seen during the study period, with 38.3% aged 0–3 years. Dental trauma (60.6%) and pain or cellulitis secondary to caries (31.9%) were the most common reasons for referral. IV sedation was utilised in 11.7% of cases, primarily to facilitate wound debridement and closure or extraction of carious teeth. Ketamine was the sole sedative agent administered. Post-treatment drowsiness was reported in 58.2% of sedated patients, resolving within six hours. No serious intra- or post-operative complications were documented.

Conclusion: IV sedation was required in a limited proportion of paediatric dental emergency cases but played an important role in enabling timely and effective treatment. Ketamine-based IV sedation demonstrated a favourable safety profile, with only transient and self-limiting adverse effects observed. Selective use of IV sedation appears to be a safe adjunct in the ED management of simple to moderate paediatric dental emergencies, reducing the needs for general anaesthesia.

349 Can behaviour and gag reflex during intraoral radiographic examination predict cooperation during dental treatment in children?

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¹Department of Paediatric Dentistry, Faculty of Dentistry, Aristotle University of Thessaloniki, Thessaloniki, Greece **Aim:** To assess whether children's behaviour and gag reflex during intraoral radiographic examination predict their cooperation during dental treatment.

Methods: 107 children with no prior dental experience were included. At the initial dental visit, the short form of Gaggling Problem Assessment for children (GPA-de—c/SF) was used to evaluate gag reflex before the clinical examination. Children rated as Frankl 1 (–) were excluded. At the second visit, the X-ray Rating Scale (XRS) was used to assess gag reflex during the intraoral radiographic examination. Dental treatment with the use of local anaesthesia followed at the third appointment. Frankl behaviour rating scale (FBRS) was also used to evaluate cooperation both during radiographs and the first dental treatment. McNemar tests, Fisher's exact tests and univariate/multivariable logistic regression analyses were performed ($p \leq 0.05$).

Results: No significant association was found between the Frankl scores at radiographic examination and during treatment. Increased gag reflex, measured by GPA-de—c/SF and XRS, was significantly associated with lower Frankl scores at both the radiographic examination (OR = 0.03; 95% CI: 0.01–0.19) and the first treatment appointment ($p < 0.001$). Girls (OR = 5.93; 95% CI: 1.17, 43.0) and older children (OR = 2.39 per year; 95% CI: 1.42, 4.60) showed higher Frankl scores during treatment, but no association was found with radiographic examination.

Conclusion: Behaviour during radiographic examination does not reliably predict cooperation during dental treatment. Gag reflex is not only associated with difficulties during x-rays taken but also with poorer cooperation at the subsequent dental treatment appointment.

369 Service evaluation of an animated video to inhalation sedation

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¹Kent Community Foundation Health Trust, United Kingdom, ²Barts Health Trust, United Kingdom **Aims:** This quality improvement project evaluated the effectiveness of an animation video designed to explain nitrous oxide (inhalation) sedation to paediatric dental patients and their parents/guardians. The resource aimed to improve understanding of the procedure and manage expectations prior to treatment. The aim was to evaluate the effectiveness of the animated inhalation sedation video in improving patient and parent/guardian preparedness prior to treatment, assess engagement with the resource, and identify areas of improvement based on patient and family feedback.

Method: During the consultation appointment, patients and their parents/guardians were invited to view the animated inhalation sedation video. Viewing was supervised by the treating clinician to ensure patients are watching the video prior to treatment. Post-treatment, feedback was collected via questionnaires, completed by both patients and their parents/guardians to evaluate their experience.

Participants assessed the accuracy of the animation in reflecting their treatment and provided suggestions for improvement. Data was assessed, with findings used to inform ongoing review and refinement of the resource.

Results: Feedback was predominantly positive, with patients reporting that the animation video improved their preparedness for treatment and accurately reflected their clinical experience. Conclusions: Suggested areas of improvement included adapting the animation style for older paediatric patients and addressing potential language barriers for non-native English speakers.

417 Effectiveness of the PaFein + educational program on Turkish paediatric dentists' knowledge, attitudes, and clinical practices (KAP) in pain-free dentistry

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¹Marmara University, Istanbul, Türkiye, ²Kent University, Türkiye, ³Carol Davila University, Romania, ⁴Queen Mary University of London, London, United Kingdom To evaluate paediatric dentists' knowledge, attitude, and practices (KAP) scores in behaviour guidance, minimally invasive dentistry, pain-free local anaesthesia, and sedation/general anaesthesia referral patterns following participation in the Erasmus + PaFein + (2023-1-TR01-KA220-HED-000155608) curriculum-based training program.

Methods: A pre–post interventional study was conducted to evaluate the impact of a structured one-day educational training program designed for academicians, specialists, and PhD students in Istanbul. The 5 h theoretical and 3 h practical training was evaluated using a knowledge–attitude–practice (KAP) questionnaire. The questionnaire was administered at baseline, post-training, and at 1-, 3-, and 6-month follow-ups to assess immediate and sustained effects. Statistical analyses were performed using IBM SPSS v31.0 ($p < 0.05$).

Results: Baseline was completed by 71 participants, and 30 completed all follow-ups. Knowledge scores increased however, the change was not statistically significant ($p = 0.139$), while attitude ($p = 0.002$) and practice ($p < 0.001$) improved significantly, with practice peaking at 3 months. Correct responses on pain-free injection techniques increased significantly after training, and the use of minimally invasive and pain-control approaches also changed significantly over time ($p \leq 0.008$). Sedation/GA referrals remained unchanged and were not related to weekly patient volume ($p > 0.05$). Mean KAP scores increased at 1, 3, and 6 months vs. baseline ($p < 0.001$).

Conclusion: A one-day structured educational intervention improved and sustained paediatric dentists' attitudes and

practice scores, particularly in pain-free injection and minimally invasive approaches. Unchanged sedation and general anaesthesia referral patterns suggest that longer training with extended follow-up may be required to influence complex clinical decision-making.

445 The PaFein + project on pain-free dentistry for children: multicentre study on practitioners' perceived knowledge and self-efficacy

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¹Istanbul Kent University, Istanbul, Türkiye, ²Marmara University, Istanbul, Türkiye, ³Bambino Gesù Children's Hospital Association of Romanian Paediatric Dentistry, Italy, ⁴Association of Romanian Paediatric Dentistry, Romania **Aim:** PaFein + Project (Erasmus + 2023-1-TR01-KA220-HED-000155608) is an educational initiative for young Paediatric dentists promoting pain-free dental treatment and injections. The aim was to evaluate the impact of the PaFein + training program on practitioners' self-perceived knowledge and self-efficacy in delivering pain-free dental treatment to children.

Methods: A curriculum on behaviour guidance (BG), minimally invasive dentistry (MID), and pain-free dental anaesthesia (PFDA) was developed by the project team. A structured one-day educational program (5 h lectures + 3 h hands-on activities), designed as a pilot version of the curriculum, was delivered to self-selected paediatric dentists, postgraduate students, and dental educators in Türkiye (TR), Romania (RO), and Italy (IT). Participants' self-perceived knowledge and perceived self-efficacy were assessed using pretest, post-test and 1, 3, 6 month post-training follow-ups. Responses were anonymous and nickname-coded. Paired data from five time points were analysed using IBM SPSS Statistics25 ($\alpha = 0.05$).

Results: From 181 participants, 46 completed all the surveys. Significant improvements ($p < 0.001$) were noted in participants' self-perceived knowledge on BG, MID and PFDA. Significant improvements in perceived self-efficacy were observed in applying MID techniques ($p = 0.022$), providing pain-free injections ($p < 0.001$) and pain-free treatments ($p = 0.002$). Referrals for dental general anaesthesia showed a significant reduction ($p = 0.039$). Pretest findings indicated that practitioners had high expectations of a positive clinical impact (4.48/5), with fulfilment ratings remaining stable at follow-up ($p > 0.05$), suggesting that the perceived impact was sustained over time.

Conclusion: The PaFein + program significantly improved practitioners' self-perceived knowledge and self-efficacy in pain-free paediatric dental care, with measurable improvements across participating countries. The

comprehensive PaFein + curriculum is expected to further strengthen clinical competencies and support the broader implementation of pain-free dentistry for children.

446 Comparison of computer-controlled intraosseous anaesthesia and conventional anaesthesia in paediatric dental patients: a split-mouth randomised clinical trial

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¹Paediatric Dentistry Department, Aristotle University of Thessaloniki, Thessaloniki, Greece, ²Clinic of Orthodontics and Paediatric Dentistry, University of Zurich, Zurich, Switzerland, ³Dentoalveolar and Implant Surgery Department, Aristotle University of Thessaloniki, Thessaloniki, Greece **Aim:** To compare clinical efficacy and children's acceptance and preference of Computer-Controlled Intraosseous Anaesthesia (CCIA) in comparison with Conventional Local Anaesthesia (CLA) in paediatric dental patients.

Methods: Healthy children aged 5–9 years requiring similar dental treatment on both sides of the same jaw were enrolled from a university paediatric dentistry clinic. A split-mouth randomised design was implemented. Each child received dental treatments with CCIA on one side and CLA on the opposite side, with a week interval. Allocation of technique and treatment sequence were randomised. Children's acceptance and preference -through questionnaires- and efficacy of the methods were recorded. Statistical analysis was performed using linear and logistic regression models, accounting for clustering within individuals ($\alpha = 0.05$).

Results: A total of 64 children participated (mean age 7.0 years; 44% male). Both techniques demonstrated clinical efficacy ($P = 0.59$). CCIA resulted in significantly less discomfort at needle insertion, anaesthetic delivery, and overall procedure. Fear levels were significantly reduced with CCIA compared to CLA ($P < 0.05$ for all comparisons). Although CCIA required a longer administration time, it was associated with absence of soft-tissue anaesthesia and fewer incidents of self-inflicted injury. However, it was more frequently linked to unpleasant taste, altered tooth sensation, and bruising. The majority of children (78%) expressed a preference for CCIA over CLA (22%; $P < 0.001$).

Conclusions: Both techniques were clinically effective. CCIA was associated with less discomfort and anxiety and was preferred by most participants, despite longer delivery time and minor local side effects.

455 Pain perception during dental treatment following local anaesthetic administration in paediatric patients

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¹The University of Hong Kong, Hong Kong, China **Aim:** To evaluate pain perception following local anaesthetic injection in children and identify factors influencing anaesthetic response.

Method: Patients aged 4–8 years requiring treatments involving local anaesthesia by infiltration or inferior alveolar nerve block, were assessed for pain sensation during injection and subsequent treatment. Anaesthetic success was objectively confirmed by the absence of pain upon pricking the gingiva adjacent to the targeted tooth with a dental explorer, and subjectively by the child's report of numbness in the injection area. Data on anxiety levels and treatment type were recorded. The need for supplemental/additional anaesthesia, despite reports of numbness and painless probing, served as the dependent variable in logistic regression analysis, indicating anaesthetic failure.

Results: It was demonstrated that 107 of 142 patients experienced both numbness and painless probing. Among these, 39 (36.4%) required supplemental/additional anaesthesia during treatment. After adjusting for socio-demographic factors, dental caries status, anxiety and pain parameters, children undergoing pulp treatment ($OR = 3.92$, $95\%CI = 1.33-11.58$, $P = 0.013$) and extractions ($OR = 4.88$, $95\%CI = 1.33-17.92$, $P = 0.017$) exhibited a significantly higher chance of requiring supplemental/additional injections compared to those receiving simple restorations.

Conclusion: The findings suggest that the clinical assessment of anaesthetic success, defined by numbness and painless probing, may not reliably indicate effective anaesthesia during more invasive procedures such as pulp treatment and extractions. Therefore, the apparent success of anaesthesia in this context may not reflect true patient comfort or adequate analgesia during complex dental treatments.

480 The impact of behavioural management and inhalation sedation on general anaesthetic escalation in a community paediatric cohort

Jonathan Daniel Kennedy¹

¹Manchester University NHS Foundation Trust, Manchester, United Kingdom **Aim:** To evaluate whether behavioural management, including selective use of inhalation sedation (IHS), within a structured referral pathway influences treatment decision-making and escalation to general anaesthetic (GA) among referred children.

Methods: A retrospective observational study of consecutive child referrals (n = 149) received in December 2023 across four community dental clinics was undertaken. Data extracted included referral urgency, anaesthetic approach requested by General Dental Practitioners (GDPs), and delivered anaesthetic approach. The primary outcome was change between anticipated and delivered anaesthetic approach following behavioural management.

Results: Of 149 referrals, 74% were routine and 26% urgent. Inhalation sedation was requested in 82% of cases, while 9% anticipated GA and 9% requested local anaesthetic (LA) only. Following behavioural management within the community dental service (CDS), delivered anaesthetic approach differed from referral anticipation: 54% received IHS, 23% were referred for GA, and 23% were managed with LA alone or without sedation despite sedation being anticipated at referral. Among the 13 children referred for anticipated GA, 6 (46%) were successfully managed within the CDS without escalation.

Conclusion: Behavioural assessment and management within the community dental service were associated with changes between anticipated and delivered anaesthetic approaches, influencing escalation to general anaesthetic. Appropriate escalation to GA alongside management with local anaesthetic despite anticipated sedation suggests refinement of referral decisions and improved allocation of care within paediatric practice.

Topic 03. Dental trauma

4 Management of a major dental trauma

Farah Faqir¹, Takaaki Sato²

¹Birmingham Community Health Care, Birmingham, United Kingdom, ²Manchester Foundation Trust, Manchester, United Kingdom **Aims:** To present a rare and severe case of multiple maxillary tooth avulsions with displacement into the nasal cavity and soft tissues, and to describe the multidisciplinary approach undertaken to optimise functional and aesthetic outcomes in a 16 year old patient.

Methods: A 16 year old female sustained severe dental trauma after being struck by an electric moped. She fell face first onto concrete, resulting in complete avulsion of UR1, UL1, UL2, and UL3. Two teeth were stored in saline for over 60 min before hospital presentation. Imaging revealed displacement of UL1 into the nasal cavity and UL2 within the left cheek. Under local anaesthetic, all teeth were retrieved, reimplanted, and splinted from UR4–UL4 using composite and wire. The MDT involved both ED and OMFS for acute management (tooth retrieval, reimplantation, splinting, wound management, and hospital admission) and

Restorative Dentistry for subsequent endodontic treatment, long term follow-up, and implant planning.

Results: Root canal treatment (UL3–UR1) was completed at Manchester Dental Hospital. All four reimplanted teeth remained functional and stable, achieving satisfactory aesthetic and occlusal outcomes. UL2 developed acute swelling post-RCT, which resolved with antibiotics. Despite delayed reimplantation and minimal buccal bone support, satisfactory functional and aesthetic outcomes were achieved. Implant placement is planned following confirmation of skeletal maturity, consistent with RCS guidelines.

Conclusion: This case highlights the importance of adaptability when managing complex avulsion injuries, where standard IADT guidelines may not fully apply. Ongoing reviews are essential to monitor for ankylosis, resorption, and other complications until definitive implant rehabilitation.

38 Management of sodium hypochlorite extrusion in a paediatric traumatised tooth

Julie Nash¹, Shannu Bhatia¹, Mechelle Collard¹

¹University Hospital of Wales, Cardiff, United Kingdom **Background:** It is important that clinicians are aware of the potential complications associated with root canal treatment in paediatric patients who have sustained dental trauma and are able to promptly mitigate and manage these complications.

Case report: 10-year-old paediatric patient who experienced an inadvertent sodium hypochlorite extrusion injury through a perforated root canal of a traumatised right maxillary central incisor.

Treatment: The procedure was immediately stopped; the root canal was flushed with saline, and a temporary dressing was placed in the tooth. The patient was given paracetamol and prescribed a course of antibiotics. A CBCT scan was requested which demonstrated a perforation of UR1.

Follow-up: The patient was reviewed by a multidisciplinary team. Treatment options were discussed with the patient and her parents who opted for extraction of the UR1 and replacement with an immediate denture. This would be followed by fixed orthodontic treatment, and a resin-retained bridge to replace UR1. Following the HCA, the incident was reported locally, and a case-based discussion was carried out at the departmental meeting. The paediatric dental staff received training, and a 6-point protocol was developed to assist in staff training.

Conclusion: HCA can be a serious complication of endodontic treatment of traumatised teeth in children. It is important that there is early identification of risk factors, adoption of measures to reduce risks, recognition of signs and symptoms and appropriate management of the incident.

Having staff training and clear local protocols available can help clinicians manage the incident during potentially pressurised conditions.

73 Arrested root development and abnormal enamel of a mandibular first permanent molar following facial trauma at 13 months old: case report of a 7 year-old child

Ellie Emery¹, Samuel Watson¹, Claire Warner¹

¹Community Dental Service CIC, Derby, United Kingdom Background: Abnormalities in tooth morphology and dental hard tissues can occur following trauma to developing tooth germs. Traumatic dental injuries peak at ages 2–4 and 9–10 years; however, arrested root development of the mandibular first permanent molar is rare, as this tooth lacks a primary predecessor susceptible to direct trauma. This report describes a 7 year-old girl who sustained a severe dog bite at 13 months, later presenting with arrested distal root development and enamel defects in a lower first permanent molar.

Case report: The patient was referred to Derbyshire Community Dental Services CIC in December 2021 by her Speech and Language Therapist. She had a history of multiple general anaesthetics for facial reconstruction and traumatic brain injury. A diagnosis of autism significantly impacted cooperation. Regular three-monthly recalls focused on acclimatisation and preventive care. In June 2025, she presented with pain from a carious LLE. Initial management with antibiotics and planned extraction under inhalation sedation failed due to distress, necessitating general anaesthesia. Examination revealed LR6 with severe post-eruptive breakdown, hypoplasia and arrested distal root development. LL6 exhibited deep caries and hypoplasia. Mouth opening was limited due to facial scarring.

Treatment: Fissure sealants and extraction of LR6, LL6, LRC LRB LLE were completed.

Follow-up: Three-month recalls continue, with an orthopantomogram planned to monitor further anomalies.

Conclusions: Arrested root development of a mandibular first permanent molar is uncommon. Early facial trauma can lead to significant dental anomalies, highlighting the need for long-term monitoring, preventive care, and multidisciplinary management in complex cases.

78 CBCT-informed management of a necrotic immature incisor with crown–root fracture and guarded prognosis

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¹KU Leuven, Department of Oral Health Sciences, and Paediatric Dentistry and Special Dental Care, University Hospitals Leuven, Leuven, Belgium Background: Traumatic crown–root fractures in immature, necrotic permanent teeth pose significant challenges for treatment planning and long term rehabilitation.

Case report: A healthy 10 year-old boy was referred to the Paediatric Dentistry Unit (University Hospitals Leuven) six months after a collision resulted in trauma to the immature maxillary right central incisor (tooth 11). Following temporary repair, the tooth developed an abscess and was managed with open drainage prior to referral. Clinical examination revealed a complicated enamel–dentin fracture with a palatal crown–root fracture and a mobile coronal fragment; sensibility testing was negative and percussion was tender. Cone beam computed tomography (CBCT) confirmed periradicular pathology, exposed pulp, and a crown–root fracture extending to the alveolar bone level.

Treatment: Endodontic treatment was completed in two visits. The palatal fragment was removed, and deep margin elevation performed. Following chemomechanical disinfection, calcium hydroxide intracanal medicament was placed. At one month, apexification with mineral trioxide aggregate was completed. Endodontic control was achieved; however, the prognosis for tooth 11 remains guarded given the extent of structural compromise. A multidisciplinary team will assess the feasibility of surgical crown lengthening with indirect restoration versus autotransplantation as definitive rehabilitation.

Follow-up: Follow up will proceed according to IADT guidelines, with final treatment determined after multidisciplinary consultation.

Conclusion: CBCT aided diagnosis, timely referral, and staged apexification can stabilise immature necrotic teeth with crown–root fracture, preserving options for definitive multidisciplinary rehabilitation.

81 Management of non-vital maxillary central incisors following dental trauma

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¹Manchester University, Manchester, United Kingdom, ²University Dental Hospital of Manchester, Manchester, United Kingdom Background: Traumatic dental injuries (TDIs) are frequent in children, and maxillary central incisors

(MCIs) are most affected. Avulsion is a severe TDI associated with a high risk of pulpal necrosis. Guidance from the International Association of Dental Traumatology (IADT) emphasises timely reimplantation, appropriate splinting, early assessment of pulpal status, and long-term monitoring.

Case report: A 12 year-old male sustained avulsion of the UL1 following a blow to the face. Reimplantation, repositioning, and splinting were undertaken at a local Emergency Department prior to referral to University Dental Hospital of Manchester (UDHM). He presented to UDHM in the permanent dentition with a Class II division 1 incisor relationship, anterior open bite, increased overjet, and an incisal edge discrepancy between the maxillary central incisors. UL1 appeared elongated in comparison to the UR1, potentially related to suboptimal repositioning. Clinical and radiographic assessment confirmed pulpal necrosis of UL1. Subsequent review identified pulpal necrosis and evidence of periodontal ligament injury affecting the UR1.

Treatment: Management followed IADT guidance including splint removal and extirpation of UL1. Root canal treatment was subsequently completed for both MCIs. The patient and parents were counselled regarding the guarded prognosis and requirement for long-term review. The general dental practitioner has been requested to refer the patient locally for an orthodontic assessment due to the malocclusion and incisal edge mismatch.

Conclusion: This case highlights the complex sequelae which may occur following TDIs, including delayed involvement of adjacent teeth, and reinforces the importance of guideline-led management and structured follow-up.

84 Luxation of two permanent maxillary central incisors during active orthodontic treatment

Silke Anke Beckers¹, Dominique Declerck¹, Mostafa EzEldeen¹, Geertje Van Gorp¹

¹**KU Leuven, Leuven, Belgium Background:** Sports-related activities are a common cause of dental trauma in children and adolescents. Equestrian sports, such as showjumping, involve a high risk of dental injuries, for which the use of a mouthguard is recommended.

Case report: A healthy 14 year-old girl presented to the dental emergency Department of the University Hospitals Leuven with extrusive and palatal luxation of both teeth 11 and 21. Clinical examination revealed displacement of teeth 11 and 21 despite the presence of orthodontic brackets.

Treatment: Teeth 11 and 21 were immediately repositioned and stabilised using a flexible splint (0.3 mm nickel-titanium wire). The original orthodontic wire in the maxillary arch was removed. Pulpectomy was performed after two weeks. One month later, endodontic treatment was completed using the thermal obturation technique with gutta

percha and TopSeal (Dentsply Sirona), and the splint was removed.

Follow-up: After endodontic treatment, the patient was closely followed, and after five months, approval was given to resume orthodontic therapy. Four months after this reinitiation, the affected teeth showed no clinical or radiographic abnormalities. Tooth 22 demonstrated a delayed response to sensibility testing at the initial examination, with progressive improvement at each follow-up visit. Further follow-up is planned.

Conclusion: Teeth that have sustained dental trauma are more susceptible to pulp necrosis and root resorption when exposed to orthodontic forces. Therefore, a restart of orthodontic therapy after dental trauma should only be considered after several months of reassuring follow-up. During orthodontic treatment, continued clinical and radiographic monitoring remains essential.

88 From trauma to transformation: rehabilitation of non-vital permanent incisors using bioceramic apexification and aesthetic restorative techniques

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¹**University of Manchester, Manchester, United Kingdom,**

²**University Dental Hospital Manchester, United Kingdom Background:** Traumatic dental injuries (TDIs) commonly affect permanent incisors in children and adolescents and may result in pulpal necrosis, discolouration and aesthetic concerns. Early diagnosis and multidisciplinary management are essential to restore function, aesthetics and long-term tooth prognosis and patient confidence.

Case report: A 12 year-old patient presented with a history of dental trauma following a fall, resulting in fractures of UR1 and UL1. Fragments were not retained. Initial management included repositioning and splinting under maxillofacial care, followed by referral from the general dental practitioner. Subsequent assessment confirmed uncomplicated enamel-dentine fractures restored with composite. The patient presented with permanent dentition, fair oral hygiene, low caries risk and aesthetic concerns. At review, radiographs demonstrated intact periodontal ligament spaces with periapical radiolucencies. Both incisors were discoloured and non-vital, with negative sensibility testing, consistent with pulpal necrosis secondary to trauma.

Treatment: Endodontic treatment was completed for both incisors. Following pulp extirpation, canals were medicated with non-setting calcium hydroxide to promote disinfection and control inflammatory resorption. After eight weeks the patient was asymptomatic. Apical plugs were formed using TotalFill bioceramic material and teeth were obturated using a thermoplasticised system. Internal/external

bleaching was performed to improve shade and optimise aesthetic integration.

Follow-up: Direct composite restorations were completed 2–3 weeks post-bleaching using a palatal putty index and layered composite technique.

Conclusion: Bioceramic apexification combined with bleaching and adhesive restoration provides predictable functional and aesthetic outcomes following TDIs. Long-term review and preventive care remain essential to monitor healing, detect complications and maintain restoration longevity and patient satisfaction.

107 From guarded prognosis to hard tissue healing: a root fracture case

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¹King's College London, London, United Kingdom, ²King's College Hospital, London, United Kingdom **Background:** Root fractures account for 0.5–7% of traumatic injuries to the permanent dentition and may result in pulp canal obliteration (69–73%), pulp necrosis (18–44%), or root resorption (60%). Prognosis is influenced by root development, fracture location, displacement, and the quality of repositioning and splinting. Healing patterns include hard tissue union, connective tissue healing, or interposition of connective tissue and hard tissue. Cervical root fractures carry the poorest prognosis of 33%, while hard tissue union is associated with the lowest risk of tooth loss.

Case report: A medically fit 13 year-old male sustained a root fracture of UL1 following a bicycle accident. Emergency repositioning and flexible splinting from UR2-UL2 was provided by the GDP, and referral to KCH. Clinical and radiographic assessment confirmed good repositioning. Parallax view radiographs indicated a mid-root and cervical root fracture. UL1 was responsive to EPT but not to ethyl chloride.

Treatment: Followed IADT 2020 clinical and radiographic reviews. At four weeks, the pulpal status was uncertain, with grey discolouration and no sensibility response. The guarded prognosis was discussed, including possibility for root burial and prosthetic replacement. Following splint removal at 2 months, UL1 demonstrated normal physiological mobility and regained sensibility.

Follow-up: At six months, radiographs showed hard tissue union and coronal pulp canal obliteration. At twelve months, UL1 remained responsive with no clinical or radiographic abnormalities.

Conclusion: Despite an initially poor prognosis due to multiple fractures in a mature root, favourable healing was achieved. This case highlights the importance of prompt repositioning, splinting, and close follow-up in optimising outcomes for root-fractured teeth.

109 Timing, technique, and trauma: the consequences of delayed reimplantation

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¹University of Manchester, Manchester, United Kingdom, ²University Dental Hospital of Manchester, Manchester, United Kingdom **Background:** Dental avulsion is a severe traumatic dental injury, and reimplanted permanent teeth have a guarded prognosis, particularly when extra-oral dry time is prolonged. Delayed or incorrect reimplantation can accelerate inflammatory sequelae and compromise long-term tooth survival. Accurate and timely reimplantation is essential to optimise outcomes.

Case report: A 15 year-old male was referred to the University Dental Hospital of Manchester (UDHM) following avulsion of the UL1 during rugby training. The tooth was stored in milk and replanted and splinted by a general dental practitioner approximately 17 h post-injury. He was assessed 15 days post-injury at UDHM. Clinical and radiographic assessment at presentation revealed the UL1 to be replanted in an extruded position, with a composite and wire splint bonded to the labial surfaces of UR1, UL1 and UL2.

Treatment: In accordance with International Association of Dental Traumatology guidance, splint removal and extirpation of the UL1 were undertaken to reduce the risk of infection-related resorption. The patient subsequently developed increasing mobility, further extrusion, occlusal interference and swelling associated with the UL1. UL1 was deemed non-restorable, necessitating extraction. Management then focused on maintaining alveolar bone, function and aesthetics during adolescence.

Follow-up: A maxillary removable appliance was provided as an interim solution, followed by planning for a resin-retained bridge once oral health and hygiene stabilised.

Conclusion: This case illustrates how delayed reimplantation combined with incorrect repositioning can significantly worsen prognosis following dental avulsion. A staged management approach enabled restoration of function and aesthetics while safeguarding long-term restorative possibilities and patient wellbeing.

126 Conservative multidisciplinary management of complicated crown-root fractures in paediatric patients: a 24 month follow-up of two cases

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¹Paediatric Dentistry, Faculty of Dentistry, Sakarya University, Sakarya, Türkiye **Background:** Complicated crown-root fractures in paediatric patients present a significant clinical challenge, often compromising the supra-crestal tissue attachment and moisture control. Preserving these

teeth requires precise multidisciplinary intervention. This case series reports the 24 month clinical outcomes of a conservative endodontic-periodontal approach in two paediatric patients.

Case reports: Two male patients (11 and 14 years old) referred to our clinic following dental trauma to the maxillary anterior region. Case 1: An 11 year-old male presented with a complicated crown fracture on tooth #11 and complicated crown-root fracture with a mobile palatal fragment on tooth #21 following a bicycle accident. Case 2: A 14 year-old male presented after a fall with a complicated crown-root fracture on tooth #11 and a complicated crown fracture on tooth #21. In both cases, radiographic and clinical examinations confirmed that the involved teeth were mature with closed apices.

Treatment: Following the removal of mobile fragments and completion of root canal treatments, diode laser-assisted gingivoplasty was performed. Final restoration was completed using a modified metal automatrix system for optimal cervical adaptation and layered adhesive composite resin techniques.

Follow-up: At the 24 month recall, the teeth remained in function and maintained their aesthetic integrity. Assessments confirmed periodontal health with no signs of marginal leakage, inflammatory root resorption, or periapical pathology.

Conclusion: Complicated crown-root fractures can be successfully managed through a minimally invasive, multidisciplinary approach. The integration of laser-assisted gingivoplasty with advanced adhesive techniques provides a predictable solution that restores function and aesthetics while avoiding more invasive surgical procedures in young permanent dentition.

127 Clinical management of cervical internal resorption in permanent incisors: a case report

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¹LSMU The Clinic of Oral Health and Paediatric Dentistry LSMU, Kaunas, Lithuania **Background:** Internal resorption is a rare pathological condition, the most associated with dental trauma and infection, and may remain asymptomatic for years. This Case report describes the multidisciplinary management of advanced cervical internal resorption affecting two permanent incisors in an adolescent patient.

Case report: A 17 year-old male presented to the LSMU Clinic of Oral Care and Paediatric Dentistry in January 2024 with increased mobility of teeth 21 and 22. The patient reported dental trauma to the affected teeth seven years earlier, with no symptoms until the recent presentation. Clinical and radiographic examination revealed extensive cervical

internal resorption involving both teeth, with significant loss of coronal tooth structure.

Treatment: Following multidisciplinary consultation, a phased treatment plan was implemented. The coronal portions of the affected teeth were removed, preserving the roots. Granulation tissue was removed, bleeding controlled, and endodontic treatment was performed. The canals were subsequently obturated with sealer and gutta-percha. Mucosal healing supported with Alveogyl dressing. An immediate removable partial denture was provided. Definitive treatment includes planned root extraction and implant placement after completion of craniofacial growth.

Follow-up: Radiographic and clinical follow-ups at 4 and 7 months demonstrated satisfactory healing of surrounding tissues and stable endodontic outcomes, with no signs of complications.

Conclusion: This case highlights the importance of early diagnosis and a staged, multidisciplinary approach in managing advanced internal resorption in young patients, aiming to preserve function and aesthetics until definitive rehabilitation is feasible.

153 Diagnosis and management of complex dental trauma in a 10 year-old patient presenting with multiple crown and root fractures with pulpal involvement

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¹Liverpool University Dental Hospital, Liverpool, United Kingdom **Background:** Traumatic dental injuries range from mild to severe and have a profound impact on patients. Management of teeth with concurrent injuries is complex and requires thorough investigation and planning.

Case report: A 10 year-old male patient attended following dental trauma involving a seesaw. His general dentist diagnosed and temporarily managed a complicated enamel-dentine fracture of UR1 and uncomplicated enamel-dentine fracture of UL1. Medically, the patient had autism and attention-deficit/hyperactivity disorder (ADHD). Periapical radiography and CBCT was used for further investigation of the injuries, and UL1 was shown to have a comminuted crown-root fracture, with a horizontal cervical third root fracture involving pulp and vertical mesial crown fracture.

Treatment: UR1 was managed with a pulpotomy and resin composite restoration. Consideration was given to the possibility of removing the coronal fragment of UL1, endodontically treating the apical fragment and burying the root to preserve bone. However, due to the location of the root fracture, UL1 was surgically extracted under general anaesthesia and replaced with an immediate partial denture.

Follow-up: The patient was reviewed following the fit of their denture and there is a long-term plan for continued monitoring of UR1 and adjustment/replacement of the denture as the patient grows.

Conclusion: This case demonstrates the challenging diagnosis and management of complex dental trauma in a young patient with limited compliance. Although a major aim of trauma management is to preserve the vitality and function of natural teeth, it is not always feasible to retain teeth, and sometimes that is the best outcome possible.

161 Good things don't always come in threes: management of adverse dental trauma outcomes

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¹University Dental Hospital of Manchester, Manchester, United Kingdom, ²University of Manchester, Manchester, United Kingdom **Background:** Management of traumatic dental injuries in growing patients is complex and can affect their long-term dental health and aesthetics. The importance of prompt and appropriate care for these children has been highlighted to minimise the risk of complications.

Case report: A 14 year-old boy presented to the University Dental Hospital of Manchester six days following an assault. Prior to this, an avulsed UL1 and UL2 and a laterally luxated UL3 had been repositioned within an emergency department and stabilised with three separate composite and wire splints. Examination revealed a palatal dehiscence extending from UR3-UL5 associated with an alveolar fracture and loss of labial gingivae around the splinted teeth. UR1 and UL4 had also experienced subluxation injuries and UL5 a concussion injury.

Treatment: Immediate management involved repositioning of the alveolar fracture and closure of the palatal dehiscence with sutures. The splints were removed and teeth stabilised passively using a fixed orthodontic appliance. UL1 UL2 and UL3 were extirpated and subsequently root filled using a flowable bioceramic material. UL4 was affected by external inflammatory root resorption. This tooth was extracted and orthodontic space closure remains ongoing.

Follow-up: Monitoring has been completed as per IADT guidelines with a 24 month follow up period observed to date. Challenges have been experienced in addressing the patient's long term aesthetic concerns following his complex injury.

Conclusion: Initial management of traumatic dental injuries can greatly impact long-term outcomes in the developing dentition. When complications arise, priority should be placed on maintaining or improving function and aesthetic concerns.

165 Conservative management of a paediatric mandibular parasymphysis fracture using a digital workflow and acrylic cap splint: a case report

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¹Paediatric Dentistry, Faculty of Dentistry, Sakarya University, Sakarya, Türkiye, ²Oral and Maxillofacial Surgery, Sakarya University, Sakarya, Türkiye **Background:** Mandibular fractures in children are significant maxillofacial injuries that may occur following high-energy trauma. Due to ongoing craniofacial growth and the presence of developing permanent tooth germs, conservative treatment modalities are preferred in paediatric patients. Closed reduction with an acrylic cap splint is considered a minimally invasive approach that preserves growth centres.

Case report: A six year-old male patient was referred to our clinic six days after sustaining head trauma as a result of a traffic accident and receiving conservative hospital management. Clinical examination and panoramic radiographic evaluation revealed a displaced fracture line in the left parasymphysis region of the mandible.

Treatment: Considering the patient's age and early mixed dentition stage, closed reduction under general anaesthesia was planned to protect developing permanent tooth germs. A digital impression was obtained using an intraoral scanner to eliminate discomfort associated with conventional impression techniques. Using the digital model, the fracture line was simulated and ideal occlusion was established, after which an acrylic cap splint was digitally designed, fabricated, and applied to immobilise the fractured mandibular segments. The splint remained in place for one month.

Follow-up: At the 10 month follow-up, stable occlusion and complete restoration of mandibular function were observed. Radiographic evaluation confirmed osseous healing, with no pathological findings affecting permanent tooth germs.

Conclusion: Conservative management of paediatric mandibular parasymphysis fractures using a digitally designed acrylic cap splint is a safe, effective, and minimally invasive treatment option. This approach preserves developing tooth germs and growth potential while providing favourable clinical and radiographic outcomes.

170 "Root Fractures Can Heal": a mid-third root fracture managed without endodontic treatment—a case report

Olivia Bawa¹, Anna Kana¹, Sondos Albadri¹

¹Liverpool University Dental Hospital, Liverpool, United Kingdom **Background:** Horizontal root fractures in permanent incisors occur in 0.5–7% dental trauma injuries to

permanent teeth. Prognosis depends on fracture location, displacement, root development stage, and timely repositioning and splinting. Long-term monitoring is crucial, as pulp necrosis can occur (25% incidence) in the coronal fragment and complications may arise.

Case report: A 13 year-old male, medically fit and well, was referred to the paediatric dentistry department after sustaining dental trauma. His upper left central incisor (21) was severely displaced and extruded; a mid-third horizontal root fracture was diagnosed radiographically with intraoral periapical.

Treatment: Initial treatment within 24 h of injury involved repositioning and splinting with titanium trauma splint for four weeks. Glass ionomer cement placed on the mandibular molars discluded 21, to promote periodontal healing. At five weeks post-injury, 21 was slightly mobile, unresponsive to sensibility testing, tender to percussion, and showed no signs of infection.

Follow-up: Over ten months, the tooth remained asymptomatic with no clinical or radiographic signs of inflammatory pathology. The crown's colour changed to yellow, indicating root canal obliteration. The tooth was unresponsive to cold sensibility testing but did respond to electric pulp testing. The coronal fragment remained functional and stable, and no endodontic treatment was necessary. At three months, root fracture healing was diagnosed, likely involving connective tissue, based on clinical and radiographic signs.

Conclusion: This case illustrates that mid-third root fractures can heal conservatively when promptly repositioned and splinted in line with IADT guidelines. Careful clinical and radiographic monitoring helped avoid unnecessary endodontic procedures.

194 Parental awareness of traumatic dental injuries in children: emergency management, post-operative care and prevention

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¹Dokuz Eylül University, İzmir, Türkiye **Aim:** To assess parental awareness of traumatic dental injuries (TDIs) in children, with a focus on emergency management, post-operative care, and preventive practices.

Methods: This cross-sectional questionnaire-based study included parents of children aged 2–14 years attending their first visit to the paediatric dentistry clinic at Dokuz Eylül University. The questionnaire assessed parental awareness across domains related to general TDI knowledge, emergency management, post-operative care, and prevention. Each domain and total awareness scores were calculated. Associations between awareness scores and

sociodemographic variables were statistically analysed. P-values < 0.05 were considered significant.

Results: A total of 394 parents participated (62.4% mothers and 37.6% fathers; mean age 39.5 years). The mean total awareness score was 23.07 ± 7.88 (max: 48). Higher educational level was significantly associated with increased awareness scores across all domains ($p < 0.001$). Working parents and those with fewer children showed significantly higher awareness ($p < 0.001$). A previous history of dental trauma was associated with higher general knowledge scores ($p < 0.001$). Although 78.7% of parents correctly identified appropriate emergency management for avulsed teeth, only 30.9% were aware of the correct storage media. Awareness regarding post-operative management was inadequate, particularly in relation to the limitation of physical activity following trauma (14.7%).

Conclusion: Parental awareness of traumatic dental injuries remains insufficient at critical stages of trauma management, particularly in post-operative care and prevention. Strengthening parental understanding of the full continuum of TDI management is essential to support timely intervention and favourable long-term outcomes in children.

211 Management of an alveolar fracture in primary dentition: case report

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¹Hacettepe University, Faculty of Dentistry, Department of Paediatric Dentistry, Ankara, Türkiye **Background:** Fractures of the alveolar process are frequently associated with complete or partial luxation of the teeth and/or involvement of the basal bone of the jaw. These injuries typically result from blunt or penetrating trauma. This Case report presents the management of an alveolar fracture in the primary dentition and one year of follow-up outcomes.

Case report: A 5 year-old healthy male patient presented to our clinic approximately 24 h after sustaining trauma. Intraoral examination revealed buccal displacement of the maxillary right primary central and lateral incisors (#51 and #52), as well as disruption of the alveolar bone continuity. Radiographic examination and cone-beam computed tomography (CBCT) confirmed the diagnosis of an alveolar fracture.

Treatment: Under local anaesthesia, the alveolar segment involving teeth #51 and #52 was carefully repositioned. Stabilisation was achieved using a semi-rigid splint fabricated with a 0.4 mm stainless steel wire, incorporating teeth #61, #51, #52, and #53.

Follow-up: At the one-week follow-up, stability of the splint was assessed and instructions for oral hygiene were reinforced. The splint was removed after four weeks. Clinical

and radiographic evaluations performed at six months and one year revealed normal healing without any pathological findings.

Conclusion: In the management of alveolar fractures in the primary dentition, early diagnosis, appropriate repositioning, and adequate stabilisation are essential for achieving favourable clinical and radiographic outcomes.

215 Reasons for tooth loss among danish children and adolescents with traumatic dental injuries: an outcome-selected retrospective descriptive study

Mathilde Hansen¹, **Josephine Solgaard Henriksen**¹, **Eva Lauridsen**², **Simon Storgård Jensen**^{2,3}, **Nuno Vibe Hermann**¹

¹Paediatric Dentistry and Clinical Genetics, Department of Odontology, Faculty of Health and Medical Sciences, University of Copenhagen, Copenhagen, Denmark, ²Department of Oral and Maxillofacial Surgery, Copenhagen University Hospital, Rigshospitalet, Copenhagen, Denmark, ³Department of Odontology, Faculty of Health and Medical Sciences, University of Copenhagen, Copenhagen, Denmark **Aim:** Investigation of clinical characteristics, care pathways, documented complications and reasons for tooth loss among children with TDI in the Danish municipal dental service. Furthermore, the study aimed to identify, based on retrospective clinical records, injured teeth classified as potentially avoidable in relation to documented management and relevant clinical guidelines.

Methods: The patients in this outcome-selected retrospective descriptive study were referred to the Regional Dental Care at Copenhagen University Hospital (Rigshospitalet) in 2011—2021. The study included 65 patients (80 permanent teeth). Fifty-five teeth were already lost due to complications after trauma when data was collected. Twenty-five teeth were expected to be lost later. The material included dental records, X-rays and clinical photos. Thirty variables including general patient data; diagnosis; initial examination/treatment; burden of care; and complications were obtained and analysed using descriptive statistics.

Results: Forty-five teeth (56%) were originally diagnosed with avulsion, while the rest were diagnosed with subluxation, extrusion, intrusion, lateral luxation, enamel-dentin fracture, enamel-dentine-pulp fracture, crown-root fracture with pulp involvement or root-fracture. Replacement resorption was observed in 35% of the teeth (n = 28) and a combination of multiple complications occurred for 25% of the teeth (n = 20). 5% of the tooth loss cases might potentially be avoided.

Conclusion: Avulsion was the most frequent TDI leading to tooth loss, followed by crown-root fracture with pulp involvement. Tooth loss due to complications was also

observed for less severe diagnosis. Based on the observations in this study, opportunities for optimisation of follow-up and treatment were identified.

221 Case report: replantation of avulsed permanent teeth according to IADT guidelines—case series

Ecem Gunduz¹, **Sertac Peker**¹

¹Marmara University, Department of Paediatric Dentistry, Istanbul, Türkiye **Background:** Permanent tooth avulsion is a dental emergency with a prognosis largely dependent on extra-alveolar time and storage conditions. Current guidelines of the International Association of Dental Traumatology (IADT) provide evidence-based recommendations for the management of traumatic dental injuries.

Case report: This report describes two patients who presented to our clinic two days apart. The first patient was a 10 year-old child with a medical history of hypoglycaemia. Initial emergency management was performed at another centre, and the patient was referred to our clinic approximately one hour after trauma. In this case, the maxillary right central incisor (tooth 11) was avulsed, while the maxillary left central incisor (tooth 21) was extruded. The second case involved a systemically healthy 12 year-old child, in whom the avulsed maxillary left central incisor (tooth 21) was stored in milk and brought to our clinic one day after trauma.

Treatment: In both cases, the avulsed teeth were replanted and stabilised using a flexible splint in accordance with the IADT guidelines. Considering the risk of pulpal complications, MTA-supported endodontic treatment was performed during follow-up.

Follow-up: Both cases were followed clinically and radiographically for 2 years. No pathological root resorption, ankylosis, or periapical pathology was detected.

Conclusion: In addition to extra-alveolar time and storage conditions, patient age, systemic health status, and stage of root development influence outcomes in permanent tooth avulsion. Case-specific treatment approaches based on current dental trauma guidelines are essential for favourable long-term clinical and radiographic results.

222 Providing the right trauma care at the right time—auditing the management of paediatric dental trauma referrals to the sussex community (SCFT) special care dental service (SCDS)

Eleanor Clinton¹, **Richa Rughani**²

¹Sussex Community NHS Foundation Trust, United Kingdom, ²Royal National ENT and Eastman Dental Hospital, London, United Kingdom **Aim:** (a) to investigate the num-

ber and type of paediatric dental trauma referrals accepted by SCFT SCDS, (b) to assess whether subsequent management supports patients receiving treatment compliant with IADT guidelines, (c) to investigate clinician confidence and experience managing these cases.

Methods: All trauma referrals from General Dental Practitioners received from 01/01/2024 to 31/03/2024 for patients under 16 years old were reviewed. The type of injury, timeframe for assessment and treatment, triage priority category and clinical management were recorded. Cases were categorised as 'acute' or 'non acute'. 'Acute' cases were assessed as being compliant or non-compliant with IADT guidance. Dentists in the service received a survey to assess their perceived confidence and competence managing these cases.

Results: 15 trauma cases were identified; 6 primary teeth, 9 permanent teeth. 7 cases were classified as 'acute', 6 of which were assessed as compliant with IADT guidelines. 1 case was non-compliant due to a delay in the timeframe for initial assessment. 14 dentists responded to the survey. On a 5 point scale (where 5 represents the highest level of paediatric dental trauma knowledge), 7 dentists rated themselves as $\geq 4/5$, and 7 rated themselves as $3/5$. Experience managing dental trauma cases within the previous 12 months ranged from 0 to 12+ cases.

Conclusions: Whilst most cases (86%) were compliant with IADT guidelines and seen in appropriate timeframes, there is a need to review and adjust the priority categories for triage of new trauma patients. The team may benefit from further training and experience managing paediatric dental trauma.

226 Intraligamentary anaesthesia in paediatric patients: is it an effective technique? A systematic review and meta-analysis

Claudia Salerno¹, **Silvia Cirio**¹, **Aesha Allam**¹, **Maria Grazia Cagetti**¹

¹Department of Biomedical, Surgical, and Dental Sciences, University of Milan, Milan, Italy **Aim:** Effective pain control is fundamental in paediatric dentistry. Supraperiosteal infiltration (SPA) and inferior alveolar nerve block (IANB) are the most used local anaesthesia (LA) techniques. This review evaluated the available evidence on intraligamentary anaesthesia (ILA) to assess its efficacy, safety, and viability as an alternative to conventional techniques.

Methods: The review protocol was registered in PROSPERO (CRD420261284494) and conducted in accordance with PRISMA guidelines. Three databases were searched for RCTs published in English after 2000 involving children. Studies that compared ILA, delivered via either traditional or computer-controlled systems (CC-ILA), with other LA

techniques were included. Risk of bias was assessed using the Cochrane's RoB 2.0 tool. Meta-analysis was performed using a random-effects model with Stata/SE 18.0.

Results: The database search yielded 347 records; after duplicate removal, 153 articles were screened. Thirty-four papers were assessed, of which 13 studies were included, and three were retained for the meta-analysis. Significantly lower pain perception and improved physiological parameters were reported with ILA compared with IANB. CC-ILA demonstrated greater efficacy and reduced procedural discomfort than conventional ILA. Patients favoured CC-ILA over IANB (68.0% vs. 32.0%). Postoperative lip biting occurred more frequently following IANB and CC-SPA than after ILA. Overall risk of bias was low. Meta-analysis revealed no significant difference in pain perception between ILA and IANB ($z = -0.26$; $p = 0.79$).

Conclusion: ILA, particularly CC-ILA, appears to be an effective, safe, and well-tolerated technique and may be considered a valid first-line anaesthetic option in paediatric dentistry.

249 Developmental disturbance or crown fracture? A case of misdiagnosed circular enamel hypoplasia presenting as horizontal crown fracture

Maimona Almaker¹, **Katherine O'Donnell**¹

¹University of Leeds, School of Dentistry, Leeds, United Kingdom **Background:** Circular enamel hypoplasia in the permanent dentition is a rare developmental disturbance following injury to the primary predecessor tooth/teeth.

Case report: An 11 year-old boy was referred to Leeds Dental Institute with a suspected horizontal crown fracture of UL1, associated with recurrent pain and extra-oral swelling requiring antibiotics. Neither the patient nor his parent reported recent trauma; however, they recalled trauma to the primary incisors at 2–3 years-of-age. Clinical examination demonstrated yellow/brown well-demarcated discoloured patches on UL1 and UL2. A periapical radiograph revealed an apical radiolucency associated with UL1 and two pulp stones within the coronal third, with a horizontal radiolucent line crossing the crown on the cervical third. CBCT imaging demonstrated a circular enamel defect on UL1, extending to the amelo-dentinal junction with no evidence of communication with the pulp space. A diagnosis of localised enamel hypoplasia UL1 and UL2, leading to pulpal necrosis and apical periodontitis of UL1, was established. Additionally, UL1 presented with an immature apex.

Treatment: Endodontic management of UL1 was initiated via a palatal access preparation. Pulp stones were removed with braiding of 2 barbed broaches. After positioning the bioceramic putty into the apical area, the canal was filled with thermoplastic gutta-percha. Aesthetic management of UL1 and

UL2 included macro-abrasion, micro-abrasion, resin infiltration (ICON), and composite restoration.

Follow-up: A one-year review is scheduled.

Conclusion: Careful history-taking and thorough clinical and radiographic examination are essential to differentiate circular enamel hypoplasia from horizontal crown fracture.

255 Acute paediatric oral and maxillofacial presentations requiring theatre intervention: a six month review

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²Leeds Teaching Hospitals Trust, Leeds, United Kingdom **Background:** Paediatric patients attending with acute facial injuries and infections require operative management for which GA is required. Understanding the demographic profile and patterns of presentation is essential for service planning, safeguarding awareness, and preventative strategies. This study evaluates paediatric patients listed for acute theatre over a six-month period in a tertiary OMFS unit.

Methods: A retrospective review was conducted of all paediatric patients (≤ 16 years) listed for acute theatre between September 2025 to February 2026. Patients were categorised into two principal groups: facial lacerations (\pm dental trauma) and facial swellings.

Results: A total of 46 paediatric patients required acute operative management during the study period. The majority presented with facial lacerations ($n = 32$, 69.6%), while 14 patients (30.4%) presented with facial swellings. The facial swelling cohort demonstrated a slight female predominance (8 females, 6 males; M:F ratio 1.3:1). Ages ranged from 8 months to 15 years. Younger children (≤ 6 years) accounted for nearly half of swelling cases. These swellings were necessitated incision and drainage and extraction under GA. Paediatric facial swellings affected a broader age range. The significant representation of children under 4 years is comparative to similar Case reports however this unit is the presence of an onsite paediatric dental team.

Conclusion: These findings support the use of paediatric dentistry referral by OMFS prior to surgical intervention. The already established department gold standard is for paediatric dental review prior to general anaesthetic to minimise intervention. Further observation of the patterns of theatre listings can further inform service planning.

256 Clinical management of traumatic lip injury in a paediatric patient with autoimmune encephalitis: a case report

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¹University of Manchester, Manchester, United Kingdom,

²King Fahad Medical City, Riyadh, Saudi Arabia **Background:** Self-inflicted oral injuries are uncommon but challenging complications in paediatric patients with severe neurological disorders.

Case report: This report describes the clinical management of traumatic lip biting in a 13 year-old female diagnosed with autoimmune encephalitis and admitted under paediatric neurology care. During hospitalisation, the patient developed severe lower lip oedema secondary to involuntary biting associated with seizure activity. The paediatric dentistry team was consulted for assessment and management. Due to the patient's acute medical condition and limited cooperation, fabrication of an intraoral appliance was not feasible. Therefore, a conservative, non-invasive approach was adopted. A mouth gag was placed to maintain oral opening and prevent further trauma, allowing soft tissue recovery.

Follow-up: evaluation demonstrated progressive healing with significant reduction in oedema. Once the acute phase subsided, the mouth gag was removed, and protective gauze was used as a transitional measure. After two months of follow-up, complete resolution of the injury was observed, with restoration of normal lip contour and function.

Conclusion: This case highlights the importance of individualised, minimally invasive management strategies for self-mutilating oral injuries in medically compromised paediatric patients and emphasises the role of multidisciplinary collaboration in achieving favourable outcomes.

265 Service evaluation of a joint orthodontic-paediatric-restorative-oral surgery multidisciplinary clinic for management of complex dental cases at a UK Dental Hospital

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Aim: To evaluate patient demographics, referral sources, case selection and treatment provision through the Orthodontic-Paediatric-Restorative-Oral Surgery multidisciplinary clinic (MDT) pathway at a University Dental Hospital in England.

Methods: A retrospective evaluation was conducted of new patient encounters (NPEs) across 19 MDT sessions from January 2023 to December 2025. Data collected from all NPEs included referral source, priority, timing from

MDT referral to assessment, and treatment provision following assessment. Records identified 68 NPEs within this time-period. Two patients were excluded, having undergone an additional NPE prior to January 2023. 66 records were analysed.

Results: Age at NPE ranged from 8—18 years (median: 13 years). The majority of referrals originated from the Paediatric department ($n=60$, 90.9%). Mean wait time for routine assessment was 325 days and 127 days for priority cases. The most common reason for referral was complex dental trauma ($n=35$, 53.03%), then developmental abnormalities ($n=11$, 16.67%). 86.3% ($n=57$) of cases were accepted for further single-specialty (44%, $n=25$) or multi-specialty (56.1%, $n=32$) treatment. Across multi-specialty plans, the highest proportion involved the Orthodontic department (62%), followed by the Paediatric department (58.6%). Of accepted cases, 73.7% ($n=42$) are awaiting or active in treatment, with 26.3% completed. 10.6% of cases were discharged without treatment.

Conclusion: This service evaluation demonstrates appropriate utilisation of the MDT clinic. The 86.3% acceptance rate suggests referring specialties identify candidates suitable for MDT assessment. Low discharge rate without treatment (10.6%) suggests efficient case selection at referral stage. Wait times for assessment remain a challenge, representing an area for service improvement.

266 Improving documentation standards: an audit of the paediatric dental trauma clinic at King's College Hospital

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¹NHS England, United Kingdom, ²King's College Hospital, London, United Kingdom **Aim:** High-quality documentation of dental trauma is essential for patient safety and adherence to GDC, IADT and BSPD guidance. The aim was to review 100 different patient records from the paediatric dental trauma clinic and assess the quality of documentation concerning history taking, diagnosis, treatment planning, and MDT involvement.

Methods: A retrospective review of 100 unique patient records was conducted for children attending the clinic between April-June 2024. Records were identified on EPIC and screened for duplicates. A structured data-collection tool assessed compliance with the standards. Additional data collected included use of the trauma pro-forma and trauma stamp, safeguarding concerns, complications, follow-up arrangements, and communication with GDPs. Findings were analysed to determine compliance levels, trends in documentation quality, and areas requiring intervention.

Results: The sample included 17 new patients, 59 trauma review patients, and 24 dental treatment patients.

New patient documentation was largely compliant, achieving 100% for diagnosis, treatment planning and MDT documentation, and 94% for history/examination. Trauma review patients achieved 88% compliance for history/examination, 96% for diagnosis and 98% for treatment plans. Dental treatment appointments demonstrated lower documentation quality, with 50% meeting the history/examination standard, 66% achieving accurate diagnosis, and 54% using the pro-forma. MDT documentation reached 100% across all groups. Key concerns included inconsistent use of templates and variable communication with GDPs.

Conclusion: The audit highlights strong documentation for new and review patients but reduced compliance in dental treatment appointments. An action plan will focus on improving template use, diagnosis recording and overall documentation consistency, with a second audit cycle planned.

280 Comparison of shear bond strengths with different bevel preparations for the reattachment of fractured fragments of maxillary central incisors

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¹Bahçeşehir University, School of Dental Medicine, Department of Paediatric Dentistry, Istanbul, Türkiye, ²Tabriz University of Medical Sciences, Faculty of Dentistry, Tabriz, Iran **Aims:** Fractures of anterior teeth are a highly prevalent form of dental trauma, and reattachment of the fractured fragment to the remaining tooth structure is a conservative treatment with several functional and aesthetic advantages. This in vitro study aimed to compare the effect of different bevel preparation techniques on the shear bond strength of reattached fractured fragments in maxillary central incisors.

Methods: Fifty-two sound maxillary central incisors were randomly divided into three experimental groups and one control group. In the control group, the fractured fragment was reattached using an adhesive system and composite resin without any bevel preparation. In the first experimental group, a 0.5 mm deep bevel was prepared on the palatal side of the fracture line before reattachment. In the second experimental group, a 0.5 mm bevel was prepared on both the labial and palatal sides. In the third experimental group, after tooth preparation, a 0.5 mm composite veneer was placed on the labial surface. All samples were subjected to loading in a universal testing machine until refracture, and shear bond strength values (MPa) were calculated.

Results: Mean shear bond strengths were 81.48 ± 8.18 MPa (control), 97.74 ± 11.41 MPa (palatal bevel), 131.56 ± 9.25 MPa (labial and palatal bevel), and 104.36 ± 5.50 MPa (composite veneer), with significant differences among most groups.

Conclusions: Reattachment of fractured fragments using any of the three preparation methods increased shear bond strength, with the highest values achieved when both labial and palatal bevels were applied.

283 Pulpal complications and endodontic management after traumatic dental injuries in children and adolescents

Kathrine Kistrup Hansen¹, Josephine Solgaard Henriksen¹, Eva Lauridsen², Simon Storgård Jensen³, Nuno Vibe Hermann¹

¹Paediatric Dentistry and Clinical Genetics, Department of Odontology, Faculty of Health and Medical Sciences, University of Copenhagen, Copenhagen, Denmark, ²Resource Centre for Rare Oral Diseases, Copenhagen University Hospital, Rigshospitalet, Copenhagen, Denmark, ³Department of Oral and Maxillofacial Surgery, Copenhagen University Hospital, Rigshospitalet, Copenhagen, Denmark, and Oral Surgery, Department of Odontology, Faculty of Health and Medical Sciences, University of Copenhagen, Copenhagen, Denmark **Aim:** To identify traumatic dental injuries (TDIs) associated with endodontic treatment and to describe indications, treatment approach, and radiographic quality of root canal treatment.

Methods: This retrospective cohort study included children and adolescents referred to Regional Dentistry between 2011 and 2021 due to loss or suspected loss of at least one tooth. Dental records and radiographs were reviewed. Variables included demographics, tooth (FDI notation), injury type, pulpal complications, treatments performed and other clinical variables. Radiographic quality of root canal treatment (RCT) was assessed on post-treatment radiographs using a five-level quality score. Descriptive statistics were applied to summarise the findings.

Results: Preliminary results are reported. A total of 114 patients (out 239 injured teeth) were included, and 90 teeth developed severe pulpal complications and received endodontic treatment. Of all injured teeth ($n = 239$), the three most common TDIs leading to endodontic treatment were avulsion ($n = 28$, 11.7%), extrusion ($n = 14$, 5.9%) and crown-root fractures with pulp involvement ($n = 11$, 4.6%). Overall, 109 endodontic interventions were recorded ($n = 19$ retreated). Preventive and therapeutic indications accounted for $n = 50$ (45.9%) and $n = 59$ (54.1%) respectively. Within preventive cases avulsion was most frequent ($n = 20$, 40%). For RCT-treated teeth with available post-treatment radiographs ($n = 89$), radiographic quality was scored as 1–3 for adequate ($n = 47$, 52.8%) and 4–5 for inadequate ($n = 42$, 47.2%).

Conclusion: Endodontic management after TDIs differed by injury type and included preventive and therapeutic

strategies. Awareness of indications, treatment approach and radiographic quality may support timely care and improve outcomes.

286 Horizontal root fracture—a favourable healing outcome

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¹University Dental Hospital Manchester, United Kingdom, ²University of Manchester, United Kingdom **Background:** Traumatic dental injuries affect 20–30% of children and adolescents, with root fractures accounting for 0.5–7% of cases. These may be classified as horizontal or vertical, with vertical root fractures having a guarded prognosis. Whilst the healing prognosis of the horizontally root fractured tooth is favourable, the outcomes vary depending on the type of fracture, degree of displacement, stage of tooth development and the presence or absence of concomitant crown fracture. Favourable healing includes hard tissue and connective tissue union. Granulation tissue healing is an unfavourable outcome.

Case report: A 10 year-old patient was referred with mobile central incisors following a trampolining accident. Medical history was non-contributory. Clinical and radiographic examination confirmed displaced, horizontal mid-third root fractures affecting the UL1 and UR1 on a background of a Class 1 occlusion. Both teeth were mobile and tender to percussion and presented with incomplete root formation with open apices. They had a delayed positive response to sensibility testing.

Treatment: The teeth were repositioned under local analgesia and splinted passively and flexibly to one uninjured tooth on either side for four weeks.

Follow-up: Six month review revealed connective tissue healing and pulp canal obliteration of both teeth. In this case, the location of the fractures and the immature stage of root development signified a good prognosis for healing. Connective tissue healing and pulp canal obliteration signified continued vitality of both teeth.

Conclusion: Thorough assessment and judicious management are essential in cases of root fracture to inform prognosis and to ensure optimal long-term patient outcomes.

309 Prosthetic rehabilitation of avulsed maxillary central incisors in a growing patient: a case report

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¹Hacettepe University, Ankara, Türkiye **Background:** Avulsion is one of the most severe forms of dental trauma and occurs most commonly in children and adolescents, frequently affecting anterior teeth. Recovery of the avulsed

tooth and prompt replantation are critical for achieving a favourable prognosis, particularly in growing patients. When the avulsed tooth can't recover, treatment options become limited and may require alternative prosthetic management.

Case report: An 8 year-old systemically healthy boy was referred to the dental clinic with aesthetic concerns following trauma to the maxillary anterior region caused by a bicycle fall one week earlier. The patient reported that both central incisors had been completely displaced at the time of trauma and couldn't found. Clinical and radiographic examinations confirmed avulsion of the maxillary central incisors (#11, #21). The patient was in mixed dentition period and presented with inadequate oral hygiene and dental problems affecting the primary teeth. A comprehensive treatment plan including preventive care, restorative treatment, prosthetic rehabilitation was established.

Treatment: Treatment priority was given to the maxillary arch. Teeth with poor prognosis (#55, #64, #65) were extracted and carious lesions were restored. A removable partial paediatric prosthesis was fabricated to restore aesthetics, function and to serve as a space maintainer during growth.

Follow-up: Regular follow-up visits for 12 months demonstrated improved oral hygiene habits and satisfactory aesthetic outcomes. Periodic prosthesis adjustments were performed according to maxillary development.

Conclusion: The comprehensive treatment approach described in this case provided positive outcomes. Removable prosthetic rehabilitation may provide favourable interim treatment option for growing patients when avulsed teeth cannot be recovered.

315 Clinical efficacy of in-situ crown reattachment technique combined with pulpotomy in the treatment of complicated crown-root fractures of young permanent anterior teeth

XueLong Su¹

¹College of Stomatology, Xi'an Jiaotong University, China **Aim:** This study aimed to evaluate the clinical application value of in-situ crown reattachment technique combined with pulpotomy in the treatment of complicated crown-root fractures in young permanent anterior teeth.

Methods: A prospective study was conducted on 50 children with complicated crown-root fractures in young permanent anterior teeth, who were treated at the Paediatric Dentistry Department, Hospital of Stomatology, Xi'an Jiaotong University from June 2023 to June 2024. All patients underwent in situ crown reattachment technique combined with pulpotomy. Clinical examinations, radiographic evaluations, and subjective satisfaction surveys (using a Likert

scale of 1 – 10) were conducted at 1, 6, and 12 months post-operatively. Data were analysed using SPSS 23.0.

Results: The loss to-follow-up rate was 12% (6/50), with 44 cases completing the 12 months of evaluation. The clinical success rate was 93.18% (41/44), and the radiographic success rate was 97.73% (43/44). The subjective satisfaction scores showed a significant improvement in masticatory function from 7.03 ± 0.52 at 1 month to 8.07 ± 0.92 at 12 months postoperatively ($P < 0.05$), whereas the scores for aesthetics, comfort, and quality-of-life impact showed no statistically significant differences ($P > 0.05$).

Conclusion: In situ crown reattachment technique combined with pulpotomy effectively treats complicated crown-root fractures in young permanent anterior teeth, demonstrating a high short-term clinical success rate, significantly improved masticatory function, and minimally invasive preservation of pulp vitality and root development potential. This technique provides an optimised treatment option for dental trauma in children, although its long-term efficacy requires further validation.

320 Management of delayed mandibular anterior alveolar fractures in paediatric patients: two case reports

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¹Sakarya University, Sakarya, Türkiye **Background:** Alveolar process fractures necessitate immediate repositioning and stabilisation to preserve occlusal harmony and the neurovascular integrity of the involved teeth. However, delayed presentation complicates management due to organising clots, early callus formation, and an increased risk of infection.

Case report: Two male patients presented with displaced mandibular anterior alveolar fractures following traumatic injury. Case 1 involved an 8 year-old boy presenting 72 h post-injury with a mobile dentoalveolar segment. Case 2 involved a 14 year-old boy who presented seven days after trauma with persistent segment mobility and mild displacement.

Treatment: In Case 1, manual repositioning was performed under local anaesthesia, followed by application of a passive flexible wire-composite splint extending to the first permanent molars due to mixed dentition and adjacent tooth mobility. In Case 2, closed reduction was achieved despite the delayed presentation, and stabilisation was performed using a passive flexible wire-composite splint.

Follow-up: Splints were removed after four weeks in accordance with International Association of Dental Traumatology guidelines. Clinical and radiographic evaluations confirmed satisfactory functional and aesthetic outcomes. In Case 1, all involved teeth maintained positive pulp

sensibility responses during a twelve-month follow-up. Case 2 demonstrated complete periodontal healing with no evidence of pulpal necrosis, ankylosis, or root resorption over a two-year period.

Conclusions: Delayed mandibular alveolar fractures may be successfully managed with conservative closed reduction and flexible splinting, even up to seven days post-trauma. This approach supports periodontal healing and pulpal vitality in paediatric patients while minimising the need for invasive surgical interventions.

322 Fragment reattachment after pulpectomy in a complicated crown–root fracture of a primary incisor

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¹**Bolu Abant İzzet Baysal Üniversitesi, Diş Hekimliği Fakültesi, Çocuk Diş Hekimliği Anabilim Dalı, Türkiye** **Background:** Complicated crown–root fractures in primary teeth present significant clinical challenges due to subgingival extension and pulp involvement. Preservation of primary teeth until physiological exfoliation is important for maintaining aesthetics, function, and space integrity.

Case report: A 4.5 year-old male patient presented after a traumatic fall at a swimming pool. Clinical examination revealed a complicated crown–root fracture of the maxillary right primary central incisor (tooth 51), with pulp exposure extending sub-gingivally, and an enamel–dentine fracture of the maxillary left primary central incisor (tooth 61). The fractured fragment of tooth 51 was partially attached, and the tooth exhibited slight extrusion; it was not repositioned and was monitored for spontaneous repositioning. The patient's medical history was unremarkable. Radiographic examination showed no root displacement beyond the fracture line and no periapical pathology.

Treatment: The fractured fragment of tooth 51 was removed, and pulpectomy was performed using conventional techniques for primary teeth. After root canal treatment, the original fragment was repositioned and reattached using adhesive procedures. The enamel–dentine fracture of tooth 61 was restored.

Follow-up: Clinical and radiographic evaluations were performed at 1 week, 1, 6, and 12 month follow-ups. Both teeth remained asymptomatic, with no clinical or radiographic pathology. Fragment stability of tooth 51 and satisfactory function and aesthetics of both teeth were maintained throughout the follow-up period.

Conclusion: Conservative management of traumatic injuries in primary teeth, including fragment reattachment and restorative treatment, may represent a reliable approach for preserving the integrity and function of the affected primary teeth.

331 A complicated dental trauma case of permanent teeth

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¹**School of Dentistry, NKUA, N. Iraklio, Athens, Greece,** ²**Paediatric Dentist, Greece,** ³**Department of Paediatric Dentistry, School of Dentistry, NKUA, Athens, Greece** **Background:** Severe traumatic dental injuries in permanent teeth, such as avulsion and intrusive luxations, are frequently associated with complications including root resorption and pulp necrosis, making management challenging.

Case report: A 10 year-old male was referred to the Paediatric Dentistry Department (NKUA) following a bicycle accident four days prior to presentation. The patient had visited the hospital, where no signs of brain injuries or bone fractures were confirmed, without any further trauma management. Clinical and radiographic examination revealed avulsion of tooth #11 and concussion of tooth #12. Tooth #21 had been intruded by 4 mm accompanied by an uncomplicated enamel–dentine fracture.

Treatment: Initially monitoring for spontaneous re-eruption of tooth #21 was decided, although early signs of external root resorption were detected radiographically 2 weeks after. Orthodontic extrusion followed, to allow for endodontic treatment initiation. Given the high risk for absorption in ages under 18 years, calcium hydroxide was replaced at 4 week intervals, to control resorptive process. Obturation was delayed for 12 months to ensure absorption arrest and stability. Finally, teeth #12 and #21 were restored with composite resin, while avulsed tooth #11 was replaced with a fixed appliance.

Follow-up: At 24 months follow-up, clinical and radiographic success was observed, with no pathological findings, while the patient was satisfied with function and aesthetics.

Conclusion: Successful management of severe dental trauma relies on prompt, tailored, multidisciplinary intervention to timely and effectively identify and control complications. With accurate diagnosis and treatment even cases with poor prognosis can have a long-term successful outcome.

340 Clinical experiences, barriers and challenges in paediatric dental trauma management among general dental practitioners in Malaysia: a qualitative study

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ric Dentistry, Faculty of Dentistry, Universiti Teknologi MARA (UiTM), Malaysia, ³Community Oral Health, Faculty of Dentistry, University of Malaya (UM), Malaysia **Aim:** To explore the experiences, barriers, and challenges faced by general dental practitioners (GDPs) in managing paediatric dental trauma in Malaysian primary care settings.

Methods: A qualitative study using focus group discussions (FGDs) was conducted among GDPs from government and private primary dental clinics in Malaysia. Five FGDs were conducted over four months, with six participants per group (total n = 30). Discussions were audio-recorded, transcribed verbatim using AI-assisted transcription, and manually verified for accuracy. Data were organised using NotebookLM prior to inductive thematic analysis following Braun and Clarke (2006). Coding and theme development were undertaken iteratively until consensus was achieved among investigators. Cross-group comparisons were performed to confirm thematic saturation.

Results: Three main themes emerged: Clinical experiences, Barriers, and Challenges. Based on clinical experience, participants reported that subluxation, concussion, and crown fractures were the most encountered traumatic dental injuries, whereas avulsion cases were relatively uncommon and frequently referred. Management strategies commonly included splinting, pulp therapy, and extraction of severely affected primary teeth. Key barriers identified were limited trauma-specific training, restricted access to advanced materials (e.g., mineral trioxide aggregate and Biodentine), inadequate radiographic facilities and flexible splinting wires, and high clinical workload with time constraints. Reported challenges included behaviour management difficulties, parental anxiety, delayed case presentation, poor follow-up compliance, and difficulty keeping up to date with evolving trauma guidelines.

Conclusion: GDPs face substantial clinical and systemic challenges in managing paediatric dental trauma, underscoring the need for enhanced training and improved resource support in Malaysian primary care.

348 From the bin to a win: reconsidering the 'Hopeless' avulsed tooth

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¹Liverpool University Dental Hospital, Liverpool, United Kingdom **Background:** The prognosis of avulsed immature incisors can often be described as 'guarded'. Many suggest a 50% survival rate at 5.5 years post reimplantation, multiple factors can influence this survival rate.

Case report: We present a severe trauma case of a 7 year-old male referred in 2018 following avulsion of both upper central incisors abroad. Unfortunately, when he was assessed by an American dentist, it was noted the

URB had fallen into the socket of the UR1, which required extraction and reimplantation. Over 8 years, the UR1 went from being described as a hopeless prognosis planned for extraction, to now in 2026, asymptomatic and retained in the mouth.

Treatment: Initial management involved urgent extirpation of a symptomatic UR1. Given the immature apex, regenerative endodontic therapy was undertaken to promote continued root development and maturation. The patient later presented with a chronic abscess, prompting treatment plan revision of extraction and removable prosthesis. Follow-up was delayed due to COVID-19 pandemic and family anxiety regarding tooth extraction. At review in October 2024, the infection had resolved; the tooth was asymptomatic and non-mobile despite shortened root length. A bioceramic apical plug was placed.

Follow-up: The patient has now been reviewed on trauma clinics twice since obturation with positive clinical and radiographic findings. The UL1 remained vital throughout with continued root development.

Conclusion: This case highlights the importance of flexible and patient centred treatment. Whilst long term outcome is uncertain, allowing this patient to maintain his front tooth throughout childhood, cannot be emphasised enough.

368 Preserving a growing smile: a splinting challenge in the mixed dentition

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¹Manchester Foundation Trust, Manchester, United Kingdom **Background:** Traumatic dental injuries commonly affect children in the mixed dentition stage. Injuries requiring splinting are often challenging due to various stages of tooth eruption and development, or previous treatment.

Case report: A six year-old male with a history of severe extrusion of LR1, LL1 presented two weeks post-trauma. He had attended a local community dental clinic who had repositioned the teeth and placed a composite and wire splint which had debonded on four occasions. Medically, the patient has bilateral cochlear implants due to TMC1 related autosomal recessive deafness. In regard to the mandibular arch, the patient's primary lateral incisors were grade III mobile, the primary canines had been previously extracted, and the first and second primary molars had been restored with preformed metal crowns.

Treatment: Following advice from the orthodontic team, orthodontic premolar bands were cemented to the preformed metal crowns and a sectional passive fixed appliance was placed to stabilise the teeth. Orthodontic adhesive was applied to LR6, LL6 to prevent occlusion to the traumatised teeth. The appliance was debonded 2 weeks later.

Follow up: There has been continued root development of LR1 LL1 with sustained tooth vitality following a review period of 3 years and 4 months.

Conclusion: This case demonstrates the benefits of multi-disciplinary working to provide an alternative method of splinting, using orthodontic bands due to the limited tooth structure for bonding. Considering a different approach has ultimately led to the preservation of the patient's central incisors which were initially projected to have a poor outcome.

375 Fragment reattachment of a traumatic complicated crown fracture with partial pulpotomy: a 20 month follow-up case report

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¹Dokuz Eylul University, Faculty of Dentistry, Department of Paediatric Dentistry, Izmir, Türkiye **Background:** Crown fractures of permanent incisors are among the most common traumatic dental injuries in children, most frequently affecting the maxillary central incisors. Complicated crown fractures, characterised enamel–dentine fractures with pulp exposure, require prompt management to preserve pulp vitality and maintain tooth function and aesthetics.

Case report: A systemically healthy 10 year-old male patient presented to our clinic with a complaint of a fractured upper anterior tooth caused by a fall. The patient brought the fractured tooth fragment, which had been stored in water. According to the medical history obtained, the trauma had occurred approximately 3 h before the dental visit. Clinical and radiographic examinations revealed a complicated crown fracture involving the pulp in the permanent maxillary left central incisor (#21), with no evidence of root fracture or periapical pathology. The tooth demonstrated sensitivity to thermal stimuli.

Treatment: Under local anaesthesia, a partial pulpotomy was performed on tooth (#21) using Biodentine as part of vital pulp therapy. Subsequently, the coronal fragment was reattached using an adhesive protocol to restore anatomical form and aesthetics.

Follow-up: At the 20 month follow-up examination, pulp vitality was preserved, and the tooth remained asymptomatic with positive responses to vitality testing. Radiographic findings showed no signs of periapical pathology.

Conclusion: In permanent teeth with complicated crown fractures, preservation of pulp vitality through partial pulpotomy combined with conservative fragment reattachment can provide predictable and successful clinical outcomes while supporting biological healing.

381 Management of horizontal root fractures in the middle third: a case series

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¹Department of Paediatric Dentistry, Sakarya University, Sakarya, Türkiye **Background:** Horizontal root fractures (HRFs) in the middle third of permanent incisors present a significant clinical challenge due to the high risk of pulp necrosis and poor prognosis. This case series demonstrates the successful management of HRFs using mineral trioxide aggregate (MTA) and semi-rigid stabilisation.

Case reports: Case 1: A 10 year-old systemically healthy male presented 24 h after a fall with a middle-third HRF and pulp exposure in a mature tooth (#21). Clinical findings included significant mucosal laceration and Grade I mobility. Case 2: An 8 year-old systemically healthy male presented 2 days after a bicycle accident with a middle-third HRF in an immature tooth (#21, Cvek Stage 4) exhibiting Grade II mobility. Previous inadequate stabilisation was replaced with an extended semi-rigid splint (#12 to #63).

Treatment: Treatment protocols were standardised for both cases. Endodontic treatment was performed on the coronal fragments using MTA as a biocompatible barrier. To ensure stabilisation, semi-rigid splinting was maintained for 4 weeks. Case 1 was restored with an aesthetic strip crown.

Follow-up: Patients were monitored periodically. No signs of infection, fistulae, or radiolucency were observed. Radiographically, both cases exhibited mineralised tissue formation at the fracture line. Case 1 demonstrated functional mobility with no apical pathology at the 12 month follow-up. Case 2 showed complete clinical stability with no mobility at the 9 month follow-up.

Conclusion: In middle-third root fractures, the combination of MTA-based endodontic treatment of the coronal segment and semi-rigid splinting can lead to successful hard-tissue healing and tooth retention in paediatric patients.

391 A modified treatment approach due to delayed management of dental injury in a 7 year-old.

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¹Dublin Dental University Hospital and School of Dental Science, Trinity College, Ireland **Background:** A healthy 7 year-old girl presented with a traumatic dental injury one day after a fall. The child sustained significant injuries to both primary and permanent teeth with no other injuries.

Case report: Examination revealed marked maxillary gingival swelling. Tooth 52 was avulsed and tooth 53 was palatally luxated causing occlusal interference. The permanent maxillary incisors were partially erupted: tooth 21 showed mild intrusion and an enamel-dentine fracture; tooth

11 exhibited moderate intrusion, and an enamel-dentine fracture. Tooth 53 was extracted at the emergency visit. She was reviewed 2 weeks later, but due to limited co-operation, she was referred to a specialist trauma clinic where attendance was delayed by the Christmas period.

Treatment: Four weeks later, a multidisciplinary team (paediatric dentistry, orthodontics, endodontics) planned alternative management to preserve the permanent dentition. Tooth 21 had re-erupted spontaneously. Tooth 11 failed to re-erupt, became non-vital, and was painful and tender on palpation. The tooth position prevented direct endodontic access. Orthodontic repositioning was planned, but fixed appliances were not feasible. Limited co-operation required management under general anaesthesia. A mucoperiosteal flap was raised to access tooth 11, allowing pulpal extirpation and CaOH₂ medicament. The gingiva was repositioned, a buccal orthodontic attachment bonded, and a removable appliance was designed to allow elastic traction for controlled extrusion.

Follow-up: At 11 week follow-up, the appliance was delivered and traction initiated.

Conclusion: Delayed presentation and limited co-operation may require modified treatment strategies. Multidisciplinary collaboration and adaptive decision-making are essential to optimise outcomes in paediatric dental trauma.

395 Dental trauma attendances to the emergency department: a 2025 service evaluation, Liverpool, England

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Aim: To analyse the presentation pathways, frequency of attendances and management of traumatic dental injuries presenting to the emergency department (ED).

Methods: A retrospective review of all traumatic dental injury (TDI) attendances to the Emergency Department at Alder Hey Children's Hospital over the 2025 calendar year. Cases were identified using primary dental and maxillofacial coding and analysed through detailed review of electronic patient records. Data collected included referral source, timing of presentation and time spent in the department. Whether management by dental core trainees (DCTs) or ED clinicians occurred or if admission for theatre was required.

Results: A total of 169 TDIs presented. Out-of-hours attendance accounted for 38% (n = 65) of presentations. Referrals comprised 15% (n = 26) from regional hospitals and 12% (n = 20) from general dentists and emergency dental services. The on-call DCT attended 65% (n = 110) of cases. Bike or scooter-related injuries accounted for 14% (n = 23) of presentations. Splinting was required in 17% (n = 28) of

cases. Permanent tooth avulsion occurred on 11 occasions, with 6 teeth reimplanted in the ED.

Conclusion: TDIs account for a significant proportion of ED presentations, with many occurring out of hours and requiring time-sensitive intervention. Most cases were reviewed and managed by a DCT. Referrals to Alder Hey from regional EDs and general dentists may contribute to delays in treatment, highlighting need for education and enhanced service provision across teams. Further training in the management of TDIs for ED staff, particularly in regional hospitals, alongside signposting to emergency dental services is recommended.

408 The effect of delayed treatment on the prognosis of an avulsed immature central incisor: a case report

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Background: Avulsion of permanent teeth is one of the most severe traumatic dental injuries. Prognosis is highly dependent on prompt and appropriate emergency management. Although replantation is the treatment of choice in most cases, patient-specific factors such as cooperation and behaviour may delay intervention and adversely affect outcomes.

Case report: A 7 year old girl avulsed tooth 21 due to a fall. The tooth was placed in milk within one hour. She attended her GDP who was unable to provide treatment due to poor co-operation. She attended A&E 15 h post avulsion. Clinical examination confirmed an intact tooth with an immature apex. A subsequent attempt at replantation was unsuccessful due to un-cooperative behaviour.

Treatment: Emergency general anaesthetic was provided 24 h post injury where tooth 21 was replanted and splinted. The pulp was simultaneously extirpated and a dressing placed. Splint removal was also scheduled under GA due to poor co-operation and so removal occurred 5 weeks post splint placement.

Follow-up: Poor attendance impacted review schedule. At 4 month review (week 14 post splint removal), tooth 21 demonstrated a high pitched percussive tone. On 6 month review, radiographic assessment revealed replacement resorption with infra-occlusion relative to the adjacent dentition. The treatment advised is de-coronation of tooth 21 with immediate provision of an aesthetic appliance.

Conclusion: Delays due to poor co-operation and attendance is a reality for paediatric dentists. Immediate, appropriate care following avulsion improves success. This case demonstrates how delayed treatment following dental avulsion significantly impacts long-term prognosis.

416 Delayed pulp necrosis following combined lateral luxation and apical root fracture in immature permanent incisors

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¹Department of Paediatric Dentistry, Faculty of Dentistry, Aksaray University, Türkiye **Background:** Traumatic injuries involving immature permanent incisors may present with uncertain pulpal outcomes, particularly when luxation injuries coexist with root fractures. Early clinical findings can be misleading, and pulpal necrosis may develop despite initially favourable vitality responses.

Case report: A 9.5 year-old healthy boy presented after a fall. Clinical and radiographic examination revealed lateral luxation with enamel–dentine fracture in tooth #11 and lateral luxation associated with enamel–dentin fracture and an apical third root fracture in tooth #21. Both teeth had open apices. Flexible splinting was applied for four weeks. Crown fractures were sealed with composite resin. Due to a deep bite relationship, posterior composite buildups were placed temporarily to reduce the risk of repeated trauma. At four weeks, mobility had decreased and both teeth responded positively to electric pulp testing. No radiographic pathology was detected. Definitive composite restorations were placed, and crown lengths were adjusted to avoid premature contacts.

Follow-up: Eight weeks post-injury, sinus tracts developed in the apical regions of both incisors, indicating pulpal necrosis. Root canal treatment was initiated. An MTA apical plug was placed at the apex of tooth #11 and at the apical end of the coronal fragment of tooth #21. Rapid clinical resolution was observed. No surgical intervention was performed on the fractured apical fragment. The patient remains under follow-up. If signs of necrosis develop in the apical fragment, apical resection will be considered.

Conclusion: This case highlights the importance of structured follow-up and cautious interpretation of early vitality responses in traumatised immature teeth.

439 Clinical management of intrusive luxation in an immature permanent incisor

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¹Atlas University, Istanbul, Türkiye **Background:** Intrusive luxation of immature permanent incisors is among the most severe dental injuries and is commonly associated with pulpal necrosis and root resorption. This Case report presents the clinical management of an intrusive luxation injury in an immature permanent incisor.

Case report: An eight-year-old girl presented two hours after dental trauma with intrusive luxation of the immature

maxillary left central incisor (tooth #21). Examination confirmed total displacement of the tooth into the alveolar bone. The patient's medical history was non-contributory.

Treatment: The tooth was monitored for two weeks for spontaneous re-eruption; however, no positional change occurred. Surgical repositioning was performed under sedation, followed by flexible splinting for two weeks. Pulpal necrosis subsequently developed, and apexification was initiated. The canal was irrigated with 1.5% sodium hypochlorite and saline, calcium hydroxide was placed as an intracanal medicament, and final obturation was completed using mineral trioxide aggregate (MTA; Angelus, Brazil). External root resorption was detected at treatment completion, and the tooth was placed under follow-up.

Follow-up: Radiographic evaluations at 1- and 2-year follow-ups demonstrated no progression of external root resorption and no signs of replacement resorption. An intact lamina dura was observed. Clinically, the tooth remained asymptomatic, functional, and stable, with evidence of peri-apical healing.

Conclusion: Early surgical repositioning combined with appropriate splinting and MTA-based apexification may result in favourable long-term outcomes in intrusive luxation injuries of immature permanent incisors. However, careful long-term monitoring is essential, particularly when external root resorption is initially detected.

464 Stepwise management of a sub-crestal complicated crown–root fracture in the aesthetic zone of an adolescent: a case-based decision pathway

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¹Universiti Teknologi Mara, Selangor, Malaysia **Background:** Complicated crown–root fractures present significant challenges in children as sub-crestal fracture margins, biological width violation, unfavourable crown–root ratios, and ongoing craniofacial growth limit conventional treatment options.

Case report: A 15 year-old medically fit girl presented a year after dental trauma with intermittent pain and impaired function involving tooth 21. Clinical and radiographic examination revealed a sub-crestal oblique crown–root fracture, with the palatal margin extending approximately 2 mm below the alveolar crest. The remaining root length resulted in an unfavourable crown–root ratio, rendering either orthodontic or surgical extrusion unsuitable. Fragment reattachment and surgical crown lengthening were contraindicated due to expected biological width violation and potential aesthetic compromise. Implant therapy was contraindicated due to ongoing craniofacial growth. The patient presented with a low smile line, and the remaining dentition showed normal alignment with no unfavourable occlusal contacts.

Treatment: Tooth 21 underwent root submergence to preserve alveolar ridge volume, with implant therapy deferred until growth completion. The natural crown fragment was adapted as an immediate pontic during soft-tissue healing, followed by an interim 3 unit resin bonded bridge to maintain space and aesthetics. Following soft tissue stabilisation, the interim prosthesis was converted to a definitive cantilever resin-bonded bridge (RBB) using tooth 11 as the sole abutment. The pontic was kept out of occlusion in all excursions.

Follow-up: At 9 month review, the patient remained asymptomatic with stable soft tissues, preserved ridge contour and no radiographic pathology.

Conclusion: Root submergence followed by a cantilever RBB offers an aesthetic, conservative, growth-compatible solution for complicated crown–root fractures.

469 Orthodontic movement after regenerative endodontic treatment in a traumatised immature central incisor: long-term follow-up

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¹**Yeditepe University, Department of Paediatric Dentistry, Istanbul, Türkiye Background:** Regenerative endodontic treatment (RET) is a biologically based approach that supports continued root development in traumatised, immature permanent teeth with necrotic pulps. However, the impact of orthodontic movement on teeth treated with RET remains unclear and may have significant long-term consequences. This Case report presents a long-term follow-up of a traumatised immature incisor that underwent RET and was subsequently subjected to orthodontic movement.

Case report: An 8 year-old girl with no remarkable medical history was referred to the Department of Paediatric Dentistry in 2019 following a trauma to the maxillary right permanent central incisor (#11) that occurred three months prior. Radiographic examination revealed open apices of the central incisors (#11 and #21) and slight radiolucency in the periapical region of tooth #11. Clinical examination showed Grade 2 mobility and sensitivity to percussion and palpation. The response to the cold sensibility test was negative.

Treatment: Splinting and occlusal adjustment were performed to reduce functional loading. Under local anaesthesia, RET was planned and performed. Mineral Trioxide Aggregate (MTA) was placed as a coronal barrier, and the tooth was restored with composite resin.

Follow-up: At the two year follow-up, root development had progressed without resorption, and orthodontic treatment was initiated due to malocclusion. At the seven year follow-up, the patient remained asymptomatic. Radiographic evaluation

revealed complete apical closure, thickening of the root canal walls, and resolution of the periapical radiolucency.

Conclusion: RET can provide favourable long-term outcomes for traumatised immature permanent teeth, even under orthodontic forces, when appropriate protocols and follow-up are applied.

513 Conservative management of lateral luxation and root fracture with closed apex: a case-based approach

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¹**Hacettepe University, Faculty of Dentistry, Department of Paediatric Dentistry, Ankara, Türkiye Background:** Traumatic dental injuries present diagnostic and therapeutic challenges in paediatric patients. These injuries require prompt management and long-term follow-up due to the risk of pulpal and periodontal complications. This report presents the management and clinical outcome of a paediatric case involving lateral luxation and root fracture of the maxillary central incisors.

Case report: An 11 year-old female patient presented to our clinic approximately two hours after dental trauma. Clinical and radiographic examinations revealed lateral luxation and root fractures of the maxillary right and left central incisors (teeth 11 and 21) Treatment: Immediate repositioning of the displaced teeth was performed under local anaesthesia, followed by stabilisation with a trauma splint.

Follow-up: At the two week follow-up visit, the patient was asymptomatic. The trauma splint was removed after four weeks. As clinical and radiographic examinations revealed no pathological findings, follow-up was continued without additional intervention. At the six month recall appointment, no clinical symptoms or radiographic signs of pulp necrosis or pathological external root resorption were detected, supporting continuation of a conservative monitoring approach.

Conclusion: According to the IADT guidelines, early endodontic treatment is generally recommended for lateral luxation injuries in teeth with closed apices due to the low potential for revascularisation. However, in this case, considering the presumed viability of the periodontal ligament cells surrounding the fractured apical segment, a conservative follow-up approach was preferred without immediate root canal treatment. Close monitoring allowed postponement of endodontic intervention and supported a less invasive, patient-specific treatment strategy.

Topic 04. Epidemiology

3 Co-occurrence of cariogenic microflora in children with ECC and their mothers

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Methods: A total of 84 mother/child pairs were invited to participate in the study. Children (mean age 3.8 years, SD = 1.14) were orally examined and dental plaque samples were taken both from children and their mothers and assessed for the presence of *S. mutans*, *Lactobacillus* spp. and *Actinomyces* spp. The presence of cariogenic bacteria was identified by CarioGene® test (Protean s.r.o., Czech Republic). Fisher exact test was used for statistical evaluation.

Results: The presence of *S. mutans* in a child and his/her mother was identified in 27 cases, negative finding in both was demonstrated in 31 cases. Negative finding of *Lactobacillus* spp. in the child and his/her mother was established in 12 cases, positive in both in 46 cases. Bacteria *Actinomyces* spp. was detected in both the child and mother in 67 cases. Our results demonstrated a significant relationship between the presence of *S. mutans* and *Lactobacillus* spp. in mothers and children ($p < 0.05$). However, a relationship between the presence of *Actinomyces* spp. was not statistically significant ($p > 0.05$).

Conclusion: The results of the study demonstrated that the source of acquiring cariogenic bacteria in children suffering from ECC might be their mothers.

29 Beyond disability: dental caries experience in children living with cerebral palsy in New Zealand

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¹Starship Children's Health, Auckland, New Zealand, ²University of Auckland, New Zealand, ³Auckland Hospital and Specialist Dentistry Regional Service, Auckland, New Zealand **Aim:** To assess the oral health of children living with cerebral palsy (CP) in New Zealand. We hypothesised that children with higher complex needs, quantified by the gross motor classification function system (GMFCS), would

be more likely to show evidence of prior/current dental decay at 5 and 12 y of age.

Methods: Data linkage linking 1220 participants, registered with the New Zealand Cerebral Palsy Register, to nationally collected oral health data reporting decayed, missing, filled teeth scores for primary (dmft) and permanent teeth (DMFT).

Results: 981 participants (80%) had at least one dmft/DMFT record; those classified as GMFCS IV or V were older at the time of first recorded dmft (median age 4 y, IQR: 2–6) compared to children classified as GMFCS I (median age 3yrs IQR: 2–5) ($p < 0.0001$). 71% (306/429) of children with recorded dmft at age 5yrs were caries free whilst 73% (167/230) were caries free at 12 y. Caries free rates did not vary across GMFCS levels. More dental decay was reported in children of NZ Māori, Pacific Peoples and Asian ethnicities compared to European children at age 5 y [OR 3.60 (1.91, 6.80), OR 5.11 (2.36, 11.05), OR 3.06 (1.38, 6.79) respectively] and in NZ Māori children at 12–12.99 years [OR 3.18 (1.42, 7.12)].

Conclusion: Severity of CP did not negatively influence oral health outcomes and overall outcomes were consistent with previously reported general population data. However, ethnic oral health inequities show the need to develop structures and systems that can improve oral health outcomes across all ethnicities.

35 Risk factors for repeat paediatric dental general anaesthesia: a retrospective case–control study

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Methods: Electronic records from North Yorkshire Salaried Dental Services were reviewed for patients (aged 18 and under) undergoing DGA between January 2002 and May 2020. Repeat DGA prevalence and interval were described. For case–control analysis, children who received repeat DGAs were compared with children who received a single DGA. Descriptive statistics were reported; logistic regression was used to identify factors associated with repeat DGA using variables from the first DGA episode.

Results: 6012 DGA episodes were recorded in 5427 children. Repeat DGA occurred in 275 children (4.8%): 248 had two DGAs, 20 three, 6 four and 1 five; mean interval between

first and second DGA was 3 y 5 months. Repeat DGA was associated with a number of characteristics including younger age at first DGA, neurological comorbidity, failure to attend appointments, absence of pre-operative radiographs and restorative treatment at first DGA. A higher number of extractions was associated with reduced likelihood of repeat DGA. Gender and deprivation index was not associated.

Conclusion: Repeat DGA was uncommon but associated with identifiable clinical and patient-related factors that could inform risk-stratified prevention and post-DGA pathways in order to reduce risk of repeat DGA.

70 Evaluation of the effectiveness of teledentistry on diagnostic accuracy and treatment planning among Jordanian dentists

Jumana Sabbarini¹

¹Arabella Dental Centre, Jordan **Aim:** To assess the diagnostic accuracy and treatment planning agreement among Jordanian dentists when using teledentistry.

Methods: Thirty children underwent dental examinations. Standardised intraoral photographs and brief case histories from paediatric patients were compiled into clinical case scenarios. Eight representative cases were selected and presented in a Google Forms survey to licensed dentists in Jordan. Participants reviewed the cases, providing clinical diagnoses and proposing treatment plans. Responses were analysed to determine diagnostic accuracy and agreement on treatment planning.

Results: Diagnostic agreement was highest for cases with distinct clinical presentations. Case #5 (early childhood caries) showed the highest agreement at 92.1%, followed by Case #3 (avulsion; 91.1%) and Case #6 (ectopic eruption; 85.1%). Treatment planning agreement followed a similar pattern. The highest concordance was reported for Case #4 (molar-incisor hypomineralisation; 64.4%) and Case #7 (Functional Class III/ anterior crossbite 59.4%).

Conclusion: Teledentistry enables high diagnostic accuracy among Jordanian dentists, especially in paediatric cases with well-defined presentations. However, the observed variability in treatment planning highlights the need for standardised clinical guidelines and targeted professional development to optimise teledentistry's integration into routine dental care.

104 Oral health status of admitted high-risk children: a pilot study

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Hospital, Singapore, ³Department of Child Development, KK Women's and Children's Hospital, Singapore **Aim:** Children with adverse childhood experiences (ACEs) are at risk for experiencing untreated oral healthcare needs and have a higher likelihood of receiving inadequate dental care. This study aimed to determine the oral health status of children exposed to ACEs in Singapore and suggest interventions to minimise disparities.

Methods: Children aged 1–6 years-old admitted to KK Women's and Children's Hospital (KKWCH) for suspected maltreatment or social concerns between 01 November 2022 and 31 October 2023 were referred for dental screening as part of comprehensive health evaluation. Parameters such as oral hygiene status, caries experience as measured by the decayed-missing-filled teeth (dmft) index, evidence of dental injuries, subsequent treatment need and compliance to follow-up were recorded.

Results: Fifty-four children were screened. Oral hygiene status was mainly fair or poor (87.1%). At ages 3, 4, and 5 years-old, the average dmft of children screened was 2.08, 1.50 and 6.85, which was higher compared to national averages of 0.70, 1.50 and 2.03 respectively. At ages 3, 4, and 5 years-old, the average percentage of children screened with caries was 41.7%, 50.0%, and 78.6%, compared to national averages of 24.5%, 35.9%, and 46.6% respectively. 11.1% of children had evidence of dental injuries. 38.9% of children required active dental treatment for established carious lesions. Less than half attended subsequent treatment appointments.

Conclusion: Children exposed to ACEs have higher unmet dental needs. Interventions such as targeted early dental screening, proactive professional oral education to caregivers, and measures to improve dental attendance, are suggested.

155 Molar incisor hypomineralisation (MIH) and hypomineralised second primary molars (HSPM): a national epidemiological study among cypriot schoolchildren

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¹Department of Paediatric Dentistry, Aristotle University of Thessaloniki, Thessaloniki, Greece **Aim:** To present the first national epidemiological data on Molar Incisor Hypomineralisation (MIH) and Hypomineralised Second Primary Molars (HSPM) among Cypriot schoolchildren.

Methods: A representative sample of 1458 children (55% boys, 45% girls) aged 4–5 and 7–9 years was examined during the 2024–2025 school year. Children aged 4–5 were screened for HSPM and those 7–9 for MIH and HSPM. Stratified random sampling reflected rural (54%) and urban

(46%) population distribution. Examinations followed EAPD criteria, recording lesion score, surface, extension and severity. Statistical analyses included chi-square, Fisher's exact and generalised estimating equation tests ($p \leq 0.05$). Ethical and institutional approvals were obtained.

Results: MIH prevalence was 19% (136/718) and HSPM 13% (185/1,458), with most defects mild (MIH 68%, HSPM 74%). Surface distribution differed significantly between arches ($p < 0.001$). Mandibular lesions were mainly buccal for MIH and buccal/occlusal for HSPM, while maxillary lesions were buccal and palatal in both conditions. Severity differences for HSPM were arch-related ($p < 0.05$), with mandibular lesions more severe. MIH severity showed no statistical difference by arch. No significant differences were observed by gender, age or area and no arch predominance was identified. Children with HSPM were 5.6 times more likely to present MIH (95% CI: 3.86, 8.04, $p < 0.001$).

Conclusion: MIH and HSPM are prevalent and predominantly mild among Cypriot children. Arch-related differences were observed in lesion distribution and HSPM severity, with a strong HSPM-MIH association identified. These findings provide baseline data for oral health surveillance and preventive strategies.

167 Impact of the PaFein + (pain-free dentistry for children) educational project in Italy: a prospective pre–post study among dental professionals

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¹Dentistry Unit, Management Innovations, Diagnostics and Clinical Pathways, Bambino Gesù Children's Hospital IRCCS, Rome, Italy, ²Department of Dental Sciences, University of Rome Tor Vergata, Rome, Italy, ³Paedodontics Department, Carol Davila University of Medicine and Pharmacy, Bucharest, Romania **Aim:** Managing anxious children requires skills in behaviour guidance (BG), minimal intervention dentistry (MID), and pain-free anaesthesia, yet training in these areas is inconsistent. PaFein+ (Pain-free Dentistry for Children) is a European educational initiative promoting modern, pain-free approaches to paediatric dentistry through courses and hands-on workshops. The aim was to assess dental professionals' baseline knowledge, regarding BG, MID, and pain-free anaesthesia, and to evaluate pre–post changes following participation in the PaFein+ course.

Methods: A prospective pre–post survey was conducted among participants in the PaFein+ course in Rome (March 2025), using validated questionnaires administered before and after the course. After excluding dropouts, 34 participants were included. Paired data were analysed using

Wilcoxon signed-rank, McNemar, and marginal homogeneity tests ($\alpha = 0.05$).

Results: Training backgrounds varied: 41.2% had only theoretical BG training, 23.5% in MID, and 52.9% had no undergraduate pain-free injection training. Baseline self-reported knowledge was moderate for BG (3.26 ± 1.05), limited for MID (2.68 ± 0.91), and pain-free injections (2.47 ± 1.10). Most agreed pain-free care for anxious children is achievable (4.09 ± 0.62). Significant post-course improvements were observed for BG ($+0.86$, $p = 0.001$), MID ($+1.38$, $p < 0.001$), and pain-free injections ($+1.79$, $p < 0.001$); agreement on feasibility also increased ($+0.5$, $p = 0.002$).

Conclusions: The PaFein+ course significantly improved dentists' knowledge and confidence in BG, MID, and pain-free anaesthesia, underscoring the value of structured continuing education in paediatric dental care.

172 Retrospective evaluation of cone-beam computed tomography use in paediatric patients

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¹Usak University, Faculty of Dentistry, Department of Paediatric Dentistry, Türkiye, ²Usak University, Faculty of Dentistry, Department of Oral and Maxillofacial Radiology, Türkiye **Aim:** This study retrospectively evaluated the clinical indications and radiological findings of cone-beam computed tomography (CBCT) in children and analysed the frequency of its use according to age, sex, and imaging region.

Methods: CBCT scans of children aged 6–12 years obtained between December 2020 and December 2025 were reviewed. After excluding duplicate and nondiagnostic scans, 301 CBCT images were obtained. Two experienced oral and maxillofacial radiologists independently assessed all the scans. Indications were categorised into six groups according to the SEDENTEXCT guidelines: impacted teeth, dental anomalies, bone lesions, endodontics, trauma, and others. The imaged region, field of view (FOV) size, and the presence of artifacts were recorded. Chi-square analysis was performed to examine associations between categorical variables, with $p < 0.05$ considered statistically significant.

Results: Among the 301 CBCT scans, impacted teeth and dental anomalies were the most frequent. The anterior maxilla was the most commonly imaged region. A significant difference was observed in the indication categories across age groups ($p < 0.05$), suggesting age-related variations in the referral patterns. No significant association was found between sex and indication category ($p > 0.05$). Most scans were obtained using limited field-of-view (FOV) protocols, consistent with paediatric imaging recommendations.

Conclusion: In this paediatric population, CBCT was primarily used to evaluate impacted teeth and developmental anomalies of the anterior maxilla. These findings reflect developmental diagnostic trends and support adherence to limited field of view (FOV) protocols in paediatric imaging.

195 Evaluation of recording practices of body mass index at paediatric new patient dental assessments

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¹Liverpool University Dental Hospital, Liverpool, United Kingdom **Aim:** Body Mass Index (BMI) is a crucial indicator of a child's general health, with implications for dental treatment planning, caries risk, and sedation safety. National Institute for Health and Care Excellence (NICE) and British Society of Paediatric Dentistry (BSPD) guidelines recommend BMI assessment to identify at-risk patients and facilitate appropriate healthcare referrals. The aim was to evaluate and improve the recording practices of BMI, height, and weight on R4 software for paediatric new patient consultations.

Methods: Standards—Local Trust and NHS guidelines set a compliance standard of 100% for recording height, weight, and BMI in all paediatric dental new patient assessments. A two-cycle retrospective audit was conducted (Cycle 1: Oct 2024, n=110; Cycle 2: May–June 2025, n=96). Inclusion criteria covered patients aged 0–18 attending new patient appointments. Interventions between cycles included departmental presentations and the introduction of physical BMI wheels to overcome technical barriers with online calculators.

Results: Full BMI recording improved from 48.2% to 73.9% between cycles. Patients with no height, weight or BMI data recorded decreased from 13.6% to 5.2%. However, 91.4% of cases in Cycle 2 that failed to record BMI, still lacked a documented reason.

Conclusion: Action Plan- Recommendations include integrating mandatory fields in R4 templates to document reasons for exclusions (e.g., age < 3 or cooperation) and providing ongoing staff training on BMI wheel usage. Targeted interventions significantly increased compliance. While height and weight recording is high, further efforts are needed to ensure consistent BMI calculation and documentation of exceptions.

223 Should artificial intelligence and robotic technologies be integrated into dental education? Perspectives of dental professionals and students from a cross-sectional survey

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¹Katip Celebi University, Faculty of Dentistry, Department of Paediatric Dentistry, Türkiye, ²Katip Celebi University, Faculty of Dentistry, Türkiye **Aim:** This study aimed to evaluate knowledge and attitudes toward artificial intelligence (AI) and robotic technologies and to compare perspectives on their integration into dental education among dental students, dentists, and specialist dentists.

Methods: This cross-sectional observational study was conducted using a face-to-face questionnaire with 402 participants. The survey consisted of 22 questions assessing sociodemographic characteristics as well as awareness and knowledge of artificial intelligence, attitudes toward its use, opinions on its integration into education, and educational needs. Data were analysed using chi-square tests ($p < 0.05$).

Results: The study population consisted of 254 (63.2%) students, 73 (18.2%) dentists, and 75 (18.7%) specialist dentists (55.7% female, 44.3% male). Overall, 60.7% of participants reported having at least some knowledge of the use of AI in daily life, whereas 39.3% indicated limited knowledge. The proportion of participants supporting the inclusion of AI-related courses in the dental curriculum was significantly higher among dentists and specialist dentists compared to students ($p < 0.001$). The demand for further learning (79.1%, 84.9%, and 94.7%; $p = 0.006$), willingness to work in clinical teams involving robotic technologies (57.5%, 68.5%, and 77.3%; $p = 0.004$), and preference for robot-assisted simulation training (62.6%, 56.2%, and 76.0%; $p = 0.033$) also differed significantly among students, dentists, and specialist dentists, respectively.

Conclusion: AI and robotic technologies are widely accepted as components of future dental education, with dentists and specialist dentists demonstrating stronger support than students. These findings highlight the need for structured AI education in dental curricula.

254 Reducing non-attendance and supporting service improvement in paediatric dental general anaesthesia attendance: an audit of was not brought and cancellation rates across community dental services (CDS-CIC) bedfordshire

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¹Community Dental Services CIC, United Kingdom Aim: Missed Paediatric Dental General Anaesthetic (DGA) appointments lead to inefficient theatre utilisation, delayed care, and increased burden for children and families. Understanding patterns and causes of non-attendance is essential to inform targeted, sustainable service improvement. The aim was to evaluate Was Not Brought (WNB), Late cancellation, and On-the-Day Cancellation rates across Bedfordshire DGA services and identify potential contributory factors to support service improvement.

Methods: A retrospective audit of DGA sessions delivered by CDS at two hospital sites was conducted over 6 months (January–June 2025). Data were extracted from appointment logs and electronic patient management systems; all DGA bookings were included. Audit standards were aligned with national targets: WNB rate < 10%; Late/On-the-Day patient cancellation rate < 5%. Reasons for non-attendance were thematically coded. Additionally, patient postcodes were mapped to Index of Multiple Deprivation (IMD) quintiles for a descriptive analysis.

Results: 251 DGA appointments were booked. Across both sites, the WNB rate was 5%, meeting the audit standard. The On-the-Day patient cancellation rate was 8%, exceeding the target. 13% of DGA appointments were lost due to WNB or Late/On-the-Day cancellations. Most non-attendance was due to children being unwell; fasting non-compliance was the main avoidable cause. Non-attendance occurred predominantly among patients from more deprived IMD quintiles.

Conclusion: The audit cycle demonstrated acceptable WNB rates but highlighted avoidable On-the-Day cancellations and communication gaps. Standardised appointment reminders, including automated SMS messaging with clear pre-operative instructions, and improved recording of non-attendance reasons were prioritised for service improvement, with re-audit planned over three months from February 2026.

261 Caries experience among children and adolescents depending on socioeconomic factors and its influence on oral health-related quality of life

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¹Department for Paediatric Dentistry, Justus Liebig University Giessen, Germany, ²Private practice, Germany, ³Clinic for Dental Prosthetics, University Medical Centre Schleswig–Holstein, Kiel Campus, Germany Aim: Despite an overall decline in caries prevalence, a small group of children show a strikingly high number of carious lesions. Risk factors such as low socioeconomic status, often associated with low parental education levels and a migrant background, have mostly been considered in isolation to date. The aim of this study was to analyse both factors together in relation to caries experience and oral health-related quality of life (OHRQoL) in children.

Methods: 108 children of the Department for Paediatric Dentistry (Giessen) (45.4% female, mean age 6.95 ± 3.94 years) underwent dental examinations (DMF-T/dmf-t, SiC). Socioeconomic factors (parental education and migration background) were recorded using questionnaires, as was the parents' assessment of their children's general and oral health and OHRQoL assessed using modified OHIP questionnaires. Statistical analysis was performed using SPSS and Spearman's correlation ($p < 0.05$).

Results: mf—t/DMF-T was 6.37 ± 4.09 (SiC: 10.2 ± 2.7 / primary dentition) and 1.83 ± 2.7 (SiC: 4.3 ± 2.9 / permanent dentition). Children of parents with higher educational qualifications had significantly lower dmf-t/DMF-T values than children of parents with lower qualifications ($p < 0.05$). A migrant background (53.3%) was also associated with higher caries values ($p < 0.05$). 80% of parents rated their children's general health and 65% the oral health as excellent. Pain was the most common limitation of OHRQoL (47.2% rarely, 21.7% frequently). Children with caries showed a significantly more limited OHRQoL, especially in cases of severely affected primary teeth.

Conclusions: Caries impairs OHRQoL. Low parental education and migration background are relevant risk factors. The results emphasise the need for targeted prevention concepts to promote oral health in risk groups.

269 Dental treatment under general anaesthesia in special health care needs children: a retrospective study

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¹Stomatology Hospital of Xi'an Jiao Tong University, Xi'an, China **Aim:** This study aimed to retrospectively describe the epidemiological characteristics and dental treatment under general anaesthesia in special health care needs (SHCN) children.

Methods: After approval by the Medical Ethics Committee, medical records of children with SHCN who received dental treatment under general anaesthesia in affiliated Stomatology Hospital of Xi'an Jiaotong University from August 2022 to December 2025 were screened. Quantity-matched uncooperative children who received dental treatment under general anaesthesia during the same period were selected as control group. Demographic information, diagnosis, treatment methods and follow-up records were collected. Mann–Whitney U test, χ^2 and Fisher exact test were used for statistical analysis.

Results: 178 SHCN and 176 children in the control group were included. The average age in SHCN group was 5.96 ± 2.63 year and male was much more than female. 56.7% children in SHCN group were diagnosed with neurodevelopmental disorder (according to International Classification of Diseases 11th Revision). Chronic apical periodontitis (65.17%) was the most frequently chief complaint in SHCN group whilst it was pulpitis (57.39%) in the control group. More extractions and less stainless steel crowns were applied in SHCN group, with statistical differences. 25.84% and 15.73% patients in SHCN group and 44.32% and 32.95% in control group were followed up at 6 and 12 months after treatment, respectively.

Conclusion: Compared with the uncooperative children, SHCN children suffer from more severe dental diseases. More considerations should be paid in dental treatment for SHCN. For caregivers of SHCN children, the awareness of follow-up after treatment should be strengthened urgently.

276 Availability of dental offices seeing children and patients with special health care needs in Canada

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¹Dr. Gerald Niznick College of Dentistry, Rady Faculty of Health Sciences, University of Manitoba, Winnipeg-MB, Canada **Aim:** This study evaluates access to dental care for paediatric and special health care needs (SHCN) patients in Canada by examining dental offices' capacity to accom-

modate them and the barriers offices face in providing care for these patients.

Methods: Weighted ($n = 12,400$) and unweighted ($n = 3615$) data from the 2023/2024 Survey of Oral Health Care Providers, conducted by the Government of Canada and Statistics Canada, was utilised to perform descriptive statistics (means and percentages) and logistic regression models to identify the factors influencing the likelihood of dental offices seeing paediatric and SHCN patients.

Results: Among dental offices in Canada, 59.3% see patients under the age of 3 years for non-emergency dental care and 95.6% were accepting new patients in 2023/2024. Although only 3% primarily offer paediatric dentistry services, 49% can accommodate children with intellectual/developmental disabilities. 11.8% of dental offices cannot accommodate patients with SHCN. 78.9% will accept patients only covered by public plans, such as the Canadian Dental Care Plan (CDCP). Some of the barriers to accommodate patients with SHCN include lack of trained employees (20.4%) and physical space & accessibility (18.9%). Logistic regression analyses are in progress.

Conclusion: Despite recent investments from the Canadian government to address the issue of affordability of oral health care, Canadians still face many barriers to access dental care. About 40% of dental offices in Canada do not see young children for non-emergency dental care and many practices face multiple barriers to accommodate patients with SHCN.

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281 Repeat paediatric dental general anaesthesia in Nottinghamshire and Derbyshire community dental services, 2022–2024

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¹CDS-CIC Nottinghamshire, Nottingham, United Kingdom, ²CDS-CIC Derbyshire, Derby, United Kingdom **Aim:** To determine the incidence and determinants of repeat dental general anaesthesia (GA) among paediatric patients treated within Community Dental Services CIC (CDS) in Nottinghamshire and Derbyshire, January 2022–December 2024, and identify service improvements to reduce avoidable repeat GA.

Methods: Retrospective service evaluation of children undergoing dental GA on CDS lists at Queen's Medical Centre, Nottinghamshire, and Royal Derby Hospital, Derbyshire. Electronic records of all GA episodes were reviewed and screened for repeat GA from January 2022 to December 2024. Data extracted included demographics, deprivation index, medical and behavioural complexity, treatment type,

radiographic assessment, and follow-up pathway. Descriptive and comparative analyses explored associations between repeat GA and clinical, medical, and pathway variables.

Results: A total of 3,504 GA episodes were identified (813 Nottinghamshire; 2,691 Derbyshire). 29 children (0.83%) underwent repeat GA within the study period. Repeat GA was more common among children with medical and behavioural complexity, including autism spectrum disorder, learning disability, and epilepsy. Vast majority of repeat cases were due to new or progressive caries rather than failure of previous treatment. Intervals between GA episodes typically exceeded one year. Lower repeat-GA rates were observed where comprehensive pre-operative radiographs and definitive initial treatment planning had been undertaken.

Conclusion: Repeat paediatric dental GA within Nottinghamshire and Derbyshire CDS-CIC is uncommon but concentrated among children with complex needs and less definitive initial treatment plans. Strengthening specialist-led assessment, radiographic planning, and structured post-GA follow-up may reduce avoidable repeat episodes and optimise limited GA capacity in line with GIRFT and national priorities.

289 Investigation of oral health knowledge, attitude and practice of parents: a cross-sectional study in Kuala Lumpur

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¹Department of Paediatric Dentistry, National University of Malaysia, Bangi, Malaysia, ²Department of Dental Public Health, National University of Malaysia, Bangi, Malaysia **Aim:** This cross-sectional study aimed to assess the level of knowledge, attitude, and practice (KAP) regarding oral hygiene among parents of children aged 4–12 years attending the National University of Malaysia dental facility, as well as to examine the association between parental sociodemographic factors and KAP levels.

Methods: A cross-sectional study was conducted among 111 parents who accompanied their children to the dental clinic. Data were collected using a structured, pre-tested, and validated questionnaire designed to evaluate parental knowledge of oral health, attitudes towards management of primary dentition, and oral hygiene practices related to their children. The questionnaire also included sociodemographic variables such as age, education level, and household income. Data was analysed using descriptive statistics to summarise knowledge, attitude, and practices scores. Inferential statistical analyses were performed to determine associations between sociodemographic factors and KAP levels.

Results: Most parents (72%), demonstrated moderate to good knowledge of oral hygiene, and 68% showed positive attitudes towards preventive dental care. However, oral hygiene practices were suboptimal (57%), notably in tooth-brushing supervision, routine dental visits, and fluoride use. Significant associations were observed using Chi-Square between parental level of education and income with parental knowledge and practice scores ($p < 0.05$).

Conclusion: Despite adequate knowledge and positive attitudes, suboptimal oral hygiene practices persisted even among highly educated and higher-income parents. These findings highlight the need for targeted oral health education and behavioural interventions to improve oral health outcomes among children aged 4–12 years.

290 Development and validation of a questionnaire assessing dentists' knowledge, attitudes, and practices on transition of adolescents with special needs

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¹Department of Family Oral Health, Faculty of Dentistry, National University of Malaysia, Bangi, Malaysia, ²Special Care Dentistry Unit, Department of Oral diagnosis and OMFS, Faculty of Dentistry, International Islamic University Malaysia, Selangor, Malaysia **Aim:** To develop and evaluate the content and face validity of a questionnaire assessing dentists' knowledge, attitudes, and practices regarding the transition of adolescents with special needs from paediatric dental care to special care dentistry services.

Methods: A knowledge, attitudes, and practices (KAP) questionnaire was developed following a structured literature review and domain identification. The preliminary instrument comprised six knowledge items, seven attitude items, seven practice items, and eight sociodemographic items. Content validity was evaluated by four experts in paediatric dentistry and special care dentistry. Item-level content validity indices (I-CVI) were calculated for all items, and scale-level indices (S-CVI/Ave and S-CVI/UA) were calculated separately for the knowledge, attitude, and practice domains. Items with I-CVI = 1.00 were retained, those with 0.75 were revised, and those with ≤ 0.50 were removed. Face validity was assessed among postgraduate paediatric dental students, who evaluated clarity, wording, formatting, and response options.

Results: All knowledge, attitude, and practice domains demonstrated acceptable scale-level content validity. Items with I-CVI = 0.75 were revised to improve clarity and ensure appropriate distinction between attitude and practice constructs. Sociodemographic items demonstrated acceptable I-CVI values and were excluded from scale-level calculations.

Face validity assessment resulted in refinement of ambiguous wording and standardisation of response formats. The final questionnaire retained all domains, with revised and consistently structured items.

Conclusion: The questionnaire demonstrated satisfactory content and face validity following structured expert evaluation and pilot testing. The instrument provides a basis for subsequent psychometric evaluation in larger samples.

296 Dental care for children with special needs in Hungary: 9 years of experience

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¹Semmelweis University, Budapest, Hungary Aim: The number of children with special needs is steadily increasing, creating significant challenges for paediatric dental care. Their treatment frequently requires specialised conditions and sometimes general anaesthesia. This study summarises clinical experience with paediatric dental treatments performed under general anaesthesia in a hospital setting.

Methods: A retrospective analysis of the medical records of patients treated under general anaesthesia between September 1, 2015, and December 31, 2024. Using descriptive statistics, we present the demographic characteristics and composition of the treated population, as well as the therapeutic results.

Results: During the study period, complex dental treatment under general anaesthesia was performed on 504 occasions, of which 66.1% involved boys and 33.9% involved girls. The age of the patients ranged from 2 to 18 years, with a mean age of 10.11 years (± 3.95). The most frequent underlying condition was autism spectrum disorder (36.7%). Other common underlying conditions included epilepsy (9.7%) and Down syndrome (9.5%). The most common procedures were primary tooth extractions (1379) and permanent tooth fillings (1279). 524 primary tooth fillings were performed, and 534 permanent teeth were extracted.

Conclusion: Among children with special needs, premature extraction of primary and permanent teeth is common, highlighting the need for enhanced prevention and caregiver education. Due to poor cooperation, persistently deteriorated oral hygiene often develops, requiring treatment under general anaesthesia. Growing demand exceeds healthcare capacity, leading to longer waiting lists. This necessitates expanding both the number of facilities and their service.

299 Quantifying rising patient complexity and its effect on paediatric dental general anaesthetic: a service evaluation

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¹Alder Hey Children's Hospital, Liverpool, United Kingdom Aim: To quantify the increase in patient complexity and how this affected the running of general anaesthetic (GA) lists. Anecdotally, GA lists were running late, and staff were finding the increasing number of complex patients difficult to manage in the perioperative period.

Methods: Data collection was retrospective and collected for lists in September/October 2022 and September/October 2024. Data was recorded for complexity of medical history (MH), diagnosis of learning disability, autism/ADHD, premed, clinical holding required, and MH requiring special considerations. Number of teeth extracted, restorations / fissure sealants, any other treatment e.g. RCT/surgical extractions, and whether a change to the initial treatment plan occurred was also recorded. Information was collected on whether the procedure went ahead or the patient was cancelled due to time constraints, or for another reason / was not brought.

Results: The complexity of patients booked onto GA cases in the paediatric department has overall increased from 2022 to 2024; this included behavioural complexity (+8.27%), premed planned (+8.63%)/given (+10.74%) and special planning (+8.72%). There was also an increase in patients booked (+33) and increase in cancellations (+2.5%). MH complexity (-2.75%) and amount of extractions decreased while restorations increased from 2022 to 2024.

Conclusion: Overall complexity of booking onto GA theatres has increased. A complexity assessment tool could be developed to integrate the factors identified through this data collection assigning each patient an individual complexity score. A maximum allowable score per GA session could then be set to avoid overbooking with highly complex cases.

311 From classrooms to clinics: smile squad expands children's dental access

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¹University of Liverpool, Liverpool, United Kingdom Aim: To evaluate the impact of the Smile Squad (SS) community engagement programme on improving access to dental care for children living in areas of high deprivation and on enhancing undergraduate clinical experience.

Methods: A retrospective evaluation was undertaken for children referred via the SS during 2024–2025 academic year. In collaboration with Liverpool Football Club

Foundation, the programme provided school-based dental screening, fluoride varnish application and supervised toothbrushing across targeted schools. A key innovative feature is the integrated school to clinic referral model, supporting timely identification and management of dental needs. A bespoke data collection form was designed, piloted, and used to extract data, which were managed in Microsoft Excel 365. Descriptive statistics were performed. Approval was granted by the Clinical Audit Department.

Results: The programme reached 1,594 children, of whom 562 (35%) identified with dental needs. From this, 99 (18%) children attended our clinic for treatment while others accessed care with their local dentist, although these numbers cannot be quantified. Among the 99 children seen, 73% had no regular dentist. A total of 425 appointments were generated, including 86 prevention, 144 fissure sealants, 67 preformed metal crowns, 30 extractions, 21 inhalation sedation appointments, 9 restorations, and 6 silver diamine fluoride applications. Only 10% required referral for general anaesthesia, and 56% were placed on routine recall.

Conclusions: The SS provides a novel, scalable model of community based engagement that improves access to care for underserved children while strengthening undergraduate paediatric clinical experience. Early identification reduced treatment complexity and minimised general anaesthetic referrals.

317 Caries experience and oral health-related quality of life: a cross-sectional study of schoolchildren in Sirte, Libya

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¹University of Benghazi, Benghazi, Libya, ²University of Sirte, Sirte, Libya **Aims:** To assess caries experience, associated risk factors, and its impact on the quality of life among 12–15 year-old schoolchildren in Sirte, Libya.

Methods: A cross-sectional survey was conducted in Sirte, Libya, in 2025. A self-administered questionnaire collected socio-demographic data and oral health behaviours, incorporating the Caries-QC (Quality of Life) tool. Clinical examinations for dental caries and oral hygiene were performed by calibrated examiners following WHO (World Health Organisation) criteria. Binary logistic regression analysis was employed for caries prevalence as an outcome variable. Caries-QC scores were compared across socio-demographic characteristics. Statistical significance for all analyses was set at $p < 0.05$.

Results: Of the 1,045 schoolchildren surveyed, 519 (49.7%) had dental caries. The mean number of decayed teeth was 1.04 (SD = 1.44). The likelihood of having dental caries was significantly higher among children who frequently consumed sugary drinks (B = 1.52, CI: 1.17, 1.95,

$P = 0.001$) and higher simplified oral hygiene index scores (B = 1.44, CI: 1.24, 1.67, $P < 0.001$). Conversely, caries was less prevalent among males (B = 0.73, CI: 0.53, 0.94, $P = 0.014$) and children of university-educated mothers (B = 0.71, CI: 0.54, 0.93, $P = 0.014$). Higher scores of caries-QC were observed among females ($P < 0.001$) and children of less-educated mothers ($p = 0.010$).

Conclusions: These findings demonstrate that dental caries affects a substantial proportion of schoolchildren in Sirte, resulting in notable impacts on their quality of life. The study underscores the detrimental role of behavioural risk factors and highlights significant socio-economic inequalities in caries distribution. There is an urgent need for interventions at both individual and community levels to mitigate the occurrence and impact of dental caries in this population.

324 Right treatment, right time: closing the access gap for specialist paediatric dental care

Janine Bailey¹, Charlotte Lewis¹, Sondos Albadri¹

¹School of Dentistry, University of Liverpool, Liverpool, United Kingdom **Background:** Access to primary dental care in England remains a challenge, particularly for children and young people in socioeconomically deprived and medically vulnerable groups. This case series demonstrates the clinical value of a local oral health initiative ‘Smile Squad’ a collaborative initiative between Liverpool Football Club Foundation (LFC) and University of Liverpool. The initiative operates school screening in areas of highest deprivation (IMD I) and Offer access for children who are unable to access general dental practice on the teaching clinics.

Case reports: Three cases referred from this initiative highlight the consequences of failed access. The first, a 10 year female who sustained avulsion of UR1 with no space maintenance, leading to space loss and aesthetic compromise. The second, a 10 year-old male, presented with a history of primary tooth trauma with a dilacerated, unerupted maxillary incisor, and hypodontia requiring coordinated surgical and orthodontic management. The third, a 10 year-old male with Haemophilia A, required deep caries management in permanent molars; without timely restorative care, extraction could have posed significant haemorrhagic risk.

Follow-up: In each case, absence of primary care dental access resulted in delayed diagnosis, disease progression, and increased treatment complexity. The impact was not only aesthetic and functional, but also psychological.

Conclusion: These cases demonstrate that targeted, community-based programmes are essential to ensure access to dental care for children in high-deprivation areas; without them, children will continue to present late with advanced

pathology, widening oral health inequalities. Collaborative pathways are critical to delivering timely care and preventing avoidable long-term complications in children.

338 A comparative study of dental fluorosis among 12-year-old schoolchildren in two Libyan cities with different drinking water fluoride levels

Ghada Hamad¹, **Khawla Busrira**², **Amna Ahmed**³, **Arheiam Arheiam**¹

¹Almanar Alsateh Medical University, Derna, Libya, ²Omar Almokhtar University, Albyda, Libya, ³Sirte University, Sirte, Libya **Aim:** The study aimed to compare and assess related factors to dental fluorosis (DF) in two Libyan cities with different sources of drinking water and hence different levels of fluoride exposure.

Methods: A cross-sectional survey was conducted among randomly selected 12 year-old schoolchildren in two Libyan cities: Albida (low) and Sirte (high) fluoride levels. DF was assessed in schools using Dean's Index by calibrated examiners, and a self-administered questionnaire was used to collect socio-demographic and fluoride exposure data. DF prevalence was compared by exposure and sociodemographic factors using SPSS 2025.

Results: Data from 945 schoolchildren, with nearly equal proportions of gender and residence, were analysed. The overall prevalence of DF was 17.9%, with many cases observed in the high-fluoride (72.8%) compared with the low-fluoride area (27.2%) ($P < 0.001$). Although no statistically significant differences were observed with respect to participants' gender, parental education or school type, higher DF rates were associated with the use of high amount of toothpaste ($p = 0.001$) and with drinking public water/natural water as compared with filtered water ($p = 0.006$).

Conclusions: The study findings support a strong association between higher fluoride levels in drinking water and increased prevalence of dental fluorosis; it also highlights the importance of the amount of toothpaste used during toothbrushing as a potential risk factor for DF in children. There is an urgent need to direct oral health promotion activities toward the appropriate use of toothpaste and the maintenance of optimum levels of fluoride in drinking water.

363 Infection prevention and antibiotic prescribing in paediatric head and neck dog bite injuries: a multicentre retrospective review

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¹Oral And Maxillofacial Surgery Department, Pinderfields Hospital, Mid Yorkshire Teaching NHS Trust, United Kingdom, ²Leeds General Infirmary, Leeds, United Kingdom **Aim:** To

evaluate adherence to infection prevention strategies, focusing on antibiotic prescribing and clinical outcomes in paediatric head and neck dog bite injuries presenting to two UK emergency departments.

Methods: A retrospective multicentre observational study was conducted across the emergency departments of Pinderfields Hospital and Leeds General Infirmary between 1 January 2021 and 31 December 2022. Electronic records were identified using coded categories and keyword searches. Patients under 17 years with confirmed dog bite injuries involving the head and neck were included. Data collected included demographics, injury characteristics, antibiotic prescribing, complications and socioeconomic deprivation. Descriptive statistics were used.

Results: Forty paediatric head and neck dog bite injuries met inclusion criteria. Median age was 5 years. The lip was the most commonly affected site (57.5%). A known dog was documented in 78% (31/40) of cases. Antibiotic prophylaxis was initiated in all patients. At Pinderfields Hospital, only 28% received the guideline-recommended 3-day antibiotic course, with variation between 3, 5 and 7 days. At Leeds General Infirmary, prescribing was guideline-compliant in all but one patient. Overall postoperative infection rate was 5% (2/40), with one patient (2.5%) requiring secondary scar revision. Fifty-five per cent (22/40) were from the most deprived socioeconomic tertile.

Conclusion: Infection prevention principles were well adhered to, with universal antibiotic initiation and low infection rates. Variation in antibiotic duration highlights scope to improve prescribing consistency. The disproportionate burden in socially deprived children emphasises an important public health inequality.

376 Evaluation of the prevalence, aetiology, and risk factors of early childhood caries in preschool children

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¹Department of Paediatric Dentistry, Faculty of Dentistry, Dokuz Eylül University, İzmir, Türkiye **Aim:** This study evaluated the prevalence of Early Childhood Caries (ECC) and its association with oral health-related quality of life (OHRQoL) in preschool children and their families, while investigating associations between dental history, sociodemographic factors, and clinical indices.

Methods: This cross-sectional study included children under 72 months of age who attended the Department of Paediatric Dentistry at Dokuz Eylül University in 2025. Sociodemographic characteristics, nutritional habits, dental history, and OHRQoL (ECOHis) were collected using structured parental questionnaires. Clinical examinations were conducted using dmft, dmfs, and Oral Hygiene Index (OHI)

scores; additionally, Developmental Defects of Enamel (DDE) and Body Mass Index (BMI) scores were recorded. Data were analysed using IBM SPSS Statistics 27.0, with $p < 0.05$ considered significant.

Results: The mean age of the 425 children was 54.40 ± 12.75 months. Severe ECC (S-ECC) was present in 85.4% of participants; mean dmft and dmfs scores were 9.67 ± 4.99 and 20.27 ± 14.98 , respectively. Low household income, rural residence, and low parental education were significantly associated with higher caries prevalence and poorer oral hygiene ($p < 0.001$). Children with low BMI had significantly higher dmfs scores ($p = 0.017$), and DDE presence increased dmfs scores ($p < 0.001$). Nocturnal feeding, irregular consumption of sugary foods, and initiating tooth brushing after 24 months were associated with higher caries scores ($p < 0.001$). Furthermore, a strong positive correlation was found between dmfs scores and total ECOHIS scores ($r = 0.6$; $p < 0.001$).

Conclusion: This study demonstrated a high prevalence of S-ECC among preschool children. The findings suggest that ECC is influenced by a complex interplay of sociodemographic, nutritional, and clinical factors, underscoring the need for comprehensive public health strategies focused on early prevention and intervention.

390 Evaluation and redesign of dental assessment pathways for children undergoing cardiac surgery at Alder Hey Children's Hospital

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¹**Alder Hey Children's Hospital, Liverpool, United Kingdom**
Aim: Dental assessment is an important component of pre-operative workup for children undergoing cardiac surgery due to the increased risk of infective endocarditis associated with untreated dental disease. At Alder Hey, dental assessment traditionally occurs during the final pre-operative clinic, often days before surgery, risking late identification of dental disease and avoidable cancellations. The aim was to undertake a baseline evaluation of the current dental assessment pathway and assess the impact on cardiac surgery cancellations to inform service redesign.

Methods: A retrospective review of clinical records was undertaken for all children attending the pre-operative cardiac assessment clinic between September–November 2025 requiring dental assessment. Outcomes included dental fitness (absence of dental disease requiring intervention), treatment modality required and impact on planned cardiac procedure, including waiting times.

Results: Forty consecutive patient records were reviewed. Six (15%) were deemed dentally unfit, resulting in cancellation of their planned cardiac surgery. One required dental

treatment under local anaesthetic and proceeded to surgery following an eight-day delay. Five required dental treatment under general anaesthetic: three underwent dental GA within twelve weeks, while two remained awaiting treatment (January 2026). All are still waiting for cardiac surgery. Impacts included added stresses to patients and families and increased pressure on stretched dental GA services.

Conclusion: Late dental assessment contributes to cardiac surgery cancellations. A new pathway has since been implemented with an earlier dental assessment at the time of initial cardiac pre-assessment (3–12 months before surgery). The service will be re-audited in Summer 2026 to evaluate the impact of the introduced pathway.

435 Parental awareness and attitudes toward artificial intelligence applications in children's oral health

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Objective: To assess parents' knowledge, attitudes and awareness toward artificial intelligence (AI) applications in paediatric oral health and to determine the perceived benefits of AI-assisted diagnostic and preventive approaches for enhancing early detection, clinical decision-making, and long-term oral health outcomes in children.

Methods: This cross-sectional questionnaire study included 150 parents of children aged 1–13 years. A structured survey including demographic variables, oral health behaviours, and AI-related awareness and attitudes was administered. Responses were recorded using a 5-point Likert scale. Statistical analyses were carried out using Jamovi statistical software. Descriptive statistics and group comparisons (chi-square and non-parametric tests) were performed ($p < 0.05$).

Results: Participants were predominantly female (64.0%), and 66.0% had a university degree or higher. Self-reported AI knowledge was low (Mean 2.35 ± 1.18), with 59.3% rating their knowledge as low or very low. Awareness of AI-based caries detection and caries-risk assessment applications was limited. Despite this, attitudes toward AI-supported applications were generally positive: 56.7% favoured AI-assisted appointment planning, 56.6% supported gamified oral health education, and 52.7% believed AI could improve children's oral health habits. However, 50.0% expressed concerns regarding data privacy. Higher education level was significantly associated with greater AI awareness ($p < 0.05$).

Conclusion: Parental awareness of AI applications in paediatric oral health remains limited; however, attitudes toward AI-supported preventive and diagnostic tools are generally

positive. Educational strategies may enhance acceptance and integration of AI technologies into paediatric dental care.

448 Non-traumatic dental condition attendances to the paediatric emergency department: a 2025 service evaluation, Liverpool, England

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¹Alder Hey Children's Hospital, Liverpool, United Kingdom **Aim:** The Paediatric emergency department (PED) is commonly accessed by children for non-traumatic dental conditions (NTDC), with presentations including dental abscess, pain, post-operative complications and oral lesions. Some of these presentations represent suboptimal use of ED resources- understanding the diagnostic profile of these attendances is essential to inform service improvement and targeted interventions. The aim was to analyse the presentation pathways, frequency of attendance and management of NTDCs presenting to the ED.

Methods: Retrospective data collection of all NTDC attendances to PED across the 12 months of 2025 using primary dental and maxillofacial codes and analysing electronic records.

Results: A total of 349 children with NTDC presented to Alder-Hey in 2025, of which 56%(n=196) presented with dental abscesses. The majority (54%, n=187) were referred for an on-call dental opinion. Of these, 40% (n=75) patients were admitted, and 79% (n=59) of admitted patients had surgical intervention under general anaesthetic. Less than half (48%) of all patients were recorded to have a registered dental practice, and 58% live within the 2nd decile of most deprived areas (IMD1+2). Variation in diagnosis coding and management pathways was observed, suggesting uncertainty in assessment and treatment among ED clinicians. Recommendations -Signposting to emergency dental services should be readily available, preferably in written format.

Conclusion: NTDCs account for a significant number of ED presentations, with many attending out of hours and requiring antibiotic or surgical intervention. Referrals to ED from regional EDs and general dentists may contribute to delays in treatment, highlighting need for education and enhanced service provision.

463 Molar incisor hypomineralisation: knowledge, perceptions and clinical practices of dental therapists and oral health therapists in New Zealand

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¹University of Otago, Dunedin, New Zealand **Aim:** To investigate knowledge, perceptions, diagnostic accuracy, management practices, and referral preferences relating to molar-incisor hypomineralisation (MIH) and hypomineralised second primary molars (HSPM) among New Zealand (NZ) dental therapists (DTs) and oral health therapists (OHTs).

Methods: A national cross-sectional web-based questionnaire was distributed to DTs and OHTs (n = 810). The survey comprised three sections: (I) demographic characteristics; (II) knowledge, perceptions, and confidence regarding MIH and HSPM; and (III) photograph-based assessment of diagnostic accuracy, management decisions, and referral timing. Descriptive statistics and χ^2 /Fisher's exact tests were performed using Stata (p < 0.05).

Results: 306 clinicians completed the survey (response rate 38%). Participants were predominantly OHTs (78%), female (93%), and practising in the public sector (70%). MIH and HSPM were frequently encountered, particularly within public sector. While over two-thirds of respondents reported confidence in diagnosing MIH and HSPM, confidence in management was comparatively lower. Greater confidence was associated with DTs and experienced clinicians. Diagnostic accuracy varied by lesion severity and tooth type: mild lesions were more readily identified, whereas severe molar lesions were commonly misclassified as enamel hypoplasia. Most respondents (95%) indicated a need for further MIH-related education. The mean referral age for MIH-affected first permanent molars was 8.7 years (SD 1.73), with most selecting 8–9 years. Referral practice differed significantly by sector with majority (65%) referring to community dentist.

Conclusion: Although MIH is widely encountered in NZ practice, variability in diagnostic accuracy and management confidence persists. Targeted education and clearer referral pathways may enhance consistency of care and clinical outcomes for affected children.

465 Oral health of children and adolescents with type 1 diabetes mellitus: an umbrella review

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²Department of Periodontology, School of Dentistry, National and Kapodistrian University of Athens, Greece, ³Clinical Research & Evidence-Based Medicine Unit, Second Medical Department, Aristotle University Thessaloniki, Greece, ⁴Laboratory of Hygiene, Social-Preventive Medicine & Medical Statistics, School of Medicine, Aristotle University Thessaloniki, Greece. **Aim:** To summarise and evaluate evidence from systematic reviews (SRs) on oral health of children and adolescents with Type 1 Diabetes Mellitus (T1DM).

Methods: The umbrella review protocol was registered in PROSPERO (CRD420251103557). Literature search was conducted in four databases for SRs, with or without meta-analysis, reporting on dental caries and/or periodontal health of patients up to 19 years-of-age with T1DM, compared to healthy controls. Study selection and data extraction were performed independently by two reviewers and findings were synthesised descriptively. Overlap of primary studies was assessed using the Corrected Covered Area and methodological quality using the ROBIS tool.

Results: Eleven SRs were included, from a total of 3,437 records. Each review included a range of primary studies (2–35), identifying a total of 81 studies (very high overlap). Most were cross-sectional with the sample size ranging between 174–2,669 in T1DM and 217–2465 in healthy controls. Five SRs were of high risk of bias, with the remaining being either of low ($n=3$) or unclear ($n=3$). Dental caries did not differ significantly in primary dentition, whereas in permanent, some reviews reported an increased prevalence, particularly in those with poorer glycaemic control. Greater gingival inflammation and periodontal tissue destruction were observed in paediatric patients with T1DM.

Conclusion: Children and adolescents with T1DM may be at increased risk for periodontal disease with the evidence for dental caries remaining inconsistent. The methodological heterogeneity of existing evidence highlights the need for new, well-designed longitudinal studies and high-quality SRs using standardised outcome measures.

470 The causal effect of premature extraction of primary teeth under general anaesthetic on orthodontic treatment need among children participating in a longitudinal birth cohort

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¹University of Leeds, United Kingdom, ²Bradford Community Dental Service, United Kingdom, ³Hamdan Bin Mohammed College of Dental Medicine, United Arab Emirates, ⁴University of Sheffield, United Kingdom, ⁵Bradford Teaching Hospital NHS Foundation Trust, United Kingdom, ⁶Born

in Bradford, Bradford Institute for Health Research, United Kingdom, ⁷Leeds Beckett University, United Kingdom **Aim:** This study aimed to estimate the causal effect of premature extraction of primary teeth under general anaesthetic (PEP-TuGA) on orthodontic need.

Methods: A sub-sample of children participating in the Born in Bradford (BiB) longitudinal birth cohort was recruited. Trained examiners undertook dental examinations, extra-oral and intra-oral photographs and dental impressions. An earlier study identified BiB children who received PEP-TuGA. A blinded expert panel, comprising three specialist orthodontists, independently assessed the study data using the Dental Health Component of the Index of Orthodontic Treatment Need. (IOTN-DHC). The proportion of participants judged in need of orthodontic treatment (IOTN-DHC 4 and 5) was calculated. Orthodontic treatment need was compared between PEPTGA and no-PEPT groups using causal inference methods. The assumed underlying data generation processes were encoded in a directed acyclic graph to inform the causal analyses.

Results: In total, 332 participants aged 8–11 years from 16 primary schools were recruited and complete records were obtained for 280, of which 37 had undergone PEP-TuGA (exposure). Thirty-one participants with PEPTuGA (83.8%) were assessed in need of orthodontic treatment compared to 99 participants without PEPT (40.7%). The PEP-TuGA group had increased proportions of IOTN-DHC 5i and 4d. The causal effect of PEPTuGA on future orthodontic need (outcome) was a relative risk of 1.6 (CI 0.69–3.71) and the number needed to harm was 4.1 (0.9–∞).

Conclusion: PEPTuGA led to an increased need for orthodontic treatment. Further research is warranted to quantify the precision of this estimate among older children with an established permanent dentition.

493 Mothers' knowledge and self-reported performance regarding the management of traumatic dental injuries and associated factors

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¹Ajman University, Ajman, United Arab Emirates **Aim:** As mothers are usually the first point of care for their children, their knowledge and response to traumatic dental injuries (TDIs) can significantly impact their outcomes. This study aimed to evaluate mothers' knowledge and self-reported performance in the management of TDIs, with associated socio-demographic factors.

Methods: A cross-sectional survey was conducted among 350 mothers of children aged 8–16 years attending the dental clinics at Ajman University, United Arab Emirates. Ethical approval was obtained from the Research Ethics Committee of Ajman University. Enrolment in the survey was

voluntary, and the sample was collected using convenience sampling. Data were collected using a structured, validated questionnaire distributed to the mothers. The questionnaire included three sections on demographic characteristics, previous experience with traumatic dental injuries, knowledge about emergency management, and consequences of TDIs. Descriptive statistics were presented as frequencies and percentages. Group differences in mean scores were examined using independent t-tests and one-way ANOVA.

Results: Most of the mothers were aged 31–40 years and held a bachelor's degree. Overall knowledge of TDIs was low, as the mean knowledge score of mothers was 1.51, while the self-reported performance mean was 3.63. Knowledge scores showed no significant differences according to mothers' age, education, employment status, or previous TDI experience ($p > 0.05$).

Conclusion: Enhancing mothers' knowledge of appropriate interventions and measures to be taken is crucial for the proper management of dental trauma and for improving clinical outcomes, as it supports the timely implementation of appropriate actions.

505 A quality improvement project on the virtual paediatric consultant clinic in a community dental service: a need for a standardised process for patient follow-up following review on the virtual consultant clinic

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¹Central London Community Healthcare Trust, United Kingdom **Aims:** The paediatric dental service runs a monthly consultant clinic, including a virtual component in which patient information is used to formulate a decision on their treatment, with the visiting consultant, in the patient's absence. There is no standardised process for clinicians follow when adding and following up patients to the virtual consultant clinic (VCC). This QIP aims to establish a standardised process for clinicians to follow which ensures: Outcome of the VCC is recorded in patients' notes. The patient/parent is aware of their outcome. The outcome been actioned.

Methods: 1. Retrospective service evaluation of three VCCs (51 patients) to assess current practice/ determine areas for improvement. 2. Development of standardised process with colleague input. 3. Review of VCC following implementation of standardised process to ensure effectiveness.

Results: A flowchart was created for clinicians to follow when adding and following up patients on the VCC. Evaluation of effectiveness following implementation compared to retrospective service evaluation prior to implementation found: 100% of patients had their outcome recorded

compared to 82% prior to implementation (average time taken for completion reduced to 0.8 days from 3.7 days); 100% of patients/parents were aware of their VCC outcome compared to 75% prior (average time taken reduced to 1 day compared to 12 days); 100% had their outcome followed-up, whereas 5.9% patients were lost to follow-up prior to implementation of standardised process.

Conclusion: The standardised process has improved patient outcomes following review on the VCC and avoided loss to follow-up.

515 Epidemiological profile of tooth number anomalies among paediatric dental patients at a Malaysian Dental Teaching Institution: an 8 year retrospective analysis

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¹Faculty of Dentistry, Universiti Teknologi MARA (UiTM), Sungai Buloh, Selangor, Malaysia, ²Ministry of Health, Kompleks E, Pusat Pentadbiran Kerajaan Persekutuan, Putrajaya, Malaysia, ³Centre of Paediatric Dentistry and Orthodontics Studies, Faculty of Dentistry, Universiti Teknologi MARA, Sungai Buloh, Selangor, Malaysia, ⁴Centre of Oral and Maxillofacial Diagnostic and Medicine Studies, Malaysia **Aim:** To determine the prevalence, demographic distribution, and clinical patterns of supernumerary teeth (ST) and hypodontia among non-syndromic paediatric patients attending the Faculty of Dentistry, UiTM Sungai Buloh.

Methods: A retrospective cross-sectional study was conducted among non-syndromic paediatric patients age below 16 years old, who underwent panoramic radiographs at UiTM Sungai Buloh between 2018 and 2025. Eligible patients were evaluated for ST and hypodontia according to the inclusion criteria. Demographic and clinical characteristics were recorded. Prevalence was determined using descriptive statistics, and associations were analysed using Chi-square and independent t-tests ($p < 0.05$).

Results: Out of 3857 patients screened, a total of 534 patients with tooth number anomalies were identified, with the prevalence of supernumerary teeth of 5.89% ($n = 227$) and hypodontia was 7.96% ($n = 307$). Supernumerary teeth showed male predominance (65.2%; male-to-female ratio = 1.87:1), whereas hypodontia was more frequent in females (59.3%; male-to-female ratio = 1:1.46), with a significant association between gender and anomaly type ($p < 0.001$). The mean diagnosis age of patients with supernumerary teeth was 10.30 ± 3.39 years, significantly lower than hypodontia patients (11.18 ± 3.57 years) ($p = 0.004$). Premolars were the most commonly missing teeth, while supernumerary teeth were predominantly located in the maxilla.

Conclusion: Tooth number anomalies were more prevalent among current paediatric population compared to previous reports. Supernumerary teeth were more common in males and mainly occurred in the maxilla, whereas hypodontia was more frequent in females and most commonly involved premolars.

Topic 05. Oral medicine and pathology

89 Venous microcystic lymphatic malformation in a teenage patient

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¹University of Manchester, Manchester, United Kingdom, ²University Dental Hospital of Manchester, Manchester, United Kingdom **Background:** Lymphatic malformations can occur in patients of all ages, and commonly present in the head and neck region. Lymphatic malformations can increase in size, become infected, cause pain and can rupture leading to unpleasant discharge or bleeding. Prompt assessment and management is necessary.

Case report: A 13 year-old male was referred to the Paediatric Dentistry team regarding a well-circumscribed erythematous swelling of the right buccal mucosa. This was fluctuant and did not blanch on pressure. The patient reported that the swelling varied in size, could be uncomfortable, and occasionally bled with inadvertent trauma.

Treatment: Urgent ultrasound with doppler was arranged for initial assessment, which identified no abnormalities. Upon referral and review by an Oral Medicine specialist, the typical “frog-spawn” appearance of the lesion raised suspicion of vascular microcystic lymphangiomatic malformation. The latter was confirmed on MRI with contrast, which defined the extent as superficial and localised. Due to the patients age and schooling commitments, a conservative management approach was adopted. He was advised to keep a diary recording recurrences.

Follow-up: Over the last year, he reported three episodes of flare-ups of self-limiting painless swelling, which resolved within five days. Further review has been arranged. In the future, if the patient wishes for intervention, this superficial lesion may be amenable to surgical management.

Conclusion: Lymphatic malformations can have variable presentations and can present in children. Assessment and management can be challenging in paediatric patients, and careful evaluation is necessary to ensure appropriate treatment, which could include surgery, sclerotherapy or pharmacological therapies.

202 Beyond lip swelling: isolated gingival orofacial granulomatosis in a child

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¹University Dental Hospital of Manchester, Manchester, United Kingdom, ²Manchester University NHS Foundation Trust, Manchester, United Kingdom **Background:** A diagnosis of Orofacial Granulomatosis (OFG) can be made based on clinical history and characteristic symptoms. Intraoral biopsy can be invasive in children and may not always confirm the disease. Diagnosing isolated gingival OFG in the absence of other features requires exclusion of local irritants, benign tumours, infections and systemic disease. This case describes OFG presenting as localised granulomatous mucogingivitis without diagnostic Crohn’s disease.

Case report: An 11 year-old female was referred to Oral Medicine with a two-year history of localised gingival inflammation causing discomfort alongside psychological distress related to its appearance. Medical history included abdominal pain, constipation, and rectal bleeding. Clinical examination revealed inflamed hyperplastic gingivae localised to UR2–UL4, with no other orofacial features of OFG. Periodontal health and oral hygiene were satisfactory.

Treatment: A multidisciplinary approach with Gastroenterology included serology, bowel endoscopies and gingival biopsy. Gingival biopsy confirmed OFG whilst bowel biopsies demonstrated non-specific chronic inflammation not diagnostic of Crohn’s disease. First-line management included cinnamon-and-benzoate exclusion diet, optimisation of oral hygiene and periodontal care. Soluble prednisolone 5 mg rinses twice daily was prescribed, followed by topical tacrolimus 0.03% applied sparingly to lesional gingiva three times weekly, however treatment compliance was poor.

Follow-up: Over three years of follow-up, adherence to the exclusion diet and use of SLS-free toothpaste alone resulted in resolution of gingival swelling and inflammation.

Conclusion: OFG can present atypically with isolated gingival involvement, making diagnosis challenging. This case highlights that persistent localised gingival hyperplasia may represent OFG and be misdiagnosed as plaque-induced or drug-induced gingivitis.

231 An overlooked trigger: sodium benzoate in ibuprofen and persistent orofacial granulomatosis

Catherine Boutros¹, **Sarah Imam**¹, **Ajit Tandy**¹

¹Birmingham Children’s Hospital, Birmingham, United Kingdom **Background:** A 9 year-old female was referred by rheumatology with painful full thickness gingival hyperplasia. She had a background of chronic recurrent multifocal

osteomyelitis (CRMO), which is a rare autoinflammatory, non-infectious bone condition, primarily affecting children, and was managed with ibuprofen.

Treatment: Incisional biopsy demonstrated focal ulcerated gingival squamous mucosa associated with pronounced gingival inflammation. Multiple rounds of subgingival professional mechanical plaque removal (PMPR) were completed, which provided some improvement in patient's symptoms, however, persistent gingival enlargement and pain remained. She later developed diffuse swelling of the lower lip and based on clinical presentation and limited response to periodontal therapy, a provisional diagnosis of orofacial granulomatosis (OFG) was made. The patient was advised to follow a cinnamon and benzoate free diet, consistent with recommended first-line management strategies.

Results: Although there was initial improvement in the gingival inflammation, gingival enlargement and intraoral ulceration persisted. On further review of the patient's dietary and medication history revealed that the patient's ibuprofen oral suspension contained sodium benzoate. As her CRMO was in remission, alongside rheumatology team, we advised stopping the ibuprofen. On subsequent review, the patient's oral symptoms had significantly improved and there was a marked reduction in gingival inflammation and swelling.

Conclusion: This case emphasises the importance of thorough dietary and medication assessment in suspected OFG. Clinicians should be aware that certain ibuprofen formulations contain sodium benzoate, which may exacerbate oral inflammatory manifestations in susceptible individuals.

293 Shining a light on patient experiences: a service evaluation involving two photobiomodulation modalities for oral mucositis in children with cancer

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¹Community Dental Services CIC, Bedfordshire, United Kingdom, ²Glasgow Dental School and Hospital, Glasgow, United Kingdom **Aim:** To explore patient and family experiences of photobiomodulation (PBM) for managing oral mucositis (OM) in paediatric oncology patients.

Methods: An anonymous survey was available over a nine month period for voluntary completion by patients, or by parents/carers of children receiving PBM. The evaluation spanned two PBM modalities. Initially, low-level laser therapy (LLLT) was used for the treatment of established mucositis. Partway through the survey period, this was replaced with LED-based PBM, which was subsequently delivered for both treatment and prevention. The survey consisted of closed question items alongside space for free-text comments.

Results: Seventy responses were received (14 LLLT and 56 LED). The majority of surveys were completed by a parent/carer alone (80%), with 13% completed by the patient and 7% jointly. Overall, 96% of respondents recommended PBM (100% of those receiving LLLT). Among respondents relating to children receiving PBM for established OM (14 LLLT; 26 LED), only one response indicated no improvement, while six felt it was too early to determine benefit. Reported improvements included reductions in mouth pain, and better ability to eat, drink, brush teeth and swallow. Of the 34 respondents relating to children with experience of both modalities, 11 indicated a preference for LED and 3 LLLT. Themes emerging from free-text comments centred on how treatment was delivered and the benefits patients and families felt PBM provided.

Conclusions: This questionnaire captured experiences of two PBM modalities. Further work, particularly capturing initial presenting concerns, would support clearer interpretation of perceived improvement, helping refine understanding of PBM's role in this population.

330 "When the Mouth Speaks First": oral manifestations in paediatric Crohn's disease. A case report

Maria-Despina Karadimitriou¹, **Ioannis Xinias**², **Eleftherios Anagnostou**¹, **Konstantinos Arapostathis**¹, **Dimitrios Andreadis**³

¹Paediatric Dentistry, School of Dentistry, Aristotle University of Thessaloniki, Greece, ²School of Medicine, Aristotle University of Thessaloniki, Greece, ³Department of Oral Medicine and Pathology, School of Dentistry, Aristotle University of Thessaloniki, Greece **Background:** Oral granulomatous lesions may represent a localised oral disorder or a sign of systematic granulomatous diseases including sarcoidosis, tuberculosis, or Crohn's disease as an early extraintestinal manifestation in paediatric patients.

Case report: A 12 year-old female presented with swelling of the anterior maxillary gingiva and upper lip lasting approximately 20 days. She was undergoing orthodontic treatment (Rapid Palatal Expander-RPE). Clinical examination revealed gingival nodular enlargement, associated upper lip swelling, erythema as well as atypical ulcerations of the left buccal sulcus. Her medical history included constipation and haemorrhoids, with no other gastrointestinal or respiratory complaints. Biopsies obtained from oral lesions revealed granulomatous inflammation, with multiple non-caseating granulomas composed of epithelioid histiocytes and multinucleated giant cells, along with dense lymphoplasmacytic and neutrophilic infiltrates. Clinical and serologic tests excluded infectious or autoimmune disorders. Subsequent gastroenterological evaluation demonstrated endoscopic findings including inflammation of the terminal ileum

and a solitary caecal ulcer. Histopathological examination of intestinal biopsies showed non-caseating granulomas compatible with granulomatous ileitis and colitis. Laboratory investigations revealed characteristic elevated faecal calprotectin (269 µg/g) leading to diagnosis of Crohn's disease.

Treatment: Oral lesions were treated successfully with topical betamethasone and hyaluronic acid for 3 weeks. In addition, systemic low-dose prednisone and whole-protein 100% casein-based, powdered formulation (Modulen) were administered for gastrointestinal lesions with excellent improvement after 2 months.

Follow-up: After a 24 month-follow up the patient's oral mucosa remains normal with no further gastrointestinal worsening.

Conclusion: This case highlights the importance of recognising granulomatous oral lesions as a potential initial manifestation of Crohn's disease in children and interdisciplinary collaboration.

335 Any RIME or reason? A case of reactive infectious mucocutaneous eruption (RIME) in an adolescent male

Francesca Hodgetts¹, Shir-Lynn Tan¹, Alexander Crighton¹

¹Newcastle Dental Hospital, Newcastle, United Kingdom Background: Reactive infectious mucocutaneous eruption (RIME) is a rare but severe mucocutaneous inflammatory condition that most frequently affects children and adolescents, with a notable male predominance. Oral mucosal involvement is prominent and may occur with or without cutaneous or ocular lesions. Although RIME was originally thought to be exclusively associated with *Mycoplasma pneumoniae*, other bacterial and viral agents have been implicated as possible triggers.

Case report: We present the ongoing management of a 14 year-old male referred to the Newcastle Dental Hospital Joint Paediatric Dentistry-Oral Medicine clinic following attendance to the A&E department with widespread intraoral ulcerations, and lips erosions with haemorrhagic crusts. Oral lesions appeared following an episode of tonsillitis with fever. Extensive oral involvement resulted in reduced oral intake. More significantly, the patient's mother reported a 5 year history of 7 episodes of recurrent similar oral flare-ups often accompanied with systemic symptoms, and occasionally with skin rashes.

Treatment: Microbiological tests during his hospital attendances showed positivity of Varicella Zoster virus and Epstein-Barr virus at different time points. Each episode required a short course of acyclovir and prednisolone; 200 mg acyclovir five times daily and 20 mg prednisolone once daily led to full resolution.

Follow-Up: Regular follow-ups at Newcastle Dental hospital joint clinic.

Conclusion: The diagnosis of RIME is challenging due to variable clinical presentation and causative microbes. It should be considered in paediatric patients presenting with oral eruptions associated with viral or bacterial infections. Early multidisciplinary input is crucial to allow timely identification and a preventative strategy management plan to be established.

336 Management of an ameloblastoma of the maxilla in a paediatric patient: a case report

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Background: Ameloblastomas are rare benign but locally aggressive odontogenic tumours, particularly uncommon in the paediatric population. The WHO classifies them into subtypes, one of which is the unicystic variety (luminal and intraluminal). This is associated with a lower recurrence rate following conservative management compared with other variants. Historically, standard treatment has consisted of resection with at least a 1 cm bony margin. However, enucleation, with or without Carnoy's solution, has been recognised as a treatment modality, especially when present in the mandible.

Case report: A 12 year-old boy was referred by his Orthodontist for an asymptomatic left maxillary swelling which had increased in size over the last six months. Medically, he was fit and well. Based on clinical and radiographic findings, a provisional diagnosis of a dentigerous cyst was made.

Treatment: He underwent enucleation of the cyst under General Anaesthesia. The histopathology report confirmed it was rather a unicystic ameloblastoma. Following discussion with the patient and parents, treatment was deemed complete and active monitoring was agreed.

Follow-up: The patient was followed up six months later and CBCT imaging demonstrated evidence of bony infill indicating resolution of the cavity and eruption of an impacted canine and premolar.

Conclusion: The gold standard treatment modality of resection may not be best for all age groups. Resection may have a detrimental effect on craniofacial growth. For low risk unicystic ameloblastomas, enucleation may be an appropriate treatment strategy, even when occurring in the maxilla. We will subsequently review this patient over 5 years to see the outcome.

350 The yeast we can do: identifying genetic vulnerability in chronic candidiasis

Debra Chow¹, **Risha Sanghvi**¹, **Esther Hullah**¹, **Dania Siddik**¹

¹**Guy's and St Thomas NHS Foundation Trust and Evelina London Children's Hospital, London, United Kingdom** **Background:** Chronic mucocutaneous candidiasis (CMC) in children can significantly impact quality of life and may indicate an underlying primary immunodeficiency. This case series describes CMC caused by autosomal dominant STAT1 gain-of-function (GOF) mutations and highlights the importance of early recognition and referral for multidisciplinary management.

Case reports: Two paediatric patients presented to a multidisciplinary Paediatric Dentistry and Oral Medicine Clinic with recurrent oral candidiasis since birth. Case 1: A 12 year-old male presented with lifelong painful oral ulcerations, blepharitis, and a paternal history of mucocutaneous candidiasis. Examination revealed a depapillated tongue with white patches, angular cheilitis, and an erythematous palate. Case 2: A 3 year-old male presented with treatment-resistant oral candidiasis affecting oral intake. Clinical findings included perioral crusting, angular cheilitis, and extensive pseudomembranous plaques affecting all oral mucosal surfaces. Associated features included scalp scaling, genital thrush, and a maternal family history of chronic candidiasis and thyroid dysfunction.

Treatment: Both cases were referred for immunological assessment and genetic testing, confirming autosomal dominant STAT1 GOF mutations. Case 1 achieved symptom control with topical miconazole; exacerbations required systemic fluconazole and steroid mouthwash. Case 2 demonstrated anaemia and lymphocytopenia, with *Candida albicans* confirmed on swab, requiring systemic azole therapy alongside topical antifungals and steroid mouthwash.

Follow-Up: Immunology and oral medicine follow-up enabled tailored antifungal regimens and monitoring for autoimmune complications linked to the genetic mutation.

Conclusion: Persistent or treatment-resistant oral candidiasis, particularly with a significant family history, should alert clinicians to investigate possible underlying immunodeficiency. Early referral facilitates diagnosis, coordinated management and informed long-term care.

422 A syndromic suspicion; multiple jaw cysts in a paediatric patient case report

Hannah Evans¹, **Heather Coventry**¹, **Nicola Lush**¹

¹**Newcastle Dental Hospital, Newcastle, United Kingdom** **Background:** The presence of multiple cystic lesions

in the jaw is relatively uncommon in children and may suggest an underlying syndrome. This case describes a child who was urgently referred with noticeable facial asymmetry and nasal deviation, the underlying cause was due to a cystic-like lesion in the left maxilla.

Case report: A 10 year-old female presented with significant expansion of the left maxilla and nasal deviation. She is medically fit and well with no notable family history. DPT and CBCT radiographs confirmed three well defined cystic lesions at three separate jaw sites, as well as multiple significantly displaced ectopic teeth and hypodontia. A 5 cm lesion was identified, obliterating the sinus and displacing the left orbital floor. The provisional diagnosis is multiple odontogenic keratocysts secondary to Gorlin syndrome.

Treatment: A multidisciplinary approach involving paediatric dentistry, maxillofacial surgery, radiology and medical photography was undertaken to ensure comprehensive care. The surgical treatment involved enucleation of all cystic lesions and removal of displaced teeth. The samples have been sent to histopathology for diagnosis and follow up arranged with the maxillofacial team. A referral to genetics has been made to identify if there is an undiagnosed syndromic cause.

Follow up: Hypodontia management will be undertaken by the paediatric dentistry team.

Conclusion: Recognition of non-dental facial swelling is essential to prompt appropriate investigations and onward referral. A multidisciplinary approach alongside timely surgical intervention is required to ensure optimal patient outcomes. Follow up is crucial to identify and manage recurrence.

441 Long-standing gingival enlargement in a 14 year-old: a clinicopathological case

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¹**Queen Mary London University, London, England, United Kingdom,** ²**The Royal London Dental Hospital, Barts Health NHS Trust, London, England, United Kingdom** **Background:** Gingival enlargements are common in adolescents and are often attributed to plaque-induced inflammation. However, persistent or progressively enlarging lesions require careful assessment to exclude alternative pathology. This case highlights the diagnostic considerations and clinicopathological correlation in a long-standing reactive gingival lesion in an adolescent patient.

Case report: A 14 year-old boy was referred with a six year history of progressive gingival enlargement affecting the lower right posterior quadrant. The lesion began as small nodular swellings during childhood and gradually increased in size. The patient was medically fit and well,

with suspected autism spectrum disorder. Clinical examination revealed firm, fibrous gingival overgrowth involving the buccal and lingual interdental papillae of LR4–LR6 and extending distally towards LR7. Oral hygiene was suboptimal with visible supragingival plaque accumulation. Radiographs demonstrated normal alveolar bone levels. Given the chronicity and extent, excisional biopsy was undertaken.

Treatment: Gingival debulking was performed under local anaesthesia using electrosurgery. Histopathology of the excised tissue (19×7×5 mm in aggregate) demonstrated hyperkeratinised epithelium overlying a fibrocellular stroma with spindle-shaped myofibroblasts and stellate multinucleated fibroblast-like cells. Immunohistochemistry showed smooth muscle actin positivity and a low Ki67 index, confirming a benign reactive fibrous epulis.

Follow-up: At four months, healing was satisfactory with no evidence of recurrence.

Conclusion: This case emphasises the importance of biopsy in persistent adolescent gingival enlargement and demonstrates how clinicopathological correlation supports accurate diagnosis and appropriate long-term management.

442 From dental abscess to osteomyelitis: a diagnostic challenge in a paediatric patient

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¹Leeds Teaching Hospitals NHS Trust, Leeds, United Kingdom, ²Mid Yorkshire Teaching NHS Trust, United Kingdom **Background:** Osteomyelitis of the mandible in children is an uncommon presentation, most often arising from odontogenic infection, trauma or systemic spread. Clinical presentation may include pain, swelling, fever and radiographic bone changes.

Presenting problem: A 6 year-old girl was referred by her general dentist due to an extra-oral swelling over the right mandible and limited cooperation to extract the suspected causative tooth. Clinical examination revealed a firm swelling of likely dental origin associated with the Hall crowned lower right second primary molar. The tooth was grade I mobile and tender to percussion. Radiographic examination demonstrated furcation radiolucency associated with the lower right second primary molar, consistent with dental infection.

Treatment: The patient underwent extraction of several carious primary teeth under general anaesthesia (GA), including the lower right second primary molar. However, she re-presented shortly afterwards with worsening mandibular swelling despite treatment. She was prescribed a course of antibiotics and urgently referred to the Oral and Maxillofacial Surgery team. An extended prescription of antibiotics was issued, and examination, debridement and bone biopsy

was completed under GA with histopathological findings suggestive of osteomyelitis.

Follow-up: Despite two further bone biopsies under GA, to date, no causative organism has been cultured and the swelling persists. Samples have been sent for specialist analysis, and further results are awaited.

Conclusion: When a causative microorganism cannot be cultured, diagnosis and targeted management can be a challenge. In the absence of an identifiable pathogen, a diagnosis of chronic non-bacterial osteomyelitis (CNO) should be considered.

467 Impact of mechanical ventilation on oral health-related quality of life: a pilot study

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¹Department of Paediatric Dentistry, Faculty of Dentistry, Marmara University, Istanbul, Türkiye, ²Department of Paediatric Pulmonology, School of Medicine, Marmara University, Istanbul, Türkiye, ³Faculty of Dentistry, Queen Mary University of London, London, United Kingdom **Aim:** In patients using mechanical ventilators, various oral problems such as dental caries, xerostomia, stomatitis, and periodontal diseases are frequently observed due to factors including prolonged mouth opening, medications, and inability to receive oral nutrition. This study aimed to evaluate the impact of mechanical ventilation on the oral health-related quality of life (OHRQoL) of mechanically ventilated children.

Methods: Oral health, DMFT + dft and OHI-S (Simplified Oral Hygiene Index; debris and calculus index) scores were recorded for 27 patients (13 females, 14 males) aged 4–14 years receiving mechanical ventilatory support. The Paediatric Oral Health-Related Quality of Life (POQL) Scale was used to assess the impact of OHRQoL. Data were analysed using the Kruskal–Wallis and Spearman’s correlation analysis.

Results: The mean age (\pm SD) of the children was 10.7 ± 5.6 years. The mean DMFT + dft score was 4.9 ± 4.6 , the mean debris index was 1.7 ± 0.9 , and the mean calculus index was 0.8 ± 1.0 . DMFT + dft scores showed no significant difference according to oral care practices (no care (14.8%), gauze (7.4%), antiseptic solution (0%), toothbrush (40.7%), and oral care kit [oral swabs and toothpaste, 37.0%]) ($p=0.535$). No significant correlations were found between DMFT + dft scores and POQL total or subscale scores (role, social, and emotional domains) ($p=0.301$, $p=0.131$, $p=0.701$ and $p=0.504$; respectively).

Conclusion: Although poor oral hygiene and high caries levels were observed in mechanically ventilated patients, no significant association was found between oral

health status and OHRQoL. Further studies are needed to better understand the factors influencing quality of life in this patient population.

489 Dental management of T-Cell acute lymphoblastic leukaemia during chemotherapy: 18 month follow-up

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¹Istanbul Aydın University, Faculty of Dentistry, Department of Paediatric Dentistry, Istanbul, Türkiye, ²Istanbul Aydın University, Faculty of Dentistry, Department of Endodontics, Istanbul, Türkiye **Background:** T-cell acute lymphoblastic leukaemia (T-ALL) is an aggressive hematologic malignancy necessitating intensive treatment, which can significantly affect dental health. Dental management during active chemotherapy presents complications due to immunosuppression, increased bleeding risk, and potential for infection. The present case underscores the significance of coordinated multidisciplinary care to ensure safe and effective dental treatment.

Case report: A 13 year-old male, diagnosed with T-ALL, was sent to our clinic during chemotherapy, presenting with dental caries. Clinical examination revealed multiple carious lesions and poor oral hygiene. Hematologic and coagulation parameters were carefully reviewed in close collaboration with oncology team. Based on the patient's hematologic status, dental treatment was scheduled during a one week interruption of chemotherapy.

Treatment: Dental procedures were performed under local anaesthesia with rubber dam isolation. Root canal treatment was completed on tooth #46, indirect-pulp capping was performed on tooth #36 with MTA, and composite restorations were placed on teeth #16 and #26. Full-mouth prophylaxis was carried out, followed by topical fluoride application. All procedures were conducted under strict infection control protocols and close medical supervision, with particular emphasis on minimising tissue trauma and preventing bacteraemia.

Follow-up: The patient was monitored periodically over an 18 month follow-up period. Oral health remained stable, with satisfactory healing and preservation of function without any systemic complication.

Conclusion: This case emphasises the critical role of interdisciplinary collaboration in dental management of paediatric oncology patients. Careful treatment planning and close coordination with oncology team enable safe dental care during chemotherapy and contribute to favourable oral and systemic outcomes.

517 Severe immunocompromised periodontitis in a 3 year-old with familial acute myeloid leukaemia: a paediatric dental challenge

Chloë Sterkens¹, Sivaprakash Rajasekharan¹, Jakob Van Acker¹

¹UZ Ghent, Herentals, Belgium **Background:** A 3 year-old girl with relapsed acute myeloid leukaemia (AML) and a constitutional missense CEBPA variant, was scheduled for haematopoietic stem cell transplantation.

Case report: Between two chemotherapy courses, the patient developed neutropenic fever with *Pseudomonas aeruginosa* infection, followed by progressive facial swelling and enlargement of the lips until the teeth were no longer visible. Intraoral examination revealed severe gingival inflammation, marked gingival recession affecting the maxillary incisors and tooth 74, pathological mobility of tooth 61, and necrotic lesions on teeth 61 and 74.

Treatment: Initial management included low-level laser therapy and topical 0.05% chlorhexidine digluconate and cetylpyridiniumchloride gel. Oral hygiene was reinforced with twice-daily brushing using an electric toothbrush and fluoride toothpaste; chlorhexidine mouthwash was applied four times daily with gauze. Low-level laser therapy at 8 Joule was continued every two days until clinical healing was observed. Two weeks before transplantation, periodontal assessment under general anaesthesia was performed, professional cleaning with oxygenated water was completed, and systemic metronidazole 30 mg/kg was prescribed for seven days.

Follow-up: Strict dental follow-up is ongoing to detect recurrent infection early and to limit further periodontal destruction during subsequent chemotherapy cycles. The long-term impact of this episode and repeated chemotherapy on the developing permanent dentition remains uncertain.

Conclusion: This case highlights that severe rapidly progressive periodontal infection can occur in very young, immunocompromised patients with AML. Early recognition, prompt interdisciplinary management, and continuous dental monitoring are essential to minimise complications and optimise oral health during cancer therapy.

Topic 06. Prevention

8 Effectiveness of different remineralising agents in the management of teeth affected by molar incisor hypomineralisation (MIH): a systematic review with meta-analysis

Sahar Mushtaha¹, Elahm Abu Alhaja¹, Shailaja Raghavan¹

¹**Qatar University, Qatar Background:** Early preventive strategies using remineralising agents in MIH affected teeth is recommended to control the symptoms and reduce disease progression.

Aim: to systematically review and analyse the effectiveness of different remineralising agents in the management of MIH affected teeth.

Methods: A systematic literature search was conducted using PubMed, Embase, Cochrane Library, Web of Science, Scopus, Epistemonikos, and clinical trials were searched from 2001 till January 2025 to identify any interventional studies on remineralisation, hypersensitivity and caries prevention in paediatric MIH patients. The study protocol was registered at PROSPERO (CRD420250650562). A total of 18 studies were included in the systematic review with only two studies in the meta-analysis. A random-effects model was applied.

Results: Seven studies investigated remineralising effects, eleven investigated hypersensitivity and three addressed caries and enamel breakdown prevention outcome. Various remineralising agents showed effective increase in mineral content. There was no statistically significant advantage of CPP-ACFP over fluoride toothpaste in remineralisation (MD – 9.98, 95% CI – 28.84, 8.88). Several remineralising agents also demonstrated significant reductions in hypersensitivity, caries and post-eruptive Breakdown development.

Conclusion: CPP- ACFP and fluoride-based treatments are effective remineralising agents in decreasing hypersensitivity and increasing mineral content of mild MIH lesions. SDF is a promising agent to prevent caries and post eruptive enamel breakdown especially in mild cases. However, long-term RCTs with standardised protocols are needed to increase the quality of evidence.

30 Oral health knowledge, facilitators and barriers against oral health promotion among staff members in early intervention centres for children with special healthcare needs: a mixed method analysis

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¹Health Promotion Board, Singapore, ²MOH Holdings Pte Ltd, Singapore, ³Child Development Unit, Khoo Teck Puat – National University Children's Medical Institute, National University Hospital, Singapore City, Singapore **Aim:** This study aimed to identify baseline oral health knowledge, attitudes, barriers and facilitators towards creating a supportive environment for oral health promotion in Early Intervention Programme for Infants and Children (EIPIC) Centres for children aged three to six years with special healthcare needs (SHCN).

Method: A survey was carried out among staff members in EIPIC centres. Descriptive statistics regarding the demographic characteristics of participants, knowledge, attitudes, barriers and facilitators towards oral health education were analysed and reported. Findings from three open ended questions on resource and programme development on toothbrushing in school and dental visit preparation underwent inductive thematic analysis described by Braun and Clarke.

Results: There was a lack in oral health knowledge among staff members. Most staff felt that ownership of teaching oral health or preparing a child for a dental visit is shared among staff and parents. Barriers to oral health promotion and oral health education identified by staff include the lack of knowledge, resources and appropriate care pathway. Specific to resource development, themes identified included (1) use of "real-life photos" and (2) systematic instructions of <5 words. Regarding programme development, themes identified included (1) Ensuring consistency and sustainability, (2) engaging stakeholders, (3) provision of resources and (4) accessibility of dental services.

Conclusion: This study identified key barriers and facilitators towards oral health promotion for children with SHCN. Fortunately, participants feel that they can play a role in oral health education and oral health promotion and are keen to receive further training on this aspect.

41 Next-generation MIH screening: AI-powered models for early detection in children

Thikrayat Bani-Hani¹, Mohammad Wedyan¹

¹**Jordan University of Science and Technology, Irbid, Jordan Background:** Molar Incisor Hypomineralisation (MIH) is an emerging public health challenge with signifi-

cant clinical and psychosocial consequences for affected children. Delayed diagnosis often results in increased treatment complexity, and burden and compromised quality of life. Harnessing artificial intelligence (AI) for early screening represents a transformative and an innovative opportunity in paediatric dental care.

Aim: To evaluate AI-driven deep learning models for early MIH detection, with the goal of supporting dental practitioners and empowering parents and caregivers with accessible screening tools.

Methods: A balanced dataset of 300 annotated intraoral photographs (150 sound molars and 150 MIH-affected molars) was expanded to 1000 images through data augmentation. The dataset was partitioned into training/validation (80%) and testing (20%) sets. Four convolutional neural networks—DenseNet121, ResNet50V2, MobileNetV2, and VGG16—were trained. Model performance was assessed using accuracy, precision, sensitivity, specificity, and F1-score.

Results: DenseNet121 emerged as the top-performing model, achieving 90.10% accuracy, 95.65% sensitivity, and 85.00% specificity. ResNet50V2 and MobileNetV2 achieved competitive accuracy (88.02% and 87.50%, respectively) with consistently high sensitivity (>92%), indicating strong screening potential. In contrast, VGG16 underperformed, yielding the lowest accuracy (81.77%) and the highest false-negative rate.

Conclusion: This study highlights the strong potential of AI-based models as next-generation tools for early MIH screening. DenseNet121 demonstrated the most reliable performance with superior capability in identifying MIH-affected teeth while minimising missed diagnoses. Future validation using larger, multi-centre datasets is warranted. The integration of such models into smartphone-based platforms could revolutionise early MIH detection, enabling timely intervention and improving oral health outcomes for children.

49 Development and validation of 'parental satisfaction with knee-to-knee dental examination' (PSKTK) scale: examining relation to dentist's estimation and parental sense of competence

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¹The Hebrew University of Jerusalem, Faculty of Dental Medicine, Jerusalem, Israel, ²Hadassah Medical Centre, Jerusalem, Department of Paediatric Dentistry, Israel, ³Department of Education and Psychology, The Open University of Israel, Ra'anana, Israel **Case report:** The knee-to-knee position is considered an effective and comfortable position to facilitate a toddler's dental examination. Since it requires the involvement of parents, greater parental competence

may facilitate more comfortable involvement in the examination and may influence parents' satisfaction. The objectives of the study were (1) to develop and validate a scale measuring parental satisfaction with the knee-to-knee dental examination position; (2) to assess parental satisfaction with the knee-to-knee dental examination; and (3) to examine the relationships between parental satisfaction, parental competence, and other demographic characteristics and parental satisfaction.

Methods: A 13 item questionnaire measuring parental satisfaction with knee-to-knee dental examination (PSKTK) was developed. The questionnaire was validated via two samples to perform exploratory factor analysis and confirmatory factor analysis. Parental satisfaction was subsequently contrasted with other key variables of interest, such as parental sense of competence (PSOC), dentist's estimation, age and gender.

Results: An 11 item version of the PSKTK scale was validated. Parental satisfaction was found to be high in 90% of sample 1 and 85% of sample 2. Parental satisfaction was significantly correlated with PSOC ($p=0.003$ for sample 1, $p<0.01$ for sample 2) and with dentists' estimation of parental satisfaction ($p<0.001$ for sample 1, $p<0.01$ for sample 2).

Conclusions: The 11 item questionnaire was found to be valid and reliable and can be used to assess satisfaction with knee-to-knee positions among different populations. Parents of toddlers are satisfied with this examination position, especially those with a greater sense of parental competence.

64 Quality improvement project assessing the pathway for paediatric dental patients attending child dental health (CDH) undergoing bone modifying agent treatment (BMA)

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¹University Hospitals Bristol and Weston NHS Foundation Trust, Bristol, United Kingdom **Aim:** To assess the current dental pathway for paediatric patients undergoing bone modulating treatment within the Southwest region.

Methods: Data collection via patient notes and electronic clinic medical letters from June 2024-December 2025. Data was collected regarding date of commencing BMA treatment, completion of dental assessment, dental treatment required and any medication changes needed with subsequent implications to their dental plan.

Results: 13 patients were identified on BMA agents and required dental intervention, out of which 8 were high risk for complications and required changes to their medical plan prior to dental treatment. Only 5 patients had no interruption to their medical care as they were assessed in secondary care prior to starting BMA treatment.

Conclusion: Due to several patients requiring medication changes mid-BMA treatment, to allow dental treatment to take place, a multidisciplinary approach is required to safeguard timely dental and medical treatment. This has led to the creation of a standard operating procedure for all paediatric patients in the Southwest region commencing BMA treatment to have a pre-treatment dental screen in addition to education tools for families, medical teams and general dental practitioners.

66 Audit of Bradford district care NHS foundation trust community dental service's compliance with Bradford district care NHS foundation trust paediatric dental neglect guidance

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¹**BDCFT, Bradford, United Kingdom Aim:** to ascertain BDCFT CDS compliance with local BDCFT Paediatric Dental Neglect Guidance (PDNG) with a view to ensuring appropriate follow-up of those patients who WNB.

Standard: All paediatric patients who WNB to an appointment should have appropriate follow-up, in accordance with the level of concern, as per BDCFT PDNG.

Methods: Five patients (16 years and under) per dentist/therapist who WNB to an appointment during August/September 2024 were selected and data entry form completed.

Results: In total, 88% (77/88) of WNB patients had a Safeguarding Icon (SGI) in place. Of the 13% (11/88) of WNB patients that did not have a SGI, none had a chronology in place. There has been an increase in SGI usage and chronology use since Cycle 2. However, the new pathway for WNB letters showed the correct WNB letters were not always used.

Conclusion: Feedback overall results to all staff at a future meeting and highlight the areas for improvement e.g., increase appropriate utilisation of SGI and maintenance of chronology; ensure level of concern is documented at initial assessment and updated as required depending on change to circumstances; discuss and identify the challenges of BDCFT implementation and identify solutions. Scenario-based training, including the appropriate use of WNB templates WNB letters, to be developed for use at Clinic Team Meetings with consideration of a WNB focus month across the service and highlighting at group hugs across all clinics.

76 Effect of stannous fluoride toothpaste and Chios mastic toothpaste on the prevention of erosive tooth wear. An in vitro study

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¹Department of Preventive & Community Dentistry, National and Kapodistrian University of Athens, School of Dentistry, Athens, Greece, ²Department of Biomedical Sciences, Laboratory of Chemistry-Biochemistry-Cosmetic Science, University of West Attica, Athens, Greece, ³Department of Paediatric Dentistry, National and Kapodistrian University of Athens, School of Dentistry, Athens, Greece **Aim:** Erosive tooth wear (ETW) is an increasingly prevalent condition characterised by the loss of dental hard tissue due to repeated effects and interactions of acids and mechanical forces. The aim of this study was to investigate the preventive effect of salivary pellicle combined with either stannous fluoride (SnF₂) or mastic toothpaste against ETW in permanent teeth.

Methods: Using a three-arm in vitro model, 54 enamel samples were prepared with salivary pellicle alone (control), salivary pellicle with SnF₂ or mastic toothpaste. The experimental design consisted of 5 cycles of salivary pellicle formation (30 min, 37 °C), modification with the solutions (30 min, 25 °C), further salivary pellicle formation (2 h, 37 °C) and erosive challenge (2 min, 1% citric acid, pH 3.6). Measurements were performed regarding surface roughness, hardness, colour change, chemical composition, surface morphology and elemental composition on all intact and affected enamel surfaces.

Results: SnF₂ group exhibited significantly reduced surface roughness compared to other groups and lower total hardness loss (SnF₂ 23%, control 26%, mastic 36%) than the mastic group. SEM analysis revealed better preservation of the prismatic enamel structure in the SnF₂ group, indicating resistance to acid-induced demineralisation. Mastic toothpaste did not provide significant protection against ETW, raising questions about its suitability for preventing ETW in acidic environments. EDX analysis showed no significant differences in elemental composition among the groups.

Conclusion: SnF₂ toothpaste confirmed its position as an effective protective agent, while mastic toothpaste did not show any further protective effect against ETW compared to the control group.

105 Knowledge of dental professionals regarding preventive dental care in clinical practice in Serbia

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¹Clinic for Paediatric and Preventive Dentistry, School of Dental Medicine, University of Belgrade, Belgrade, Serbia, ²Department of Restorative, Paediatric and Preventive Dentistry, University of Bern, Bern, Switzerland, ³Graduate School for Health Sciences, University of Bern, Bern, Switzerland, ⁴Heidelberg Institute of Global Health, Section for Oral Health, Heidelberg University, Heidelberg, Germany, ⁵Department of Cariology, Institute of Odontology, Sahlgrenska Academy, University of Gothenburg, Gothenburg, Sweden, ⁶Department of Odontostomatological and Maxillofacial Sciences Sapienza Università di Roma, Rome, Italy **Aim:** to analyse knowledge dental professionals regarding preventive and prophylactic procedures during everyday clinical practice in Serbia.

Methods: The cross-sectional study employed digital questionnaire in the Serbian language that was translated, culturally adapted, and piloted. The Serbian Dental Chamber distributed the questionnaire from January to March of 2025. The inclusion criteria included all licensed dentists residing in and performing dental clinical practice in Serbia. Demographic data included the dentists' age, gender, medical specialty, healthcare sector, and place of practice. The data were analysed using Fisher's exact test in SPSS version 26.

Results: Sample included 845 dentists (76.5% female, 23.3% male) aged 45.30 ± 10.96 years. Most of the professionals showed high knowledge regarding fluoride use (91.5% correct answers) and definition of early childhood caries (93% correct answers). Two thirds of the respondents (64.4%) answered the question about using sealants to minimise the progression of non-cavitated lesions incorrectly. Dentists under 39 years of age (59.8%) recognised socioeconomic factors as an important risk factor for oral disease, with high statistical significance compared to dentists over 39 years-of-age (49.9%) ($p < 0.01$). Female dentists (77.9%) presented statistically better knowledge regarding timing of first dental visit compared to males ($p < 0.01$). Dentists in public service scored significantly higher than dentists in private offices ($p < 0.01$). The paediatric dentists had the most correct answers to all the questions ($82.43\% \pm 18.27$). The lowest scores were in prosthodontics, surgery, and restorative ($66.66\% \pm 26.36$, 66.23 ± 25.06 and 65.36 ± 22.10 , respectively).

Conclusion: There is a need to improve knowledge of preventive dental care across all specialties.

162 The role of Chios mastic (*Pistacia Lentiscus* var. Chia) products on oral health: a systematic review

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¹School of Dentistry, University of Athens, Athens, Greece, ²Department of Paediatric Dentistry, School of Dentistry, University of Athens, Athens, Greece, ³Department of Microbiology, School of Medicine, Democritus University of Thrace, Alexandroupolis, Greece, ⁴Department of Preventive and Community Dentistry, School of Dentistry, University of Athens, Athens, Greece **Aim:** To systematically evaluate all evidence available on the effectiveness of Chios mastic (*Pistacia Lentiscus* var. Chia) products on the prevention of dental caries, gingival inflammation and management of oral malodour.

Methods: This systematic review was conducted following PRISMA guidelines and was pre-registered in PROSPERO (CRD420251089210). Clinical trials involving children, adolescents or adults that evaluated mastic products' effect on gingival status, plaque accumulation, cariogenic bacterial counts, salivary pH and halitosis mitigation were included. MEDLINE, CENTRAL, Scopus, Web of Science, EMBASE, LILACS, and DOSS databases were searched, complemented by searches of grey literature and manual screening of reference lists. Risk of bias was assessed by the Risk of Bias 2.0 tool for randomised controlled trials and the Risk of Bias In Non-randomised Studies of Interventions tool.

Results: The search initially retrieved 763 studies of which 8 were considered eligible. Concerning the effect on cariogenic bacteria, statistically significant reduction (21–74%) in *S. mutans* was reported in 15 min, 45 min, 60 days. Short term significant decrease in *Lactobacilli* spp. was observed up to 135 min but not after 4 weeks, while total bacteria declined significantly up to 4 h. Regarding gingival inflammation, the results were inconclusive, with some studies showing significant reduction of 37% in plaque index and 40% in gingival index while others not. Mastic also improved halitosis, reporting significant reduction of H₂S levels (67%).

Conclusion: Mastic products could benefit in cariogenic bacterial counts reduction and hydrogen sulphide-related oral malodour. Long-term RCTs are needed to confirm sustained effects given the heterogeneity of existing studies.

187 Integrating oral health into the initial health assessment for looked-after-children: a pilot care pathway in Buckinghamshire, UK

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¹Dental Public Health, NHS England – East Midlands, United Kingdom, ²Central and North West London NHS Founda-

tion Trust, United Kingdom Background: Looked-After-Children (LAC) experience poorer oral health and reduced access to dental care. COVID-19 exacerbated these inequalities.

Aim: To pilot a dental pathway integrated into existing LAC health assessments by training non-dental professionals to provide oral health advice and identify urgent dental needs.

Methods: A multidisciplinary working group developed a care pathway using existing resources (mini Mouth Care Matters, Delivering Better Oral Health). Training was delivered to safeguarding nurses, foster carers, health visitors and social workers. Attendees were taught to recognise dental problems requiring urgent care, signpost appropriately and deliver preventive oral health messages.

Results: The pilot launched March 2022. Training was well attended ($n=31$) and positively evaluated; participants requested further sessions. Training was subsequently recorded for ongoing access. Stakeholders including commissioners and clinicians supported pathway integration.

Conclusions: Embedding oral health into existing LAC assessments is feasible and welcomed. Training non-dental staff empowers the wider workforce to support oral health improvement. This model reduces inequalities by delivering early preventive intervention. Expansion across Thames Valley and the South East is underway with local adaptation. Evaluation and monitoring are planned to assess sustainability and impact.

192 A longitudinal evaluation of maternal education models and their impact on dental caries and oral hygiene in preterm children

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¹Marmara University, Faculty of Dentistry, Department of Paediatric Dentistry, Istanbul, Türkiye, ²Marmara University, Faculty of Medicine, Department of Physical Medicine and Rehabilitation, Istanbul, Türkiye, ³Marmara University, Faculty of Medicine, Department of Otorhinolaryngology–Head and Neck Surgery, Istanbul, Türkiye, ⁴Gaziantep University, Faculty of Medicine, Department of Biostatistics and Medical Informatics, Gaziantep, Türkiye **Aim:** To evaluate the long-term effects of visual, verbal, and written maternal education compared with verbal education alone on dental caries and oral hygiene outcomes in preterm children, and to examine the association between maternal knowledge retention and children’s oral health status approximately five years after the education.

Methods: This study re-evaluated 33 mother–child pairs from a cohort of preterm infants whose mothers had received maternal oral health education in 2020. The children (20

girls, 13 boys) had a mean age of 72.2 ± 5.1 months at evaluation. The mothers had previously received either visual, verbal, and written education ($n=18$) or verbal education alone ($n=15$). Oral examinations were performed by a single calibrated examiner. Dental caries was assessed using the International Caries Classification and Management System (ICCMS), and oral hygiene was evaluated using the Alaluusua–Malmivirta plaque index. Maternal knowledge retention was measured using a six item dichotomous questionnaire. Statistical analyses included Shapiro–Wilk, Wilcoxon signed-rank, chi-square, McNemar, Spearman correlation, and two-way repeated measures ANOVA, with $p < 0.05$ considered significant.

Results: At 18 months, plaque presence differed significantly between groups ($p=0.021$), with lower prevalence in the verbal group. Baseline maternal knowledge was negatively correlated with plaque at 18 months ($p=0.023$), whereas no significant association was found with caries. Maternal knowledge improved significantly after education ($p=0.001$). Caries increased significantly from 18 months to 6 years ($p=0.001$), with no group differences at 6 years.

Conclusion: Maternal education positively impacts early oral hygiene and knowledge retention, yet long-term caries outcomes may depend on ongoing preventive support.

227 Composition analysis and paediatric safety assessment of teething gels marketed in Turkey

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¹Altinbas University, Faculty of Dentistry, Department of Paediatric Dentistry, Bakırköy/Istanbul, Türkiye **Aim:** The teething period in children is commonly associated with pain, irritability, and gingival discomfort; therefore, teething gels are frequently used for symptomatic relief, increasing the importance of evaluating their composition. This study aimed to analyse the composition of teething gels in Turkey and assess their paediatric toxicological safety.

Methods: Six teething gel products currently available and commonly used in the Turkish market were selected, and their ingredient compositions were analysed. Ingredients with potential toxicological or safety relevance-including lidocaine, choline salicylate, hyaluronic acid, and herbal extracts-were identified. Each component was investigated for reported paediatric toxicological risks through a structured search of PubMed, ScienceDirect, and Google Scholar. The assessment prioritised paediatric safety by identifying potential local and systemic risks, and evaluating alignment with international dental health standards.

Results: The analysis identified several ingredients associated with potential paediatric safety concerns. Lidocaine-containing formulations represented the highest systemic toxicity concern, particularly in cases of excessive use.

anaesthetic agents have been associated with risks such as methemoglobinemia and central nervous system toxicity. Products containing sucrose were linked to potential caries risk, while alcohol-containing formulations raised concerns regarding mucosal irritation and developmental safety. Herbal-based ingredients demonstrated variable safety profiles depending on extract type and concentration. Hyaluronic acid-based formulations did not demonstrate documented systemic toxicity; however, paediatric safety evidence remains limited. Variability in labelling transparency, dosage instructions, and age-specific guidance was observed.

Conclusions: Teething gels may include ingredients associated with potential paediatric safety concerns. Strengthened regulatory oversight, clearer labelling, and clinician-guided parental counselling are important to promote safe use in infants.

232 Is there an association between self-reported oral health behaviours and deprivation in 11–13 year-old school students? – A nested cross sectional study within the raised in Yorkshire oral health promotion feasibility randomised controlled trial.

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¹**Leeds University, Leeds, United Kingdom** **Aim:** To investigate the association between self-reported oral health behaviours and deprivation among 11–13 year-old students participating in RAISED in Yorkshire.

Methods: A cross-sectional study used baseline data from the feasibility randomised controlled trial RAISED in Yorkshire (RiY). Participants were 11–13 year-old students from five state-funded secondary schools in Yorkshire. Oral health behaviours were assessed using an adapted World Health Organisation Oral Health Questionnaire for children, focusing on tooth brushing frequency and fluoride toothpaste use. Deprivation was measured using the Index of Multiple Deprivation (IMD) derived from home postcode and categorised into three deprivation groups (most, moderate, least deprived). Statistical analysis was performed using IBM SPSS Statistics. Tooth brushing frequency was recoded into three categories to meet assumptions. Associations between variables were analysed using chi-square tests of independence.

Results: Of 294 participants, 257 (87.4%) had complete data and were included in the analysis. A statistically significant association was found between deprivation and tooth brushing frequency ($\chi^2(4, N = 257) = 9.89, p = 0.042$), with children from the most deprived areas more likely to report infrequent brushing. No statistically significant association was observed between

deprivation and reported fluoride toothpaste use ($\chi^2(4, N = 257) = 5.07, p = 0.280$). A high proportion of participants (60.7%) reported being unsure whether their toothpaste contained fluoride, suggesting limited oral health knowledge.

Conclusion: Deprivation was significantly associated with tooth brushing frequency among adolescents in Yorkshire, highlighting persistent behavioural inequalities. The high level of uncertainty regarding fluoride toothpaste use suggests gaps in oral health knowledge. These findings support targeted school-based oral health education in deprived communities.

241 Addressing gaps within the dental care pathway for patients born with cleft lip and/or palate in Glasgow, Scotland

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¹**University of Glasgow, Glasgow, United Kingdom** **Aim:** To determine if children with cleft lip (CL), cleft palate (CP), and cleft lip and palate (CLP) receive appropriate dental care and explore dental student involvement in managing children with cleft diagnoses.

Methods: Children with an isolated CL don't attend the Glasgow's Children's Cleft Clinic (CCC) as multidisciplinary input isn't required. Children with CP and CLP are discharged aged 5. Optimal dental health is essential for success of alveolar bone grafts, assessed at age 8. A service evaluation was conducted involving: Retrospective caries analysis at the cleft audit clinic for children born 2016–2018; and detection of caries from orthopantomograms (OPTs) at alveolar bone graft assessment for children born 2014–2016.

Results: Eighty-three 5 year-olds from the cleft audit clinic were assessed (42 CLP, 26 CP, 15 CL): Mean decayed teeth: 0.67 CL, 1.36 CP, 1.15 CLP. Fifty-four OPTs were reviewed (21 unilateral CL, 8 bilateral CLP, 25 unilateral CLP), with caries present in 57.1%, 37.5% and 72% respectively. One hundred patients were identified as requiring further dental input: 69% were registered with a general dentist; 79% were deemed suitable for student clinics. Children identified as needing additional dental input were subsequently allocated appointments within a pilot student clinic at Glasgow Dental School Hospital.

Conclusion: Although the CCC focuses on high-risk patients, caries rates at bone graft assessment revealed gaps in care. Student involvement and enhanced prevention may reduce inequalities and improve outcomes for patients, while providing increased understanding for future GDPs in the management of cleft patients.

251 In vitro evaluation of the anti-erosive effect of CPP-ACPF, self-assembling peptide P11-4, and nano-hydroxyapatite using surface microhardness analysis

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¹Medical University—Plovdiv, Faculty of Dental Medicine, Department of Paediatric Dentistry, Plovdiv, Bulgaria **Aim:** Dental erosion represents a growing clinical concern in paediatric dentistry, and the effectiveness of contemporary remineralising agents in preventing further enamel demineralisation remains under investigation. The aim of this in vitro study was to compare the anti-erosive effect of CPP-ACPF, self-assembling peptide P11-4 and nano-hydroxyapatite using surface microhardness measurements.

Methods: Enamel specimens (n = 46), prepared from extracted permanent premolars, were randomly allocated into four groups: control (no treatment), CPP-ACPF, self-assembling peptide P11-4, and nano-hydroxyapatite. Surface microhardness (Vickers) was measured at baseline, after initial erosive lesion formation, and after a 5 day erosive cycling protocol combined with daily application of the respective agents. Data were analysed using a linear mixed-effects model to assess the effects of group, time, and their interaction. The change in microhardness between post-erosion and post-treatment stages was additionally compared using one-way ANOVA with Tukey post-hoc testing ($\alpha = 0.05$).

Results: A significant group-time interaction was observed ($p = 0.012$), indicating different microhardness changes among the experimental groups over time. CPP-ACPF and nano-hydroxyapatite demonstrated significantly lower additional surface microhardness loss compared with the control group ($p < 0.05$). The self-assembling peptide P11-4 showed a tendency toward reduced microhardness loss; however, this difference did not reach statistical significance under the present experimental conditions.

Conclusion: Within the limitations of this in vitro study, CPP-ACPF and nano-hydroxyapatite exhibited a significant anti-erosive protective effect as assessed by surface microhardness analysis. The self-assembling peptide P11-4 demonstrated a non-significant protective trend, suggesting the need for further investigation.

264 A novel chlorhexidine-free paediatric mouthwash with comparable antimicrobial activity against periodontal pathogens

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¹Department of Paediatric Dentistry, Faculty of Dental Medicine, Medical University Plovdiv, Bulgaria **Aim:** Fixed orthodontic appliances in children promote dental biofilm accumulation and microbial dysbiosis, increasing the risk of gingivitis and early periodontal changes. Although chlorhexidine mouthwashes are effective, their long-term use in paediatric patients has limitations for its adverse effects. The development of chlorhexidine-free alternatives with comparable antimicrobial efficacy is therefore clinically relevant. The aim was to evaluate the antimicrobial activity of individual components and a prototype chlorhexidine-free children's mouthwash against periodontal pathogens, mixed microbial populations, and donor dental plaque under in vitro conditions simulating clinical use.

Methods: Antimicrobial effects of individual ingredients, a prototype mouthwash (Sample 1; herbal extract, inulin, cetylpyridinium chloride), a placebo (Sample 0), and a chlorhexidine-based reference rinse (Eludril classic®) were assessed. Experiments were performed using individual strains, mixed cultures, and donor dental plaque with exposure times of 30, 60, and 90 s. Antimicrobial activity was evaluated by agar diffusion, direct exposure assays, viable cell counts (log CFU), and kinetic analysis.

Results: Chlorhexidine and cetylpyridinium chloride were active against all strains. The prototype mouthwash achieved rapid bacterial reduction within 30 s, with total reductions of 57.2% in mixed cultures and 52.3% in donor plaque. Its efficacy approached that of the reference rinse, with approximately 1 log higher surviving counts. The overall cell death rate constant was 0.132 s^{-1} versus 0.151 s^{-1} for Eludril classic®.

Conclusions: The chlorhexidine-free prototype demonstrated clinically relevant antimicrobial activity against key periodontal pathogens and represents a promising alternative for long-term paediatric oral care.

292 The effectiveness of silver diamine fluoride (SDF) in preventing early enamel caries among patients with fixed orthodontic appliances: a 3 month randomised controlled trial

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²Department of Mathematical Sciences, Faculty of Science and Technology, The National University of Malaysia (UKM), Bangi, Malaysia **Aim:** To evaluate the effectiveness of 38% silver diamine fluoride (SDF) in preventing early enamel caries in fixed orthodontic patients.

Methods: Sixty-three orthodontic patients were randomly assigned to three groups (n = 21): 38% SDF, 5% NaF varnish, and placebo (normal saline), with all receiving standard oral hygiene instructions. Fluorescence value of four maxillary anterior teeth was recorded at baseline and at 3 months following intervention application using a quantitative laser fluorescence device. Data normality was tested using the Shapiro–Wilk test. Kruskal–Wallis tests with post-hoc Bonferroni-adjusted pairwise comparisons were used to compare the mean fluorescence changes between groups, with $p = 0.05$ regarded as significant. Examiner reliability was assessed using Cohen's kappa.

Results: Examiner reliability was excellent ($\kappa = 0.90$). Mean fluorescence change was lowest in the SDF group (0.06 ± 1.32), followed by NaF varnish (0.26 ± 1.53), while the placebo group showed the greatest increase (1.64 ± 1.67). A significant intergroup difference was observed ($H = 11.47$, $df = 2$, $p = 0.003$). Post hoc analysis demonstrated significant differences between SDF and placebo (adjusted $p = 0.006$) and between NaF varnish and placebo (adjusted $p = 0.018$). No significant difference was found between SDF and NaF varnish ($p = 1.000$).

Conclusion: At the 3 month review, both 38% SDF and NaF varnish perform significantly better than placebo in preventing early enamel lesions among fixed orthodontic patients. SDF demonstrated the lowest mean fluorescence change, suggesting a better preventive effect compared to NaF within the study period.

302 Oral health mobile applications for children and adolescents: a systematic review

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¹Department of Paediatric Dentistry, School of Dentistry, National and Kapodistrian University of Athens, Athens, Greece **Aim:** To review the available oral health mobile

applications (apps) addressed to children and assess their effectiveness in improving oral health and preventive behaviours.

Methods: An electronic search of major medical databases was conducted to identify studies evaluating apps designed for children, adolescents, or caregivers. Clinical trials, interventional studies and observational studies reporting measurable behavioural or clinical outcomes were included in the review. Studies addressed to adults or without reported measurable outcomes were excluded from the search. Study screening, data extraction, and risk of bias assessment were performed in duplicate. The primary function of the app and their main outcomes were retrieved for qualitative assessment.

Results: Of the 202 papers identified, 12 clinical trials, 8 cohort and 3 cross-sectional studies fulfilled the inclusion criteria. In regards to their purpose, 9 apps tested the improvement in oral hygiene, 7 apps the improvement in oral health knowledge and habits, 4 apps tested the behaviour at the dentist, 2 apps assessed the caries risk and 1 app the information regarding dental trauma. All the studies demonstrated positive short-term outcomes with improvements in dental plaque levels, gingival health, tooth brushing duration and frequency, oral health knowledge and reduction of dental anxiety. Risk of bias assessment suggested that 45.2% of the studies were of moderate quality and 41.6% were of high quality.

Conclusion: Mobile applications can support preventive care and improve oral hygiene in paediatric dentistry. However, further long-term studies are needed to confirm their sustained clinical benefits and integration into routine practice.

305 Bridge the middle: collaborative practice between nursing and dental teams to improve oral health in the hospitalised child

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¹Alder Hey Children's Hospital, Liverpool, United Kingdom **Aims:** In paediatric inpatient care, acute clinical priorities often take precedence, and oral health can be unintentionally overlooked. As ward nurses, we recognised that prolonged admissions, complex medical needs, and limited oral health training left children vulnerable to discomfort, infection risk, and preventable deterioration. This project describes our experience of embedding oral health into routine nursing care within a tertiary children's hospital through collaboration with paediatric dental colleagues.

Methods: We began by reviewing our own practice through baseline audits and staff and parent questionnaires, which identified inconsistent assessment, limited confidence,

and unclear referral pathways. Working with the paediatric dental team, we helped develop a structured oral health assessment tool integrated into nursing admission documentation. Ward-based education sessions were delivered to improve confidence in risk assessment, daily mouth care, and early identification of concerns. Clear referral and escalation pathways were established. Pilot wards implemented the changes, supported by nominated oral health champions. Ongoing audit and feedback cycles monitored compliance, referral activity, and outcomes.

Results: Nurses reported increased confidence, knowledge, and ownership of oral health responsibilities. Oral assessments became more consistent, referrals timelier, and preventable oral complications during admission were reduced. Families demonstrated greater awareness and engagement in oral care.

Conclusion: With education, practical tools, and inter-professional collaboration, ward nurses can successfully embed oral health into routine paediatric inpatient care. Trust-wide standardisation and ongoing training are now in development.

306 Mini mouth care matters: implementation within Alder Hey Children's Hospital

Laura Shuter¹, **Susana Dominguez-Gonzalez**¹

¹Alder Hey Children's Hospital, Liverpool, United Kingdom **Aim:** Alder Hey Children's Hospital has implemented the Mini Mouth Care Matters (MMCM) programme. The programme aims to empower healthcare professionals to take shared ownership of oral healthcare for children admitted for more than 24 h.

Methods: Following engagement and development work, key resources were introduced across the Trust, including mouthcare packs (toothbrush, toothpaste, and information leaflet), two patient education videos, and a staff training video with an accompanying e-learning package. Implementation was supported through collaboration with the Communications Team to promote awareness Trust-wide, and engagement with Practice Educators and Ward Managers to deliver staff training. A Mouthcare Champion was identified on each ward. Daily and weekly mouthcare assessment tools were integrated into the electronic patient record, alongside a dedicated MMCM referral order. The Volunteer Team supported the distribution of mouthcare packs and collected feedback. A quality ward round evaluated staff and patient engagement.

Results: Thirty staff and fifty-three patient/family responses were collected. Eighty percent of staff had completed daily and weekly assessments. Fifty-three percent reported being extremely confident in completing weekly assessments, and 56% in completing daily assessments.

Among patients and families, 53% were aware of mouthcare packs, 89% had brushed their teeth during admission, and 87% felt their oral care routine had been maintained.

Conclusion: Oral care is a fundamental need for hospitalised children. Implementation of MMCM has increased awareness with the long-term aim of embedding oral healthcare into routine paediatric hospital care.

313 Effectiveness of amine fluoride containing products on oral health promotion: a systematic review and meta-analysis

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²Department of Preventive & Community Dentistry, National and Kapodistrian University of Athens, School of Dentistry, Greece, ³Department of Hygiene, Social-Preventive Medicine & Medical Statistics, Medical School, Aristotle University of Thessaloniki, Thessaloniki, Greece **Aim:** To evaluate the effectiveness of amine fluoride (AmF)-containing products compared to placebo or other fluoride formulations in preventing dental caries, reducing plaque accumulation and gingival inflammation.

Methods: A systematic search was conducted in Medline (PubMed), Scopus, Web of Science and CENTRAL for randomised clinical trials assessing AmF products in adolescents and adults with permanent dentition. Eligibility criteria, data extraction and risk of bias assessment using the Cochrane RoB 2.0 tool were predefined (PROSPERO-registration: CRD420251130529). Summary effect estimates with 95% confidence and prediction intervals were calculated using random-effects meta-analyses. Prespecified subgroup and sensitivity analyses were conducted where feasible.

Results: Twelve trials were included in the qualitative synthesis and six in the meta-analyses. Most studies presented some concerns of bias, primarily related to deviations from intended interventions and selective reporting. For caries prevention, pooled estimates showed no statistically significant benefit of adjunctive use of AmF mouthrinse compared with placebo (SMD -0.50; 95% CI -2.57, 1.57), with no statistical heterogeneity. For dental plaque accumulation, non-significant reduction was observed compared with other fluoride formulations (SMD -0.54; 95% CI -1.49, 0.41), with substantial heterogeneity. Similarly, pooled effects for gingival inflammation showed non-significant reduction (SMD -0.41; 95% CI -1.85, 1.03), with high heterogeneity. Subgroup and sensitivity analyses did not change the main findings.

Conclusion: Current evidence does not demonstrate a consistent clinical advantage of AmF over other fluoride formulations or placebo. Substantial heterogeneity, imprecision of pooled estimates and methodological limitations reduce certainty of the findings and indicate the need for further well-designed randomised clinical trials.

325 Rural–urban inequalities in dental visits among Libyan schoolchildren

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¹Department of Dental Public Health and Preventive Dentistry, Faculty of Dentistry, University of Benghazi, Benghazi, Libya, ²Almanar Alsateh Medical University, Derna, Libya **Aims:** To assess disparities in dental visits and utilisation of dental services among Libyan school children living in urban and rural areas.

Methods: A cross-sectional oral health survey of a clustered random sample of Libyan school children living in urban and rural areas in the eastern Province of the country. The data collection included socio-demographic information and oral examination, by calibrated examiners, of oral health to identify treatment needs and received care. the frequency of dental visits and number of filled teeth and untreated decayed teeth were compared. All analyses were conducted at $p \leq 0.05$.

Results: Data from 704 schoolchildren was analysed. Overall, 4.1% reported visiting the dentists regularly (once a year) and 41.6% only visited the dentists if there is emergency, mainly because of dental pain (28.1%). Higher proportion of children living in rural areas reported never visited the dentists ($p \leq 0.001$) and lower proportion of them had filled teeth compared to urban residents ($p = 0.034$). on the other hand, a higher proportion of children studying in private schools reported regular dental visits ($p \leq 0.001$) and has filled teeth ($p \leq 0.001$).

Conclusion: The study shows visiting the dentist on regular basis is uncommon. Children residing in rural areas were significantly less likely to utilise dental services and had fewer filled teeth. Socioeconomic indicators, particularly school type, were strongly associated with both regular dental attendance and receipt of restorative care. These findings highlight the need for interventions to improve oral health in rural areas and raise awareness about regular dental visits.

329 Beyond the dental chair: feasibility of children's oral health screening in non-clinical community hubs

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¹Newcastle University, Newcastle, United Kingdom, ²Newcastle upon Tyne NHS Hospitals Trust, Newcastle, United Kingdom **Aim:** Limited access to dental services contributes to oral disease in children, particularly among vulnerable populations, increasing preventable burden on dental services. Non-clinical community hubs may offer an alternative setting for screening and oral health education. The aim was to assess the oral health of children attending a non-clinical community hub and to explore the feasibility/acceptability of these settings from children's perspectives.

Methods: An explanatory sequential mixed-methods approach was used. Dental screening of children aged 0–16 years was undertaken in a non-clinical community hub by a trained and calibrated dentist in April 2024. Demographics, clinical oral health measures and global quality of life data were collected. All children received age-appropriate oral health education. A purposive subsample participated in three focus groups using a pre-determined topic guide and creative arts-based methods. Audio recordings were transcribed verbatim and analysed thematically; drawings were analysed using approaches including symbolic interpretation, pattern recognition and contextualisation.

Results: A total of 141 children were screened (mean age 6.4 years, SD 3.8). Mean d_{3mft} was 1.7 (SD 2.9), D_{3MFT} 0.3 (SD 0.9), and combined score 2.0 (SD 3.1). Fifteen children received silver diamine fluoride and 125 received fluoride varnish: one declined treatment. Forty-one children were signposted for further dental care. Qualitative analysis generated three themes: space requirements, promoting positive engagement, and familiarity with the environment.

Conclusion: Non-clinical community hubs are feasible and acceptable settings for children's oral health screening, offering opportunities to reduce access barriers and engage underserved groups in preventive care pathways.

343 Oral hygiene status and child behavioural acceptance of parental-assisted toothbrushing using plaque-disclosing toothpaste in preschool children

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Universiti Teknologi MARA (UiTM), Sungai Buloh, Selangor, Malaysia, ³Ministry of Health Malaysia, Kompleks E, Pusat Pentadbiran Kerajaan Persekutuan, Putrajaya, Malaysia **Aim:** Translucent nature of dental plaque and limited child cooperation may hinder effective toothbrushing. Plaque-disclosing toothpaste (PDT) enhances plaque visibility and may improve brushing efficacy and behavioural compliance. This study compared the effects of PDT and commercially available fluoridated toothpaste (CAFT) on plaque, gingival, and child behaviour scores (CBS) in pre-school children.

Methods: Twenty-two children aged 4–6 years were recruited. At baseline, plaque and gingival scores were recorded, and parents completed the Modified Parental-Assisted Child Toothbrushing Assessment (M-PACTA) questionnaire to assess CBS (assessment on non-compliance and avoidance behaviour during toothbrushing with total score of 37 out of 105 indicating challenging behaviour). Participants were randomised to the CAFT or PDT group. Plaque, gingival, and CBS were reassessed after 6 months. Data were analysed using Wilcoxon signed-rank and Mann–Whitney U tests ($p < 0.05$).

Results: Thirteen boys and nine girls (median age 5.0 years; IQR 4.0–6.0) were enrolled. Plaque, gingival, and CBS scores showed no significant difference between groups at baseline. Over 6 months, within groups analysis showed significant improvements in plaque scores (CAFT: $p = 0.010$; PDT: $p = 0.004$), gingival scores (both $p = 0.003$), and CBS (CAFT: $p = 0.041$; PDT: $p = 0.033$). The gingival scores were significantly lower in PDT compared to CAFT group ($p = 0.010$) at 6 months. Lower plaque and CBS in the PDT were also observed; however, it was not statistically significant ($p > 0.05$).

Conclusion: PDT improved gingival scores and demonstrated potential as an adjunct to improve plaque control and child behaviour during toothbrushing.

346 Developing a new oral health programme in inpatient wards at a Children's Hospital

Susana Dominguez-Gonzalez¹, **Laura Shuter**¹, **Sondos Albadri**¹, **Nada Al-Hafidh**¹, **Helen Morley**¹

¹Alder Hey Children's Hospital, Liverpool, United Kingdom **Aims:** The aim was to develop the Mini Mouth Care Matters (MMCM) oral health programme to enable healthcare teams in inpatient wards to deliver more responsive and personalised oral healthcare to patients admitted for more than 24 h at Alder Hey Children's Hospital.

Methods: An MMCM working group was established, comprising staff with interest in oral health. An audit was conducted among staff, children and YP, and parents to gather information on oral hygiene practices during hospital

stay, as well as staff knowledge, awareness, and perceived barriers to providing mouthcare. Costings to the development and implementation of the programme were calculated.

Results: Funding was secured from Liverpool City Council to address health inequalities affecting children and YP. The MMCM programme received support for lead time, development of digital resources, and provision of oral health packs. Additional funding was obtained from the Hospital Charity to cover other costs. NHS Cheshire & Merseyside Dental Commissioning also provided financial support. A PhD student was appointed to evaluate the programme. The inpatient programme was developed and launched in February 2024. Since implementation, it has been continuously evaluated through questionnaires completed by patients/parents, staff, alongside brainstorming session and staff workshops to explore what has worked well and identify barriers.

Conclusions: Developing a new programme in a children's hospital requires a committed multidisciplinary team to champion oral health initiatives. Securing appropriate funding and embedding continuous evaluation are essential to adapt the programme to the needs of staff, patients/parents, ensuring sustainable and long-term impact.

347 Evaluation of community-based oral health parent champion programme using the RE-Aim framework

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¹School of Dentistry, University of Liverpool, Liverpool, United Kingdom **Aim:** To evaluate community-based oral health Parent Champion programme using the RE-AIM framework.

Methods: A mixed-methods evaluation was conducted between 2023 and 2025. Fifteen trained Parent Champions and 61 families participated. Programme reach and implementation were assessed using programme records and training evaluation. Effectiveness outcomes were measured by recording improved dental access and changes in parent-reported oral health behaviours using pre- and post-intervention questionnaires at baseline and 12 weeks ($n = 61$ baseline; $n = 43$ follow-up). Adoption and maintenance were explored through parent feedback surveys ($n = 24$) and semi-structured interviews with parents ($n = 4$). Quantitative data were analysed descriptively, and qualitative data were analysed thematically.

Results: The programme reached 115 families. Improvements were observed in key oral health behaviours. Twice-daily tooth brushing increased from 29% at baseline to 85% post-intervention, fluoridated toothpaste use from 57 to 93%, spitting after brushing from 39 to 80%, and bottle use

decreased from 31 to 21%. In total, 187 children accessed dental services during the evaluation period. Parent Champions demonstrated improvements in oral health knowledge following training. Qualitative findings indicated high acceptability of the programme, with parents consistently emphasising the value of trusted peer delivery and home-based visits in supporting engagement and sustained behaviour change.

Conclusion: This evaluation suggests that a Parent Champions model can support meaningful improvements in children's oral health behaviours in communities experiencing oral health inequalities, with high acceptability and strong potential for sustainable delivery at scale.

355 Do temperament traits influence oral health behaviours? Evidence from preschool children with early childhood caries: a cross-sectional pilot study

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¹Department of Paediatric Dentistry, Faculty of Dentistry, Marmara University, Istanbul, Türkiye, ²Queen Mary University of London, London, United Kingdom **Aim:** To investigate the association between child temperament traits, oral health behaviours, dental attendance patterns, and early childhood caries (ECC) in preschool children.

Methods: This cross-sectional pilot study was conducted at the Department of Paediatric Dentistry Dental School, MU, Istanbul, Türkiye. The presence of ECC was through clinical examination according to World Health Organisation (WHO) criteria. Caregivers completed standardised questions regarding oral health-related behaviours, including the child's toothbrushing frequency, frequency of cariogenic snack consumption, and frequency of dental visits. Child Temperament was assessed using the Temperament Scale for Children, which evaluates seven subdimensions: activity level, adaptability, sensory sensitivity, reactivity, attention/persistence, rhythmicity, and emotional sensitivity. Group comparisons were performed using chi-square and independent samples t-tests. Statistical significance was set at $p < 0.05$.

Results: A total of 84 preschool children were included in the study (mean \pm SD age: 4.71 ± 0.45 years). Of the participants, 45 (53.6%) were girls and 39 (46.4%) were boys. The prevalence of early childhood caries (ECC) was 51.2%. ECC was not significantly associated with age ($p = 0.892$) or gender ($p = 0.650$). Significant associations were observed between ECC and irregular rhythmicity ($p = 0.016$), low attention/persistence ($p = 0.001$), low adaptability ($p = 0.004$), high sensory sensitivity ($p = 0.001$), and high emotional sensitivity

($p = 0.027$). No significant associations were found for activity level ($p = 0.135$) or reactivity ($p = 0.250$).

Conclusion: Specific temperament traits were associated with increased ECC prevalence and unfavourable oral health behaviours. Incorporating temperament assessment into paediatric dental evaluations may support early identification of high-risk children and allow more individualised preventive strategies targeting oral hygiene behaviours and dietary habits.

373 The role of the volunteer team in implementing an oral health programme in a Children's Hospital

Livia Chacko¹, Laura Shuter²

¹Alder Hey Children's Hospital, Liverpool, United Kingdom **Aims:** In Alder Hey Children's Hospital, work has been undertaken as a part of the Mini Mouthcare Matters programme (MMCM), promoting oral healthcare to children, young people and parents/carers. The Volunteer Team has supported operational delivery of the oral health packs while enhancing patient-centred evaluation through the collection of feedback.

Methods: The volunteer role involved distributing oral care packs on the wards, ensuring patients received toothbrushes and toothpastes tailored to their age and needs upon admission. This support helped maintain consistent resource availability and reduced pressure on clinical staff. To evaluate effectiveness, a Microsoft form was created to collect feedback from patients and families regarding the usefulness, accessibility and impact. Responses were reviewed to identify trends and opportunities for improvement. Findings were shared with the Dental Team and Alder Hey funders to demonstrate impact.

Results: One hundred and seventy-two packs (37 baby packs, 110 junior packs, 25 special care packs) have been delivered by the Volunteer Team since this partnership started. Eighty-four feedback questionnaires (20 staff, 15 children and 49 parents) have been collected and handed to the MMCM Team.

Conclusion: Volunteer contribution was integral to supporting delivery of the oral care packs and strengthening the evaluation of the Mini Mouth Care Matters initiative. As a volunteer and prospective dental student, this experience enhanced my understanding of preventative dentistry, patient communication, and quality improvement within a paediatric healthcare setting.

429 Co-creation, feasibility and implementation of peer-led oral health societies to reinforce tooth-brushing behaviours within the RAISED in Yorkshire oral health promotion secondary school-based programme

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Aims: [1] To describe the process of peer leader co-creation of Oral Health Societies (OHS; toothbrushing clubs) within the RAISED in Yorkshire (RiY) programme, and [2] to explore feasibility, reach and acceptability of implementing OHS in participating secondary schools.

Methods: The Yorkshire and Humber region has one of the highest prevalences of dental decay among 12 year-olds in the UK. This contributes to significant health, economic and societal burdens. RiY is an innovative school-based oral health promotion programme targeting 11–13 year-olds, delivered by 16–18 year-old's who are trained as oral health educators and deliver the programme adopting a 'peer-leaders' approach. RiY employs an annual iterative process evaluation to support continuous programme improvement. Peer-leaders proposed the co-creation of OHS to reinforce toothbrushing knowledge, skills and behaviours among younger peer-recipients. They were provided with the evidence base for toothbrushing clubs, and a facilitated focus group explored logistics, health and safety considerations, and sustainability to inform development of an evidence based OHS protocol. Implementation strategies were codesigned by peer-leaders, peer-recipients and school staff, enabling school specific tailoring for optimal delivery.

Results: Twenty peer-leaders participated in the focus group. The themes generated informed the co-development of the RiY OHS protocol. Each participating school co-developed a tailored implementation plan with staff and peer-recipient input. School staff involved with OHS will be interviewed to assess student engagement and curriculum integration.

Conclusion: Two OHS implementation strategies will be presented, outlining their establishment and evaluating the feasibility, reach and acceptability of the delivery approaches within secondary school settings.

440 Parental oral health literacy and its impact on plaque removal using manual and electric toothbrushes in preschool children. A randomised control trial

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¹Department of Paediatric Dentistry, National and Kapodistrian University of Athens, Athens, Greece, ²Department of Preventive & Community Dentistry, National and Kapodistrian University of Athens, Athens, Greece **Aim:** To evaluate the effect of parental oral health literacy (OHL) on the proficiency in plaque removal, using manual or electric toothbrushes in preschool children.

Methods: In this RCT, 130 children 3–5 years old, attending public preschools in areas with various socioeconomic levels were recruited. Parents completed self-administered questionnaires on sociodemographic data, their attitudes and the oral hygiene practices of the child. The validated Greek version of OHL scale was completed by a face-to-face interview. After obtaining parental informed consent, children were randomly divided into two toothbrush groups, a) manual (N=66) or b) electric (N=64), and parents received oral hygiene instructions. Clinical examinations were performed by a calibrated paediatric dentist at baseline and six months later, where dental plaque was assessed using the Turesky Quigley/Hein index. Statistical analysis of the data was performed using t-tests and χ^2 with the level of statistical significance being set at 5%.

Results: From the total sample, 54% had low to moderate OHL (ML-OHL) and 46% high (H-OHL) with no significant difference in baseline plaque ($p=0.06$) or demographic characteristics. After 6 months, there was significant reduction for both groups in total plaque scores ($p<0.01$ for both groups). When comparing manual with electric toothbrushes, there was significantly less plaque in the ML-OHL group ($p=0.04$) for the electric toothbrush but no difference between the two types, for the H-OHL group ($p=0.746$).

Conclusions: The use of electric toothbrushes can be beneficial for plaque removal in families with low to moderate OHL.

456 Effect of plaque-disclosing toothpaste on parental attitudes toward parent-assisted tooth-brushing in preschool children

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³**Ministry of Health, Kompleks E, Pusat Pentadbiran Kerajaan Persekutuan, Putrajaya, Malaysia** **Aim:** The translucent nature of dental plaque may reduce parental confidence in the effectiveness of parent-assisted toothbrushing, potentially limiting sustained engagement in children's oral hygiene practices. This study compared the effects of plaque-disclosing toothpaste (PDT) and commercially available fluoridated toothpaste (CAFT) on parental attitudes toward children's toothbrushing practices.

Methods: Twenty-two children aged 4–6 years and their parents were recruited. At baseline, plaque score (PS) and gingival score (GS) were recorded, and parents completed the Modified Parental-Assisted Child Toothbrushing Assessment (M-PACTA) questionnaire to determine parental attitude scores (PAS), comprising 18 items (scores > 44/90 indicate a more positive attitude). Participants were randomised to CAFT or PDT. PS, GS and PAS were reassessed after six months. Data were analysed using Wilcoxon signed-rank and Mann–Whitney U tests ($p < 0.05$).

Results: Both groups demonstrated significant improvements in PS (CAFT: $p = 0.010$; PDT: $p = 0.004$) and GS (both $p = 0.003$). No significant within-group changes were observed in PAS ($p > 0.05$). At six months, GS were significantly lower in the PDT group compared with CAFT ($p = 0.010$), whereas PS and overall PAS did not differ significantly between groups. Although overall parental attitude scores were comparable, item-level analysis demonstrated significantly greater improvement in the PDT group in domains related to frustration, perceived brushing difficulty, parental self-blame, and tolerance of child misbehaviour during brushing ($p < 0.05$).

Conclusion: PDT improved gingival scores and positively influenced specific parental attitude domains, although overall parental attitude scores were comparable between groups.

457 Development of a digital clinical interface for early childhood caries risk prediction incorporating machine learning frameworks

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¹Faculty of Dentistry, Universiti Teknologi Mara, Malaysia, ²Ministry of Health, Kompleks E, Pusat Pentadbiran Kerajaan Persekutuan, Putrajaya, Malaysia, ³Faculty of Computer and Mathematical Sciences, Universiti Teknologi MARA (UiTM), Shah Alam, Selangor, Malaysia **Aim:** Early Childhood Caries (ECC) is a significant public health concern in paediatric population. Despite advances in preventive dentistry, early detection at high risk of ECC remains challenging. Digital decision-support systems utilising Artificial Intelligence (AI) have the potential to enhance

screening efficiency in dental practice using behavioural and socio-demographic data. The aim was to develop a scalable clinical interface as a user-friendly screening tool to support machine learning-based caries risk prediction in paediatric population.

Methods: A Java-based clinical interface was developed using a three-tier architecture comprising presentation, logic, and data layers to ensure scalability, modularity and future integration of advanced predictive models. The system was designed with two primary user roles: (1) clinicians, who input patient clinical and demographic data; and (2) administrators, responsible for user account management, maintenance and system configuration. The interface incorporates demographic and clinical risk indicators to support ECC screening.

Results: The developed system enables streamlined data entry, automated generation of risk prediction reports and centralised dataset management within a unified platform. The three-tier architecture enhances system flexibility to facilitate future model updates and feature expansion resulting in an interface that is ready for integration of improvised ML algorithm throughout time to support higher predictive accuracy.

Conclusions: This study presents the development of a clinically oriented interface to facilitate early ECC screening in dental field. By integrating structured clinical data and automated prediction reporting, the system supports faster and technologically advanced caries risk assessment for improved clinical decision-making and preventive care planning.

468 Feasibility of delivering 'RAISED-in-Yorkshire RCT', a peer-led complex oral health intervention that targets adolescent school students from areas of high oral health inequality

Rory Davies^{1,2}, Farag Shuweihdi¹, Yasmien Elsadek¹, Poonam Anand¹, Dixons Sixth Form Academy Student & Teacher Members—SMILE AIDER Patient Public Involvement & Engagement Forum^{1,3}, Sue Pavitt^{1,4}

¹School of Dentistry, University of Leeds, Leeds, United Kingdom, ²School of Pharmacy, Newcastle University, Newcastle upon Tyne, United Kingdom, ³Dixons Sixth Form Academy, Douglas Mill, Bradford, United Kingdom, ⁴National Institute of Health & Care Research—Research Delivery Network (NIHR RDN) Yorkshire & Humber Speciality Co-Lead for Oral & Dental Health, United Kingdom **Aim:** [1] To assess the feasibility of delivering the RAISED in Yorkshire' (RiY) RCT against predefined trial progression criteria. [2] To explore if there is any trend in oral health (OH) knowledge, skills or behaviour change in participants.

Methods: Design: Two-arm UK Secondary school-based feasibility RCT comparing immediate oral health (OH) workshop and reinforcement sessions (complex intervention arm) versus delayed workshop-only (control) delivered by peer leaders to adolescent peer recipients. Randomisation: School students were randomised by class within each school. Delivery: 16–19-year-old ‘peer leaders’ were trained as OH Educators to deliver the RiY intervention to ‘peer recipients’, students aged 11–12 years in UK senior schools. Feasibility outcomes: Assessment of: [1] Operational delivery across multiple schools. [2] pre-defined trial progression criteria: i) School recruitment and ii) Participant recruitment/retention. OH outcomes: Trends were explored pre/post intervention using a quiz (knowledge), Turesky-modified Quigley-Hein Plaque Index (toothbrushing skill) and gingival bleeding index (behaviour) analysed using Related-Samples Wilcoxon Signed Rank & McNemar tests.

Results: All feasibility targets were achieved for automatic progression to full trial: recruitment of schools, participant recruitment/ retention. Intention-to-treat analysis (not powered) pre/post intervention showed encouraging statistical trend towards improvement in OH knowledge, skills and behaviour.

Conclusion: RiY peer-to-peer approach engaged adolescents in oral health promotion reaching those from high-deprivation areas. Further feasibility data will be collected with randomisation by school to explore reducing cross contamination and improving delivery logistics. A national full trial is under consideration, to expand ‘RAISED-in-’ to schools across the UK using RiY as a framework but with regional ownership ‘RAISED in...’.

490 Factors influencing the reliability of oxidative stress measurements in saliva samples

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¹Department of Paediatric Dentistry, Aristotle University of Thessaloniki, Greece, ³Department of Preventive Dentistry, Periodontology and Implant Biology, Aristotle University of Thessaloniki, Thessaloniki, Greece **Aim:** to investigate the influence of collection method, storage, and sampling time on total oxidative status (TOS) and total anti-oxidative status (TAS) in saliva.

Methods: stimulated saliva samples were obtained from six healthy adults on three non-consecutive days, in the morning (08:00) and midday (13:00). Saliva was collected by expectoration for 5 min, and samples were analysed either directly or following absorption with swabs (Salivette Cotton and Salivette Cortisol). Measurements of TOS and TAS were performed immediately and after storage for one month at –80 °C.

Results: storage conditions significantly affected biomarker stability, with TOS increasing by 27% and TAS decreasing by 26% after one month of freezing. The use of different swab materials did not significantly alter the results. Sampling time influenced TOS values ($p=0.028$), but no significant variation was observed for TAS ($p=0.556$), suggesting a possible diurnal fluctuation in oxidative status.

Conclusion: saliva collection using swabs does not interfere with the assessment of oxidative stress markers. However, both storage conditions and sampling time significantly influence TOS and should be carefully standardised to ensure reliable and comparable results.

502 Oral health interventions in early years settings: a systematic review

Rama Midani¹, **Kiren Malik**¹, **Kara A. Gray-Burrows**¹, **Peter F. Day**¹

¹University of Leeds, Leeds, United Kingdom **Aim:** The aim of the systematic review is to identify and synthesise oral health educational and promotional interventions delivered in early years settings.

Methods: Based on PRISMA and PROSPERO registration, the systematic search in seven databases Medline (via Ovid), EMBASE (via Ovid), CINAHL, PsycINFO (via Ovid), Scopus, Web of Science, Cochrane library was performed from the year 2000 up to July 2025. Only interventions addressed in early years settings which had an oral health education (OHE) element and clinical outcomes were compared. Primary outcomes included caries prevalence and severity, gingival health and toothbrushing behaviours.

Results: There were 5,879 identified, 34 studies met the eligibility criteria. Fifteen studies focused on applying fluoridated toothpaste through toothbrushing educational programmes. Other studies were composed of single or multiple components of oral health promotion with considerable overlap between categories. Four interventions were addressed to early years children with special needs. Most interventions showed positive effect on at least one clinical outcome. Fluoride and supervised toothbrushing programmes consistently reduced caries prevalence and severity. OHE only interventions improved knowledge and short term brushing behaviours but showed limited impact on caries prevalence and severity. Multi-component interventions showed significant improvements across different outcomes.

Conclusion: Early childhood oral health interventions delivered in early years settings are generally effective, with the greatest impact observed in comprehensive programmes that combine fluoride delivery, OHE, and parental involvement.

510 Evaluation of teenager peer leaders trained to deliver the oral health promotion programme RAISED-in-Yorkshire to adolescents within school communities located in areas of high oral health inequality – sparking passion, raising aspirations, delivering reach, imparting knowledge, skills and behaviour change

Yasmen Elsadek¹, Karen Vinall-Collier¹, Julia Csikar¹, Louise Laverty¹, Farag Shuweihdi¹, Sue Pavitt¹

¹University of Leeds, Leeds, United Kingdom **Aim:** To evaluate the impact of RAISED in Yorkshire (RiY) on student peer leaders.

Methods: A mixed-methods design assessed changes in peer-leaders' oral health (OH) knowledge, skills, and behaviours, and explored perceived benefits of participating in RiY. The qualitative topic guide was developed from stakeholder meetings, systematic reviews, and a pilot study. Seven focus groups were held with current RiY peer-leaders to explore experiences of training and delivering RiY to adolescent recipients. Data were analysed using framework analysis at articulated, attributional, and emergent levels. Semi-structured interviews with key staff from five participating schools and RiY alumni examined programme benefits and areas for improvement. Schools also provided university application outcomes. Quantitative pre-/post-intervention data were collected from peer-leaders using an OH knowledge quiz, Plaque Index, and Gingival Index. Changes were assessed using McNemar and Wilcoxon signed-rank tests.

Results: Sixty-five students aged 16–18 years participated; 75% were from the most deprived areas in Yorkshire. Qualitative data were obtained from 49 peer-leaders. Four themes emerged: (1) building relationships within and beyond school; (2) self-development through leadership; (3) improved personal OH through RiY involvement; and (4) creating a culture that prioritised OH and helped address oral health inequalities. Peer-leaders engaged in co-producing OH resources, and alumni reported raised aspirations. Quantitative analysis showed statistically significant improvements in all OH parameters post-intervention ($p < 0.001$). Four of five teachers and three alumni contributed additional insights, noting that RiY supported university applications, broadened opportunities, and informed career choices.

Conclusion: RiY positively impacted peer-leaders, fostering OH knowledge, skills, leadership growth, and aspirations to address oral health inequalities within their communities.

Topic 07. Syndromes and genetics

28 Pharmacological and non-pharmacological behaviour management techniques in anxious siblings with a rare fatal cardiac condition, catecholaminergic polymorphic ventricular tachycardia

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¹Department of Paediatric Dentistry, Kuwait Board of Paediatric Dentistry, Ministry of Health, Kuwait **Background:** Catecholaminergic polymorphic ventricular tachycardia (CPVT) is a rare inherited genetic disorder that predisposes patients to potentially fatal arrhythmias under physical or emotional stress, without structural heart abnormalities.

Clinical report: A 7 and a 10 year-old anxious boy and girl with CPVT, managed with β -blockers, presented with poor oral hygiene and multiple carious primary teeth with buccal sinus tracts and periapical infection. Radiographic examination revealed interproximal radiolucencies in posterior primary teeth. After obtaining medical clearance, treatment included intensive prevention, restorations with preformed metal crowns, and extractions of necrotic teeth under local anaesthesia (2% lidocaine with 1:100,000 epinephrine) and inhalation sedation with nitrous oxide, ensuring stress reduction throughout the procedures as well as basic behaviour management techniques including positive reinforcement, tell-show-do and enhanced control.

Discussion: No absolute dental contraindications or prophylactic antibiotics were required, but the patients' severe anxiety necessitated stress reduction measures. These included early morning appointments, basic behaviour guidance techniques, profound local anaesthesia, and nitrous oxide sedation. Continuous cardiac monitoring was maintained throughout the procedures to monitor heart rate, blood pressure, and oxygen saturation.

Conclusion: Effective collaboration with a cardiologist, stress reduction protocols using both pharmacological and non-pharmacological techniques, continuous patient monitoring, and preparedness for emergencies are essential for the safe and effective dental management of anxious children with CPVT, ultimately promoting better health outcomes and reducing anxiety for both the patient and caregivers.

45 More than a missing tooth: a solitary median maxillary central incisor in a child

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¹Univerisrty of Liverpool, Liverpool, United Kingdom Background: A solitary median maxillary central incisor (SMMCI) is a rare dental anomaly characterised by a single maxillary central incisor positioned in the midline. It may affect the primary and/or permanent dentitions and has been reported as part of a recognised midline developmental phenotype. In some cases, SMMCI is associated with craniofacial, airway, endocrine, or neurological abnormalities. Its presence may therefore act as a clinical marker warranting further assessment.

Case report: A six year-old child was referred by her general dental practitioner for assessment of a single maxillary central incisor in the primary dentition. Medical history included neonatal laryngeal underdevelopment with feeding and breathing difficulties, neonatal sepsis, and maternal polyhydramnios. Clinical examination revealed a solitary maxillary primary central incisor positioned in the midline with an associated high-vaulted palate. Radiographic assessment confirmed the presence of a single developing permanent maxillary central incisor in the midline.

Treatment: No active dental treatment was indicated due to the patient's stage of dental development and lack of aesthetic concerns. The finding was recognised as a potential marker of broader midline developmental conditions. The family was informed of the importance of a multidisciplinary assessment.

Follow-up: The patient was referred to a general paediatrician with onward referral to clinical genetics. Dental care is shared between the dental hospital and GDP, with ongoing review and liaison with medical services are planned.

Conclusion: This case highlights the dentist's role in recognising uncommon dental anomalies that may signal underlying developmental variation and the importance of multidisciplinary review.

62 Dental management of a paediatric patient with CHARGE syndrome: a case report

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¹Kuwait Board in Paediatric Dentistry, Kuwait Institute for Medical Specialisation, Kuwait Background: CHARGE Syndrome is a group of congenital anomalies first described by Hall in 1979. The acronym "CHARGE" stands for Coloboma, Heart defect, Atresia choanae, Retarded growth and development, Genital hypoplasia, and Ear anomalies/deafness. Its aetiology is unknown; most cases are sporadic, though rare familial occurrences suggest possible autosomal

dominant or recessive inheritance. Incidence is 1:10,000–1:15,000 live births.

Case report: A 4 year-old boy was brought to our clinic in a stroller for a dental check-up. His medical history confirmed CHARGE syndrome with multiple systemic anomalies. Examination revealed poor oral hygiene and extensive caries affecting nearly all primary teeth. Preventive care and oral hygiene instructions were provided, with close liaison with the patient's paediatrician, cardiologist, neurologist, and pulmonologist to ensure safe preparation for general anaesthesia.

Treatment: Full-mouth rehabilitation was completed using a multidisciplinary approach, with ongoing comprehensive preventive care, family support, and regular follow-up over eighteen months to promote long-term oral health. CHARGE syndrome presents complex medical and developmental challenges that complicate dental care. Sensory impairments, cardiac anomalies, developmental delay, and hypotonia may limit cooperation and oral hygiene, increasing the risk of dental disease. Systemic health priorities often delay dental visits until advanced disease develops, requiring extensive treatment. Early dental assessment, preventive measures, and caregiver education are essential to reduce disease progression.

Conclusion: Early evaluation and continuous preventive care are crucial for patients with CHARGE syndrome. A multidisciplinary approach, including general anaesthesia when indicated and supported by regular follow-up, ensures safe, effective care while promoting long-term oral health.

95 Multidisciplinary management of enamel renal syndrome: a case series of three paediatric patients with FAM20A variants

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¹ELOHA (Equal Lifelong Oral Health for All) Research Group, Paediatric Dentistry, Oral Health Sciences, Ghent University, Ghent, Belgium, ²Department of Oral Health Sciences, Clinic for Removable Prosthodontics, Ghent University, Ghent, Belgium, ³Department of Reconstructive Dentistry, Faculty of Medicine and Health Sciences, Ghent University, Ghent, Belgium Background: Enamel renal syndrome (ERS), caused by FAM20A mutations, is an extremely rare autosomal recessive disorder (prevalence < 1/1,000,000) characterised by hypoplastic amelogenesis imperfecta and renal calcifications. Early diagnosis and multidisciplinary management are essential to prevent severe oral dysfunction and renal complications. This case series describes the clinical and genetic features and long-term management of three paediatric patients with ERS.

Case reports: Three patients (two males, one female; ages 7–16 years) with genetically confirmed FAM20A variants presented with severe hypoplastic amelogenesis imperfecta, delayed eruption, gingival overgrowth, and characteristic radiographic findings (thin or absent enamel, intra-pulpal calcifications, enlarged follicles). One boy had a known homozygous missense variant c.1013G > A (p.Gly338Asp) and nephrolithiasis. The girl had a novel homozygous nonsense variant c.1134 T > A (p.Cys378Ter) with markedly delayed eruption and early medullary nephrocalcinosis. The second boy carried a homozygous variant of unknown significance c.923C > T (p.Ser308Phe) with Class III malocclusion and possible early nephrocalcinosis.

Treatment: Management combined paediatric dentistry, prosthodontics, orthodontics, and nephrology. Interventions included laser-assisted surgical uncovering, gingivectomy, extractions, composite restorations, stainless steel crowns, removable partial dentures, and annual renal ultrasonography.

Follow-up: Follow-up ranged from 5–11 years. Two patients achieved functional occlusion with staged prosthetic rehabilitation; one is in combined orthodontic–prosthodontic planning. All maintained stable renal function, although two showed early nephrocalcinosis.

Conclusion: ERS requires early dental–renal screening, genetic confirmation, and long-term multidisciplinary care. Paediatric dentists are pivotal in recognising ERS, initiating systemic evaluation, and coordinating functional and psychosocial rehabilitation while nephrological monitoring limits renal complications.

103 Ten years, rare teeth: NBAS syndrome in paediatric dentistry

Richa Rughani¹, **Susan Parekh**¹

¹**Royal National ENT and Eastman Dental Hospital, London, United Kingdom** **Background:** Neuroblastoma Amplified Sequence (NBAS) syndrome is an ultra-rare genetic disorder with multisystem involvement, including skeletal, connective tissue, immune, hepatic and retinal abnormalities. There is minimal published literature describing its dental implications. This case demonstrates the long-term follow-up of a child with NBAS syndrome complicated by Type I diabetes, with periodontal breakdown affecting the permanent dentition.

Case report: A male child referred at age 5 years under specialist dental care in 2015. Medical history includes NBAS syndrome, Type I diabetes, short stature, recurrent fractures managed with intravenous bisphosphonate infusions, and mild developmental impairment. Dental findings included generalised microdontia, atypical permanent tooth morphology with parallel-sided crowns, crowding, reduced

oral aperture and tight lip support. Periodontal assessment identified localised periodontitis (Stage IV, Grade C), with gingival recession, mobility of the lower incisors and associated radiographic bone loss. Occlusal assessment demonstrated anterior contacts only, bilateral posterior open bites and a history of anterior crossbite, previously managed with interceptive orthodontic treatment.

Treatment: Management prioritised a conservative, risk-based approach. Orthodontic intervention was limited due to periodontal instability. Periodontal care consisted of three-monthly hygiene maintenance. Occlusal management included a soft lower bite-raising appliance fabricated using digital scanning, avoiding restorative build-ups due to tolerance concerns.

Follow-up: Over ten years of multidisciplinary follow-up, the patient has maintained function, comfort and relative oral health stability despite ongoing periodontal risk.

Conclusion: This case demonstrates the importance of cautious, individualised and multidisciplinary management in medically complex children, where conservative strategies may provide the most sustainable outcomes.

106 Hypophosphatasia presenting as early loss of primary teeth

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¹**University of Manchester, Manchester, United Kingdom,** ²**University Dental Hospital of Manchester, Manchester, United Kingdom** **Background:** Hypophosphatasia (HPP) is an inherited metabolic disorder characterised by deficient activity of alkaline phosphatase. Symptoms and presentations can vary, and some patients may experience premature exfoliation of teeth.

Case report: A 2 year-old female was referred by her general dental practitioner regarding premature exfoliation of lower primary central incisors. It was noted that the teeth had exfoliated with the roots intact. The patient's mother reported that she also had shorter limbs and hypermobility.

Treatment: One of the exfoliated lower primary incisors was brought to her initial appointment, and was subsequently sent for histopathological assessment. This revealed a lack of cementum formation, in keeping with HPP. She was referred to the paediatric endocrinology team, who ordered radiographs of the wrists and knees to exclude rickets, and arranged screening for HPP. The radiographic features, biochemical and genetic testing confirmed a diagnosis of HPP. At age 5, due to her symptoms, treatment with asfotase alfa and vitamin D3 commenced, which has continued. This patient is now age 8. Dentally, there has been no further premature exfoliation of teeth. She developed caries of the ULE, LLE and URE, and mild tooth surface loss of ULD. These teeth were restored with

performed metal crowns via the Hall technique. The first permanent molars were sealed, and this patient remains under review with the Paediatric Dentistry team.

Conclusion: Premature exfoliation of teeth could be the first sign of an underlying condition such as HPP. Early diagnosis and multidisciplinary management can improve outcomes for these patients.

125 Severe external inflammatory resorption and amelogenesis imperfecta in an adolescent: diagnostic and restorative challenges

Sinead Sutcliffe¹, **Matthew Brennand-Roper**¹

¹**Bristol Dental Hospital, University Hospitals Bristol and Weston Foundation Trust, Bristol, United Kingdom** **Background:** External inflammatory resorption in association with amelogenesis imperfecta (AI) is rare and poses significant diagnostic and restorative challenges, especially in adolescent patients.

Case report: This abstract presents multidisciplinary care for a 16 year-old male with extensive coronal tooth surface loss arising from severe external cervical inflammatory resorption on a background of amelogenesis imperfecta. Medically, he is fit and well with no medications. The extent and pattern of resorption is atypical, prompting further investigation and intervention to determine the underlying aetiology/histology. Several affected teeth demonstrate minimal or no clinical coronal structure and furthermore, he presents with delayed passive eruption of the LR7 posing significant challenges for restorative intervention.

Treatment/follow-up: Multidisciplinary management aimed at preserving remaining tooth structure and restoring function. His anterior restorations demonstrate favourable functional and aesthetic outcomes over a three year follow-up period. There is need for further restorative treatment including fixed prosthetic restorations on most of his remaining dentition to prevent further wear. Root canal treatment is needed due to the severity of resorption of the LR7 including a gingivectomy for access. Teeth with minimal or no visible coronal structure are being preserved to maintain alveolar bone for future implant placement.

Conclusion: This case represents an unusually severe and rare combination of external inflammatory resorption and AI. There were restricted restorative options, underscoring the challenges associated with managing such rare presentations. By sharing this case, we aim to contribute to discussion on management strategies for similarly complex adolescent cases, offering insight into preservation-focused, multidisciplinary approaches for rare dental anomalies.

139 Dental implications of Bardet-Biedl syndrome (BBS): a case report

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¹**Royal Manchester Children's Hospital, Manchester, United Kingdom** **Background:** Bardet–Biedl syndrome (BBS) is a rare autosomal recessive disorder characterised by obesity, polydactyly, visual impairment and learning difficulties. Children with BBS are at increased caries risk due to food-seeking behaviours and frequent sugar intake, compounded by difficulties with oral hygiene related to learning disability, visual impairment, and reduced manual dexterity.

Case report: A 4 year-old girl was referred to the Dental Health Unit at Royal Manchester Children's Hospital with a history of dental pain and swelling. Her medical history included BBS with associated microcephaly, bifid epiglottis and polydactyly. Intra-oral examination revealed extensive caries, retained roots and poor oral hygiene. Radiographic assessment was not possible due to lack of cooperation. Dietary assessment identified a restricted but high-sugar diet, with significant food-seeking behaviours.

Treatment: A comprehensive care general anaesthetic was planned. Following examination under anaesthetic, dental extractions of all primary maxillary teeth and mandibular primary molars was undertaken. Tailored oral hygiene and dietary advice was provided. Pre-operative challenges included ensuring strict adherence to nil-by-mouth instructions, requiring close caregiver supervision.

Follow-up: Given the patient's high caries risk, she will be reviewed at three-monthly intervals. Preventive care will include fissure sealants on eruption of permanent molars, ongoing fluoride varnish, and reinforced dietary advice delivered collaboratively by the dental team and dietician.

Conclusion: BBS predisposes children to caries due to behavioural and functional barriers to effective oral hygiene associated with hyperphagia and difficulties in maintaining oral hygiene. Early identification, prevention, and collaboration with caregivers and the multidisciplinary team are essential to minimise caries progression.

143 Oculodentodigital dysplasia: a rare genetic disorder with orofacial and dental manifestations—case report

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¹**Lithuanian University of Health Sciences, Lithuania** **Background:** Oculodentodigital dysplasia (ODDD) is a rare inherited disorder caused by mutations in the GJA1 gene encoding connexin-43. It is characterised by craniofacial, ocular, digital, and dental abnormalities. Early orofacial

manifestations such as enamel hypoplasia, microdontia, delayed eruption, and craniofacial anomalies highlight the important role of paediatric dentists in early recognition and referral.

Case report: An 8 year-old boy was referred to the Lithuanian University of Health Sciences, Department of Preventive and Paediatric Dentistry, due to severe dental hypersensitivity affecting oral hygiene, eating, and drinking. Clinical examination revealed abnormal morphology of both primary and permanent teeth, yellow discoloration, and hypoplastic, fragile enamel with rapid post-eruptive breakdown. Medical history included surgically corrected finger syndactyly, persistent toe syndactyly, and hydronephrosis in early childhood. In 2024, next-generation sequencing identified a heterozygous GJA1 variant, confirming ODDD.

Treatment: Hypoplastic primary teeth were restored with glass ionomer filling. Severe dentin hypersensitivity was managed with four topical fluoride varnish applications over 2–4 weeks and professional oral hygiene care. A prosthodontic consultation was initiated to restore vertical occlusal dimension and aesthetics, including stainless steel crowns on permanent molars (36, 46) and aesthetic anterior restorations.

Follow-up: The patient has been monitored every 3–6 months for two years. Further restorative treatment is planned following eruption of permanent premolars to establish stable occlusion and preserve dental tissues.

Conclusion: Severe enamel defects and hypersensitivity may indicate an underlying genetic disorder. Early diagnosis and multidisciplinary long-term management are essential to maintain oral function, structural integrity, and aesthetics.

183 Diagnostic yield of genetic testing in patients with a clinical diagnosis of amelogenesis imperfecta at the Royal London Dental Hospital

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¹Royal London Hospital, London, United Kingdom, ²Great Ormond Street Hospital, London, United Kingdom, ³Cambridge University Hospitals, Cambridge, United Kingdom **Aim:** To evaluate the diagnostic yield of genetic testing in patients with a clinical diagnosis of Amelogenesis imperfecta (AI) and to explore associations between clinical phenotype and genetic findings.

Methods: Patients with a clinical diagnosis of AI were offered genetic testing through an established pathway. Following informed consent, blood or saliva samples were obtained from patients for laboratory analysis. Clinical phenotype, genetic testing outcomes, and identified pathogenic or likely pathogenic variants were recorded in a database. Descriptive analysis was performed.

Results: Of 38 tests submitted, results were available for 23 cases. Ten cases (43%) demonstrated a pathogenic or likely pathogenic variant associated with AI, while 13 (57%) showed no identifiable causative variant. Among the 10 positive cases, 4 were clinically classified as hypocalcified, 5 as hypoplastic, and 1 as hypomaturational type. In contrast, of the 13 cases with negative genetic findings, 12 exhibited a hypomaturational phenotype and 1 was classified as hypoplastic.

Conclusion: Genetic testing demonstrated a moderate diagnostic yield (43%) within this cohort. Hypoplastic and hypocalcified phenotypes were more frequently associated with identifiable pathogenic variants, whereas the hypomaturational phenotype showed a markedly lower detection rate. These findings may reflect incomplete characterisation of genes underlying hypomaturational AI or limitations within current testing panels. Larger cohort studies are required to further clarify genotype–phenotype correlations and to optimise genetic testing strategies in AI.

185 Dental management of two medically compromised siblings with mitochondrial complex III deficiency: a case series

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¹Kuwait Board in Paediatric Dentistry (KBPD), Kuwait Institute for Medical Specialisations (KIMS), Kuwait **Background:** Mitochondrial complex III deficiency is a rare genetic disorder of oxidative phosphorylation in which impaired electron transport reduces adenosine triphosphate production and may lead to lactic acidosis and multisystem dysfunction. High-energy organs are particularly affected, with potential neurodevelopmental delay, cardiomyopathy, growth failure, and metabolic instability that can complicate dental care.

Case reports: Two sisters aged 9 and 14 years with failure to thrive secondary to mitochondrial complex III deficiency were referred for comprehensive dental management. Shared medical features included short stature, microcephaly, generalised hypotonia, lactic acidosis, and speech delay. Cardiac involvement included mild mitral regurgitation in the younger sibling and left ventricular hypertrophy with valvular regurgitation in the older sibling. Dental assessment revealed high caries risk, poor oral hygiene, and biofilm-induced gingivitis; delayed dental development; developmental dental anomalies (oligodontia/hypodontia); malocclusion; over-retained primary teeth; and impacted permanent teeth. Endocrinology and cardiology teams were consulted for dental clearance.

Treatment: Following multidisciplinary consultation and endocrinology advice, general anaesthesia was avoided, and treatment was completed under local anaesthesia. Both

patients were highly anxious; however, care was successfully delivered using non-pharmacological behaviour guidance, short morning appointments, and avoidance of prolonged fasting to support metabolic stability. Treatment included preventive care, restorations, and extractions of over-retained or infected primary teeth.

Follow-up: Both patients remain on a 3 month recall and were referred for orthodontic management.

Conclusion: This case series highlights the importance of multidisciplinary planning, individualised risk reduction, and prevention-focused care for safe outpatient dental management in children with mitochondrial disease.

207 Aicardi-Goutières syndrome: a clinical case

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¹Faculty of Dental Medicine, University of Lisbon, Lisbon, Portugal **Background:** Aicardi-Goutières Syndrome (AGS) is an extremely rare autosomal recessive encephalopathy presenting in early infancy with a severe neuroinflammatory phenotype. Major systemic features include developmental delay/regression, acquired microcephaly, hypotonia/spasticity, feeding difficulties, among others. Due to its rarity and medical complexity, oral manifestations and dental management challenges remains poorly documented.

Case report: 14 year-old male with AGS attended the Faculty of Dental Medicine, University of Lisbon Clinic. He presented with severe neurodevelopmental impairment, limited communication, poor motor control and complete caregiver dependence. His medication included a muscle relaxant, antiepileptic therapy. Intraoral examination revealed anterior open bite, hypersalivation, plaque accumulation with gingival inflammation and enamel hypomineralisation. These findings were consistent with patient's neuromotor dysfunction, compounded by caregiver difficulty in performing effective oral hygiene. The combination of these findings was associated with caries in the permanent dentition; teeth 26, 31 and 37 were clinically assessed as non-restorable despite the absence of pain. The patient had previously received comprehensive dental care under general anaesthesia.

Treatment: Treatments under general anaesthesia included pit-and-fissure sealant on susceptible teeth (17, 14, 24, 27, 35, 44, 45), restorative management of caries with composite resin restorations (15, 25, 34, 36, 47), extraction of teeth (26, 31, 37) and fluoride topical application.

Follow-up: At 1 week follow-up the patient presented asymptomatic, with good healing and improved oral hygiene.

Conclusion: AGS may predispose to significant oral disease, therefore, dental professionals should recognise

the risks and implement early prevention, caregiver training, and, when necessary, comprehensive care to reduce the burden of advanced caries and extractions.

229 Enamel renal syndrome in an adolescent with failed eruption: diagnostic and multidisciplinary management challenges

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¹KU Leuven, Department of Oral Health Sciences, and Paediatric Dentistry and Special Dental Care, University Hospitals Leuven, Leuven, Belgium **Background:** Enamel Renal Syndrome (ERS) is a rare autosomal recessive disorder caused by mutations in FAM20A, characterised by hypoplastic amelogenesis imperfecta (AI), eruption failure of primary and permanent teeth, pulp stones, and renal abnormalities, including nephrocalcinosis. Because renal manifestations may remain clinically silent during childhood, nephrological screening is recommended whenever the typical dental phenotype is present.

Case report: A 17 year-old girl was referred to the Paediatric Dentistry Department (UZ Leuven, Belgium) with generalised hypoplastic AI and eruption failure of multiple permanent teeth. Previous surgical exposures and long-term orthodontic traction of the maxillary canines had been unsuccessful. Clinically, the dentition exhibited yellow–brown discoloration, severely reduced or absent enamel, and semi-lunar incisal edges of the maxillary central incisors. Radiographically, generalised pulp stones in primary and permanent teeth, diminished enamel–dentin contrast, hyperplastic dental follicles around unerupted posterior teeth, and aberrant eruption pathways were observed. These features raised suspicion of ERS or amelogenesis imperfecta–gingival fibromatosis syndrome. No renal symptoms were reported at presentation.

Treatment: Further orthodontic traction was deemed unlikely to succeed. Autotransplantation of the maxillary canines is currently under consideration. The patient was referred for nephrological evaluation and FAM20A genetic testing. Pain management and anaesthetic protocols were adapted keeping renal implications in mind.

Follow-up: Multidisciplinary follow-up was initiated. Renal imaging and functional assessment are ongoing to rule out nephrocalcinosis.

Conclusion: ERS should be considered in adolescents with hypoplastic AI and multiple failed eruptions. Early nephrological referral and multidisciplinary collaboration are crucial to prevent late renal complications and to improve dental and functional outcomes.

238 Multidisciplinary dental management of a child with APECED syndrome and chronological enamel hypoplasia: a case report

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¹Dental Health Unit, Royal Manchester Children's Hospital, Manchester Foundation Trust, Manchester, United Kingdom, ²University of Manchester, Manchester, United Kingdom **Background:** This case report describes the multidisciplinary management of a child with Autoimmune Polyendocrinopathy Candidiasis Ectodermal Dystrophy Type 1 (APECED) and chronological enamel hypoplasia. APECED is a rare autosomal recessive disorder caused by a homozygous frameshift variant in the AIRE gene, predisposing patients to multiorgan autoimmune disease, Sjögren-like features, chronic Candida infections of the oral tissues, and enamel hypoplasia.

Case report: A 10 year-old male with APECED presented with sore, bleeding gingivae, thermal sensitivity, and dry mouth. His medical history included hypocalcaemia, hypoparathyroidism, and autoimmune hepatitis. Clinical examination revealed generalised enamel hypoplasia, xerostomia, suboptimal oral hygiene, bilateral oral pigmentation, gingival recession affecting the lower incisors, caries in first permanent molars, and a Class III incisor relationship. A language barrier further complicated assessment and treatment planning.

Treatment: Initial chairside care under local anaesthesia included enhanced preventative measures, dietary counselling, prescription of 2800 ppm fluoride toothpaste, scaling, and direct composite restorations. Persistent sensitivity, moisture control difficulties, and early restorative failure limited the effectiveness of this approach.

Follow-up: Following multidisciplinary discussion and parental consultation, dental rehabilitation was completed under general anaesthesia. Treatment included multiple composite crown and posterior restorations, fissure sealants, extractions, and full-mouth scaling to restore oral health.

Conclusion: Structured, staged treatment planning and early multidisciplinary liaison are essential when managing medically complex paediatric patients. Prolonged appointments and communication barriers limited the feasibility of chairside care under local anaesthesia. Early recognition of these constraints, reinforcement of oral hygiene, and long-term consultant-led follow-up are crucial to maintaining oral health and optimising outcomes for complex patients.

244 Dental rehabilitation with implants in a 6-year-old child with ectodermal dysplasia: a case report

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Case report: We report the case of a 6 year-old child from South Africa diagnosed with ectodermal dysplasia and mandibular anodontia. The patient was treated at the Rare Diseases Competence Centre of the Hospices Civils de Lyon. Clinically, he wore a well-tolerated maxillary removable partial denture and a mandibular complete removable denture that was unsatisfactory. In response to functional and psychosocial concerns, an implant-supported solution was proposed, in accordance with French national guidelines (PNDS), which allow early symphyseal implant placement from the age of 6 y in selected cases.

Treatment: Digital planning enabled guided, flapless placement of two symphyseal implants under conscious sedation, thereby avoiding general anaesthesia.

Follow-up: After four months of osseointegration, axial attachments were incorporated into the mandibular prosthesis. Clinical and radiographic follow-up was satisfactory, with ongoing longitudinal monitoring of craniofacial growth.

Conclusion: Symphyseal implants may represent a reliable and early treatment option in children with ectodermal dysplasia, provided that careful case selection and rigorous long-term follow-up are ensured.

Surgical approach in a paediatric patient with Ellis-van Creveld syndrome: a clinical case report

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¹University of Guadalajara, Guadalajara, Mexico Background: Ellis-van Creveld syndrome is a rare chondroectodermal dysplasia (with approximately 300 cases reported worldwide). This syndrome presents oral manifestations such as dental agenesis, malocclusion, the presence of multiple frenula and the absence of the vestibular sulcus due to the fusion of the anterior portion of the upper lip to the margin of the maxillary gingival mucosa; these conditions can be surgically corrected through vestibuloplasty.

Case report: A 7 year-old female patient from Guadalajara, Mexico, attended the Paediatric Dentistry Clinic (CUCS, UdeG) in February 2022. She had a diagnosis of Ellis-van Creveld syndrome and an intervention for congenital heart malformation associated with the syndrome. The chief complaint was: "Her teeth are not coming in". At intraoral examination, she had multiple carious lesions, agenesis of upper and lower incisors, multiple frenula and the absence of the vestibular sulcus in both arches.

Treatment: The treatment plan began with the oral rehabilitation of the primary dentition affected by dental caries. Subsequently, to improve the depth of the maxillary and mandibular vestibules, vestibuloplasties were performed using a high-power Erbium laser.

Follow-up: Following the surgical intervention, follow-up appointments were scheduled at 3 days, 7 months, and 1 year postoperatively to monitor wound healing and clinical progression. This was essential prior to proceeding with the patient's orthopaedic treatment phase.

Conclusion: Given the oral manifestations associated with this syndrome, the use of an Erbium laser for vestibuloplasty serves as a favourable alternative, as it enhances haemostasis while significantly reducing postoperative oedema and swelling for the paediatric patient.

297 Goltz syndrome—a multidisciplinary approach to dental management

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Glasgow, Scotland, United Kingdom Background: Goltz syndrome (focal dermal hypoplasia) is a rare form of ectodermal dysplasia impacting the development of ectodermal and mesodermal tissue. This condition is X linked, commonly presenting in females and mostly affects the skin. Dental features include enamel hypoplasia, microdontia, hypodontia and abnormal root morphology. The management of such cases requires multidisciplinary dental care and collaboration with other medical specialties.

Case report: A 10 year-old patient with Goltz syndrome attends the joint Paediatric/Orthodontic clinic at Glasgow Dental Hospital. The patient presented with syndactyly, and skin features typical of this condition. Their dental features included idiopathic resorption of primary teeth, enamel hypoplasia, hypodontia of multiple teeth including a canine, molars and an incisor. There was soft tissue overgrowth and poorly formed first permanent molars.

Treatment: The treatment plan included initial management with preformed metal crowns and the removal of molars of guarded prognosis. The treatment was planned under general anaesthetic and was performed in conjunction with the local Maxillofacial team who treated a soft tissue lump on the patient's upper lip, which had not responded to cryotherapy.

Follow-up: Following the completion of dental treatment under general anaesthetic, including the removal of molars and soft tissue management, the patient will return for further multidisciplinary team input on the joint Paediatric/Orthodontic clinic.

Conclusion: This was a rare case of interest for the multidisciplinary Paediatric and Orthodontic teams, and demonstrated collaboration with our Maxillofacial colleagues. Recognition and management of such a rare condition demonstrated how multispecialty collaboration can achieve improved outcomes for complex patients.

303 Dental management of ectodermal dysplasia in paediatric patients: a narrative review

Antonino Manti^{1,2,3}, Lucia Giannini¹, Cinzia Maspero^{1,3}

¹Fondazione IRCCS Ca' Granda Ospedale Maggiore Policlinico, Milan, Italy, ²Ospedale Santi Paolo e Carlo, UO Odontostomatologia II, Milan, Italy, ³Scuola di Specializzazione in Odontoiatria Paediatrica, Università degli Studi di Milano, Milan, Italy Aim: Ectodermal dysplasia (ED) is a heterogeneous group of inherited disorders affecting ectoderm-derived tissues and frequently associated with hypodontia or anodontia and alveolar ridge deficiency. These anomalies compromise mastication, speech, facial growth and psychosocial well-being from early childhood. This narrative review aimed to synthesise current evidence on dental man-

agement of paediatric patients with ED, focusing on treatment timing, multidisciplinary care and clinical outcomes.

Methods: A structured search was performed in PubMed, Scopus, Embase and Web of Science for studies published between 2014 and September 2025. Search terms combined “ectodermal dysplasia” with “dental treatment”, “prosthodontics”, “orthodontics” and “implants”. Inclusion criteria were human studies in English reporting dental findings and therapeutic interventions (case reports, case series, observational studies and clinical trials). Reviews, editorials, animal and in vitro studies were excluded. Titles and abstracts were screened, followed by full-text assessment. Data on patient characteristics, treatment type, follow-up and outcomes were extracted and narratively synthesised. The protocol was not registered.

Results: Of 787 records identified, 22 studies were included. Most were case reports or small case series. Early removable prostheses improved function, speech and oral health-related quality of life, but required periodic modification during growth. In adolescents, implant-supported restorations demonstrated high survival rates and satisfactory aesthetic outcomes, although bone augmentation was frequently necessary. Outcome measures were heterogeneous and rarely standardised.

Conclusion: Early, growth-adapted prosthetic rehabilitation is fundamental in paediatric ED management. Implant therapy appears predictable after skeletal maturity. Prospective multicentre studies with standardised outcomes are needed to support evidence-based protocols.

308 Dental management of a paediatric patient with moebius syndrome

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¹Department of Paediatric Dentistry, School of Dentistry, NKUA, Athens, Greece **Background:** Patients with Moebius syndrome (MS), a rare neuromuscular disorder, often present with compromised oral health due to reduced salivary flow, altered composition, and impaired perioral muscle function. This report presents the challenges and management of a patient with MS.

Case report: A 6 year-old girl with MS was referred to the Paediatric Dentistry Department (NKUA). Medical history revealed also a moderate ventricular septal defect and a small patent foramen ovale, underlining need for antibiotic prophylaxis. Clinical and radiographic evaluation showed carious lesions in anterior and posterior primary teeth, pulp involvement in primary molars, and an abscess associated with tooth #84.

Treatment: Dental treatment included a personalised preventive program, fissure sealants of permanent molars,

restoration of primary molars with composite resin or stainless-steel crowns, pulpotomies of teeth with pulp involvement and extractions of non-restorable teeth. Tooth #85 was extracted due to uncontrolled bleeding during pulpotomy as pulpectomy was contra-indicated due to patient’s heart problems. Main challenges during treatment included reduced mouth opening, which limited working time, and the need for antibiotic prophylaxis leading to reduced visit frequency. Number of visits were increased, prolonging overall treatment duration and negatively affecting patient’s co-operation.

Follow-up: Six months post-treatment, oral hygiene was good and no new carious lesions were detected.

Conclusion: A comprehensive treatment plan and consistent monitoring are essential for maintaining oral health, as these patients are considered at high risk not only because of their compromised medical history but also due to the common challenges they face, which make dental treatment particularly stressful.

337 Early comprehensive rehabilitation of a child with hypohidrotic ectodermal dysplasia: an interdisciplinary case report

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¹Department of Paediatric Dentistry, School of Dentistry, NKUA, Athens, Greece, ²Paediatric Dentist, Greece, ³Department of Prosthodontics, School of Dentistry, NKUA, Athens, Greece **Background:** The aim is to present challenges and rehabilitation of a child with ectodermal dysplasia, a group of genetic disorders with distinct oral manifestations.

Case report: A 6 year-old girl attended the Postgraduate Paediatric Department, National Kapodistrian University of Athens (NKUA). Extraoral findings included xerosis, hair loss and hypoplastic nails. Moderate oral hygiene, missing and hypoplastic anterior and posterior teeth and knife-edge alveolar ridges were seen intraorally, along with acrylic crowns covering hypoplastic teeth. Radiographically, oligodontia, taurodontism, and a radiopaque mass at the area of teeth #64–65, were recorded.

Treatment: Ill-fitted crowns were removed and an individualised preventive program was applied. Rehabilitation involved composite resin restorations of upper incisors using moulding technique to achieve the most aesthetic result in the least time and stainless-steel crowns of permanent molars. A removable appliance with acrylic teeth was designed to restore function of the maxilla, using digital scan. The mandible was monitored until eruption of incisors before further treatment was decided. The patient was referred to the Maxillofacial Department (NKUA) for evaluation of the mass.

Follow up: Twelve months post-treatment, oral hygiene was improved, no new caries were detected, restorations were intact and patient was satisfied with function and aesthetics. The mass had been surgically removed to prevent potential disturbances in arch growth, and the diagnosis was odontoma.

Conclusion: An approach that preserves function and restores aesthetics while accommodating developmental changes should be considered in such challenging cases. Modern and patient-centred techniques should be adopted to make dental treatment acceptable and least stressful.

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Prosthodontic and functional challenges when managing anodontia associated with ectodermal dysplasia

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¹Alder Hey Children's Hospital, Liverpool, United Kingdom, ²Liverpool University Dental Hospital, Liverpool, United Kingdom **Background:** Ectodermal dysplasia (ED) is a heterogeneous group of rare inherited disorders affecting tissues of ectodermal origin. Dental manifestations commonly include hypodontia or complete anodontia, alongside abnormalities of hair, skin, nails, and sweat glands. In children, ED-associated anodontia can significantly impact mastication, speech development, facial growth, and psychosocial wellbeing, highlighting the importance of early dental intervention and multidisciplinary care.

Case report: A 7 year-old child who had recently migrated from Iran was referred to Alder Hey Children's Hospital for prosthetic management of congenital anodontia. Panoramic radiography confirmed the complete absence of developing tooth germs in both the maxilla and mandible. The child had a confirmed diagnosis of ED inherited maternally and was under the care of the dermatology team. He was otherwise fit and well.

Treatment: Discussions were undertaken with the parents using a video interpreter to facilitate informed consent and shared decision-making. Removable prosthetic rehabilitation was requested due to concerns regarding oral function and aesthetics. Upper and lower complete acrylic dentures were constructed and fitted at Liverpool University Dental Hospital through collaboration between paediatric and restorative dentistry teams and dental technicians.

Follow-up: The family was counselled regarding the need for regular review, denture adjustment, relining and replacement to accommodate growth. Due to associated midfacial hypoplasia, potential future surgical

management and implant-supported prostheses were discussed as part of long-term care planning.

Conclusion: This case highlights the pivotal role of paediatric dentists in improving oral function, appearance and oral health-related quality of life for children with ED through early, age-appropriate multidisciplinary management.

366 Dental extractions in a paediatric patient with Weak Agonist Response Defect—a multidisciplinary approach

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¹The Royal London Hospital, London, United Kingdom **Background:** Weak Agonist Response Defect (WARD) is a rare qualitative platelet function disorder characterised by impaired platelet aggregation to weak agonists such as ADP, epinephrine, and thromboxane A₂. The clinical phenotype is variable and may overlap with other inherited platelet signalling defects. While severe disorders such as Glanzmann thrombasthenia may require platelet transfusion or recombinant factor VIIa, evidence guiding invasive dental management in milder signal transduction defects such as WARD remains limited.

Case report: A 13 year-old boy was referred to the Paediatric Dental Department at The Royal London Hospital for extraction of retained primary teeth. He was under haematology care due to WARD. R90 gene panel testing was negative; the diagnosis was made based on functional platelet studies. Clinical examination revealed delayed dental development, lower arch crowding, and a Class II Division I malocclusion. Orthodontic assessment recommended extraction of retained LRD, LLD, and URE, while an impacted UR5 is being monitored.

Treatment: Extractions were completed under local anaesthesia over two visits. Desmopressin was administered one hour pre-operatively, and tranexamic acid prescribed for seven days post-operatively.

Follow-up: Telephone follow-up was conducted by the haematology team the day after each procedure. Weekly multidisciplinary team (MDT) meetings with haematology support discussion of haematology patients and enable rapid liaison if issues arise, facilitating safe coordinated care.

Conclusion: This case demonstrates careful treatment planning and regular MDT communication with haematology can enable safe dental extractions in patients with rare platelet function defects, highlighting the benefits of close interdisciplinary collaboration for managing complex dental cases.

367 Oral manifestations in Griscelli syndrome type 2: a rare case report

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¹Hacettepe University, Faculty of Dentistry, Department of Paediatric Dentistry, Ankara, Türkiye **Background:** Griscelli syndrome type 2 is a rare autosomal recessive disorder characterised by pigmentary abnormalities and immunological dysfunction, often requiring early intensive treatments such as chemotherapy and hematopoietic stem cell transplantation. Due to its rarity, data on oral and dental manifestations are limited. This report describes the dental findings and preventive management of a paediatric patient with Griscelli syndrome type 2.

Case report: A 13 year-old male presented with tooth discoloration. His medical history included chemotherapy and bone marrow transplantation at 9 months of age, followed by 1.5 years of corticosteroid therapy. He was not on any medication at the time of examination. Extraoral findings included silvery-grey hair and eyebrows, hypopigmented dry skin on the neck and hands, and a concave facial profile. Intraoral examination revealed chromogenic discoloration, calculus accumulation, enamel defects in the maxillary anterior teeth, dysmorphic crowns, microdontia, and Class III malocclusion. Panoramic radiography demonstrated short roots and congenitally missing permanent tooth germs.

Treatment: Preventive and minimally invasive approaches were planned. Following medical consultation and antibiotic prophylaxis, scaling was performed, and oral hygiene and dietary instructions were provided. Topical fluoride was applied, and the patient was referred for orthodontic evaluation.

Follow-up: The patient was followed at three-month intervals. At 12 months, oral hygiene improved significantly, with no new caries or calculus formation.

Conclusion: Awareness of possible oral manifestations is essential for both paediatric dentists and medical professionals. Regular preventive care through a multidisciplinary approach is strongly recommended.

383 A case of suspected ectodermal dysplasia

Raisha Amin¹, Kirstie Lau¹, Sarah Shah¹

¹Royal London Hospital, London, United Kingdom **Background:** Ectodermal dysplasia forms part of a group of inherited conditions affecting structures derived from the ectoderm. Dental manifestations include hypodontia, conical tooth morphology and delayed eruption, which can present in childhood.

Case report: An 8 year-old male with ADHD, dry skin on knees, and delayed hair growth presented at the local dentist with complaint of no loss of primary dentition other than upper deciduous incisors. An OPG was taken to assess dental development, where absence of several permanent teeth was noticed. He was subsequently referred to our paediatric dental department and hypodontia of FDI 17, 15, 14, 13, 12, 22, 23, 24, 25, 27, and conical-shaped maxillary permanent central incisors was noted. On examination the patient has sparse, light-coloured hair and a prominent forehead. Family history of any genetic disorders was absent. A probable differential diagnosis of ectodermal dysplasia was given.

Treatment: Currently, the patient has been planned for composite build ups of the upper permanent central incisors and planned for a review in 6 months.

Follow-up: The patient has been referred for genetic testing, and referral to a paediatrician via the General Medical Practitioner for further support. The patient will be referred to our multidisciplinary hypodontia clinic once age-appropriate for definitive treatment.

Conclusion: This case highlights the critical role of dental assessment in identifying underlying medical conditions. Early recognition enables timely referral for genetic testing, multidisciplinary management, long-term treatment planning, and in this case, informing parents of a suspected diagnosis based on the dental signs.

398 Dental management of a paediatric patient with Papillon-Lefèvre syndrome: a case report

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¹Hacettepe University Faculty of Dentistry Department of Paediatric Dentistry, Ankara, Türkiye **Background:** Papillon-Lefèvre syndrome (PLS) is a rare autosomal recessive disorder characterised by palmoplantar hyperkeratosis and severe early-onset periodontitis, resulting in premature loss of both primary and permanent teeth. The condition is associated with mutations in the cathepsin C gene which impair immune response and predispose affected individuals to aggressive periodontal destruction. Rapid periodontal breakdown following tooth eruption results in marked tooth mobility and early exfoliation, significantly compromising oral function, aesthetics, and psychosocial well-being in paediatric patients.

Case report: A 6 year-old boy referred with a chief complaint of generalised mobility of primary teeth. Intraoral examination revealed severe periodontal destruction accompanied by advance mobility affecting multiple primary teeth. Clinical findings were consistent with the characteristic oral manifestations of PLS.

Treatment: Primary teeth with poor periodontal prognosis were extracted under local anaesthesia to prevent further

periodontal breakdown and progressive alveolar bone loss. Following extractions, a removable partial prosthesis was planned to restore masticatory function, phonation, and aesthetics, thereby supporting normal growth psychosocial development.

Follow-up: The patient was scheduled for close post-operative monitoring during the first week after prosthesis delivery. Follow up visits focused on evaluating mucosal adaptation, identifying pressure areas, and performing necessary adjustments. Thereafter, periodic recall appointments were arranged to monitor oral health status, prosthesis adaptation, and craniofacial growth.

Conclusion: This case highlights the importance of early diagnosis, interdisciplinary management, and timely dental intervention in paediatric patients with PLS to preserve oral function and improve quality of life.

447 A multidisciplinary approach to a paediatric patient with apert syndrome: a case report

Yaren Filiz¹, **Ata Mert Yaşa**², **Alara Yeşil**³, **Ayşe Çelik**¹, **Ahmet Hamdi Arslan**²

¹Department of Paediatric Dentistry, Faculty of Dentistry, Yeditepe University, Istanbul, Türkiye, ²Department of Oral and Maxillofacial Surgery, Faculty of Dentistry, Yeditepe University, Istanbul, Türkiye, ³Department of Orthodontics, Faculty of Dentistry, Yeditepe University, Istanbul, Türkiye **Background:** Apert Syndrome is a rare craniosynostosis disorder caused by FGFR2 mutations and characterised by midfacial hypoplasia, skeletal Class III malocclusion, and complex dental abnormalities that complicate routine dental management. This report presents the multidisciplinary approach to the management of a patient with Apert Syndrome.

Case report: A 12-year-old male diagnosed with Apert Syndrome and cleft palate was referred to the Department of Paediatric Dentistry from the Department of Orthodontics. Extraoral examination revealed syndactyly of the hands, proptosis, and nasal deviation. Intraoral examination showed poor oral hygiene, severe crowding, hypersalivation, limited mouth opening, and a strong gag reflex. Orthopantomogram and Cone Beam Computed Tomography images demonstrated multiple partially and completely impacted teeth, and agenesis of the mandibular second premolars.

Treatment: Due to the restricted mouth opening, dental treatments, including dental prophylaxis, surgical extractions of impacted teeth, composite restorations, fissure sealants, and lingual arc space maintainer, were performed under general anaesthesia in collaboration with the Department of Oral and Maxillofacial Surgery. Seven months after the initial operation, corticotomy-assisted maxillary expansion was performed to improve transverse deficiency.

Follow-up: During follow-up, improved oral function and enhanced daily comfort were reported, contributing positively to the patient's quality of life.

Conclusion: This case highlights the necessity of a multidisciplinary approach in managing paediatric patients with Apert Syndrome. Anatomical limitations, an exaggerated gag reflex, and craniofacial skeletal abnormalities may necessitate general anaesthesia for dental treatments. Successful surgical and orthodontic management is closely associated with the maintenance of optimal oral hygiene and a caries-free oral environment.

485 A rare case of ectrodactyly, ectodermal dysplasia, and cleft lip/palate syndrome caused by a missense mutation in the TP63 gene: clinical and genetic perspectives

Güldeste Aydın¹, **Mesut Kayğusuz**¹, **Mehmet Sinan Doğan**¹

¹Harran University, Şanlıurfa, Türkiye **Background:** The TP63 gene encodes a vital transcription factor essential for ectodermal-mesodermal interactions and epithelial development. Mutations of this gene typically result in phenotypes such as Ectrodactyly, Ectodermal dysplasia, and Cleft lip/palate, collectively known as EEC syndrome. This presentation discusses the dental and systemic findings and dental treatment.

Case report: A 5 year-old male patient presented to our clinic with complaints of dental pain and aesthetic concerns. Clinical examination revealed the following: Extraoral Findings: Hypotrichosis, hypohidrosis, ectrodactyly, and split hand/foot malformations. Intraoral Findings: Oligodontia/hypodontia and conical teeth were observed. Genetic Analysis: Sequence analysis identified a heterozygous c.953G > A (p.Arg318His) variant in exon 7 of the TP63 gene. The panoramic radiograph confirmed agenesis of multiple permanent tooth germs and the presence of primary teeth with extensive dentinal decay.

Treatment: Restorative Treatment: Primary teeth with deep dentinal caries were treated with Mineral Trioxide Aggregate amputation and restored with stainless steel crowns or composite restorations, considering the patient's age and cooperation. Preventive Care: Due to high caries risk and oligodontia, topical fluoride applications, fissure sealants, and strict oral hygiene instructions were provided.

Follow-up: Multidisciplinary Approach: The patient is being monitored through a coordinated effort involving orthodontics. Periodic Recalls: Follow-up visits are scheduled every 3–6 months to monitor during growth and the eruption of remaining permanent teeth.

Conclusion: Early genetic identification is crucial for comprehensive clinical management and providing accurate

family counselling. A multidisciplinary approach remains the gold standard for improving the patient's long-term quality of life.

497 Supernumerary teeth and odontomes as early indicators of familial adenomatous polyposis

Sarah Baughan¹, Issam Bakri², Simon Atkins², Joana Monteiro²

¹Charles Clifford Dental Hospital, Sheffield Teaching Hospitals, Sheffield, United Kingdom, ²University of Sheffield, Sheffield, United Kingdom **Background:** Familial adenomatous polyposis (FAP) is a rare genetic disorder characterised by the development of colorectal polyps. Without treatment there is an almost 100% risk of colorectal cancer. Gardner syndrome is a phenotypic variant of FAP, associated with extra-intestinal manifestations, including osteomas, soft tissue tumours, and dental anomalies such as supernumerary teeth and odontomes. This case describes a dental presentation of FAP.

Case report: A 9 year-old boy presented with a supernumerary tooth erupted labially between teeth 21 and 62. Radiographic investigations revealed a second unerupted supernumerary tooth and a compound odontome adjacent to the developing 23. He had no relevant medical history but was awaiting genetic testing due to maternal diagnosis of FAP. Genetic testing revealed a pathogenic truncating variant in the adenomatous polyposis coli gene, confirming FAP.

Treatment: Removal of the supernumerary teeth and odontome was undertaken under general anaesthesia by oral surgery, with paediatric support.

Follow up: At three year review, two 3 mm radiopacities adjacent to the apices of 44/45 and 31/41, and consistent with odontomes, were identified and are currently under monitoring. Surveillance endoscopies demonstrated a three-fold increase in rectal polyps over two years, and prophylactic colectomy is anticipated during adolescence.

Conclusion: This case highlights the importance of recognising dental anomalies as potential early indicators of systemic disease. Supernumerary teeth and odontomes may be the first manifestation of FAP, particularly as the condition is frequently asymptomatic in childhood and up to 20% of cases are de novo. Early identification enables timely referral, genetic testing and multidisciplinary management.

Topic 08. Cariology

33 The implementation of a pre-populated consent form in the paediatric dentistry department

Helena Overton-Smith¹, Ambika Sinha¹, Amy Hollis¹

¹Department of Paediatric Dentistry, Bristol Dental Hospital, Bristol, United Kingdom **Aim:** To assess if all necessary risks are documented on consent forms prior to dental treatment under general anaesthetic (GA).

Methods: A two-cycle retrospective audit assessed the consent forms for paediatric patients (< 16 years) undergoing routine extractions or comprehensive care GA at Bristol Dental Hospital (BDH) or Bristol Royal Hospital for Children (BRHC) between September-January 2024 and July–August 2025. Each cycle included fifty patients. Exclusions were surgical extractions by the oral surgery team and specific risks (e.g., oro-antral communication (OAC), restoration loss, root canal treatment (RCT)) were assessed only when relevant to the proposed treatment plan. Consent forms were analysed using Microsoft Excel®, comparing documented risks against the locally agreed standards. Following cycle 1, a pre-populated consent form was introduced and used in cycle 2.

Results: Cycle 1 revealed inconsistent documentation of risks, particularly for retained roots, OAC and root/tooth fracture, appearing on fewer than 40% of applicable forms. Cycle 2 demonstrated significant improvement with the majority of categories documented reaching 100% compliance. Retained roots rose from 36 to 94%, orthodontic spacing from 30 to 76% and root fracture from 38 to 98%.

Conclusion: Implementation of the pre-populated consent form significantly improved risk to ensure valid consent is gained. Benefits included increased efficiency, improved legibility, better support for new clinicians, and clearer communication for parents/guardians. While improvements were substantial, further efforts are needed to ensure 100% compliance. Continued use of the form, alongside clinician education, induction support and a re-audit, is expected to further enhance the consent process.

40 Management of erosive tooth surface loss in a 10 year-old patient

Faisal Alsaif¹, Jessica Cooper^{1,2}, Siobhan Barry^{1,2}

¹The University of Manchester, Manchester, United Kingdom, ²University Dental Hospital of Manchester, Manchester, United Kingdom **Background:** Dental erosion is char-

acterised by the progressive, irreversible loss of tooth tissue caused by chemical process of acid dissolution. It can be associated with extrinsic factors, such as exposure to acidic foods, drinks or medications, and intrinsic causes including frequent vomiting or reflux. In severe cases erosive tooth surface loss (TSL) can lead to sensitivity, discomfort, aesthetic and functional concerns.

Case report: A 10 year-old girl presented to the University Dental Hospital of Manchester with a history of sensitivity from her upper anterior teeth. Clinical examination revealed severe erosive TSL on the palatal surface of UR2 UR1 UL1 and UL2, associated with frequent intake of fizzy drinks. Intrinsic factors were ruled out as a potential cause. Examination was also notable for hypodontia LR5 and restorable caries URE and LRE.

Treatment: Patient management focussed on dietary analysis, the delivery of preventative counselling and restorative management of the upper incisor teeth. A diagnostic wax up was created and direct palatal composite veneers placed UR2 UR1 UL1 and UL2 using a lab-made stent. Pre-formed metal crowns were also placed URE and LRE.

Follow-up: A shortened dental recall has been implemented for this patient. Clinical photographs and study models have been used to aid the continued monitoring of erosive wear.

Conclusion: Early identification of erosive TSL and implementation of preventative measures can reduce patient morbidity, through the preservation of tooth tissue and reduction of adverse symptoms. Conservative management or the addition of composite resin are effective methods for managing erosion in the mixed dentition.

55 Association between breastfeeding duration and early childhood caries: a systematic review

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¹Private Dental Clinic, Athens, Greece, ²Aristotle University of Thessaloniki, Thessaloniki, Greece, ³Air Force Hospital and Private Clinic, Athens, Greece, ⁴Private Dental Clinic, Thessaloniki, Greece **Aim:** To systematically evaluate the association between breastfeeding duration and the prevalence of early childhood caries (ECC) in children up to 71 months of age.

Methods: A systematic review was conducted following PRISMA guidelines. Electronic searches were performed in multiple databases in March 2024. Prospective cohort studies investigating breastfeeding duration or cessation in relation to ECC were included. Two reviewers independently screened studies, extracted data, and assessed risk of bias using the ROBINS-E tool. Due to heterogeneity in study

design, exposure definitions, and outcome measures, results were synthesised narratively.

Results: From 4894 identified records, eight prospective cohort studies met the inclusion criteria. Most studies were assessed as having a high risk of bias. Breastfeeding during the first year of life, particularly between 6 and 12 months, showed a protective association against ECC. No consistent association was found between breastfeeding and ECC for durations between 12 and 24 months; however, frequent or nocturnal breastfeeding combined with increased sugar consumption appeared to modify caries risk. Breastfeeding beyond 24 months was consistently associated with increased ECC prevalence. Substantial heterogeneity was observed regarding breastfeeding practices, dietary confounders, and caries assessment methods.

Conclusions: Breastfeeding up to 12 months appears protective against ECC, while breastfeeding between 12 and 24 months is not associated with increased risk when appropriate dietary and oral hygiene practices are followed. Breastfeeding beyond 24 months is associated with a higher prevalence of ECC. Early preventive dental guidance focusing on feeding practices, sugar intake, and oral hygiene is essential.

58 Utilising a stepwise caries removal technique to restore an extensively carious permanent molar with Biodentine™

Mohammad Alfozan¹, David Drysdale

¹Queen Mary University of London, London, United Kingdom **Case report:** A fit and well 14 year-old male was referred for the management of dental trauma and caries. The (LR6) presented with an extensive carious lesion, an initial composite restoration failed and was replaced with a GIC filling. Given the lesion size, concern arose that endodontic management might be required.

Treatment: Clinical and radiographic assessment identified secondary caries and lingual wall fracture as the cause of failure of the previous composite restoration.

As the tooth already had an extensive restoration and radiographic signs indicated a band of dentine between the carious lesion and the pulp, a conservative, stepwise restorative approach was undertaken. The basic restoration removed, hard-stained-dentine intentionally left over the pulp to avoid exposure, and the cavity was restored with Biodentine™ to preserve vitality. At a subsequent visit, vitality confirmed, the patient reported no symptoms. Part of the Biodentine™ was removed to allow adequate restorative depth before the lingual, distal and occlusal surfaces were built up with composite to complete the definitive restoration.

Follow-up: At review, the LR6 remained symptom-free and responded to sensibility testing. The family was

informed that the restoration was extensive and that the tooth's long-term prognosis remained guarded. The need for an indirect coronal coverage restoration was discussed; however, it was deferred due to the placement of good, high-quality composite restoration. Prevention was reinforced, including the recommendation of 2800 ppm toothpaste.

Conclusion: This case highlights, with appropriate case selection and adherence to evidence-based guidance, that stepwise restorations may preserve pulp vitality, potentially delaying or avoiding endodontic intervention in adolescent patients.

60 Comprehensive dental management of severe early childhood caries in a preschool child with autism (4Y. 11 M boy)

Sara Alhowaishel¹, Judi Humphreys¹

¹University of Liverpool, Liverpool, United Kingdom Background: Providing dental care for children with Autism Spectrum Disorder (ASD) is challenging due to communication difficulties, sensory sensitivities, and limited cooperation, which may increase the risk of Severe Early Childhood Caries (SECC). This case illustrates the use of behaviour management strategies and minimally invasive approaches in managing SECC in a young child with ASD.

Case report: This poster reports the management of a 4 years 11 months-old boy with ASD who attended a private dental clinic for his first dental visit. He presented with multiple asymptomatic carious lesions and poor oral hygiene. The medical history was otherwise unremarkable. Examination confirmed severe early childhood caries affecting anterior and posterior primary teeth. Due to limited cooperation, intraoral radiographs could not be obtained, and assessment relied on clinical findings and a panoramic radiograph.

Treatment: The patient was assessed as high caries risk. Treatment was provided over several visits using a phased approach, including oral hygiene instruction with parental supervision, dietary counselling, and topical fluoride varnish. Restorative care involved composite restorations, silver diamine fluoride for caries arrest, and SSC using the Modified Hall Technique.

Follow-up: Following completion of active treatment, the patient was reviewed at three-monthly intervals. Follow-up focused on reinforcing preventive advice, reassessing caries risk, monitoring stainless steel crowns, and reviewing dental development. Fluoride varnish was applied at each visit, and supervised toothbrushing by a parent or caregiver was reinforced.

Conclusion: This case demonstrates that a preventive-focused, minimally invasive approach supported by behaviour management enables successful management of SECC in children with ASD within a primary care setting.

61 Accuracy of register-based caries data in 19-year-olds: validation of the Swedish Quality Register for Caries and Periodontal Disease (SKaPa)

Tita Kirkinen^{1,2}, Gunilla Klingberg¹, Erik Hesselbom², Aron Naimi-Akbar³

¹Department of Paediatric Dentistry, Faculty of Odontology, Malmö University, Malmö, Sweden, ²The Clinic for Paediatric Dentistry, Folk tandvården, Region Värmland, Sweden, ³Health Technology Assessment—Odontology (HTA-O), Faculty of Odontology, Malmö University, Malmö, Sweden Background: Quality registries are increasingly used for dental research. The Swedish Quality Register for Caries and Periodontal Disease (SKaPa) is the only national registry providing systematic oral health data for children. Previous validation studies in younger age groups showed good agreement for dft/DFT but poorer agreement for missing teeth due to caries, likely related to mixed dentition. No validation has been conducted in adolescents with fully erupted permanent dentition. This study aimed to evaluate how well SKaPa reflects clinically recorded caries in 19 year-olds.

Methods: A retrospective cross-sectional study used a random sample of 250 19 year-olds examined in 2014 within the Public Dental Service in Region Värmland. Clinical dental records served as reference standard and corresponding SKaPa variables as index test. Agreement for DMFT, DFT, DT, and missing-teeth variables was assessed using exact agreement, Cohen's kappa, and intraclass correlation coefficient (ICC). Analyses were performed for the full sample and individuals with caries experience.

Results: One individual was excluded due to incomplete data, resulting in 249 participants. Agreement between SKaPa and clinical records was high for DFT and DMFT (kappa 0.86; ICC 0.95), with 89% exact agreement. SKaPa underestimated mean caries experience (1.96 vs. 2.08). Few participants had teeth missing due to caries, limiting evaluation of missing-teeth variables.

Conclusions: SKaPa shows high validity for caries data in 19 year-olds and is suitable for research. However, missing teeth due to caries could not be evaluated, and underestimation of caries experience should be considered. Further validation in populations with higher caries prevalence is recommended.

96 Treatment of dental caries for child with history of cleft lip and palate under local anaesthesia

Dominic Chow¹, Cynthia KY Yiu

¹University of Hong Kong, Hong Kong Case report: SC, a 6 year 2 month-old Chinese girl in early mixed dentition, with a history of cleft lip and palate, was diagnosed with

dental caries, inadequate oral hygiene and high caries risk and cooperative dental behaviour.

Treatment: She received preventive and restorative treatment at HKU-clinic, which included prophylaxis and oral hygiene instructions, topical fluoride varnish (TFV) application, resin composite restorations on 61P, 83D, Resin-modified GIC on 63P, stainless steel crowns on teeth 75, 74, 55, 64 and 85; pulpotomy + stainless steel crowns on 65, 84, extraction of 54 and band-and-loop space maintainer on 55–54.

Follow-up: She is now under regular review to monitor growth and development of new caries lesions.

144 Agreement of dental treatment decision between visual and intra oral scan evaluations in the mixed dentition

Alaa Mohammed¹

¹Ajman University, Ajman, United Arab Emirates **Aim:** To evaluate the level of agreement between treatment decisions based on visual clinical examination and those derived from intraoral scanner images in mixed dentition.

Methods: A non-randomised pilot clinical study was conducted in children aged 5–10 years old attending the paediatric dental clinic at Ajman University. Ten consecutive children were examined. A comprehensive treatment plan was first recorded based solely on visual examination without adjunctive diagnostic tools. Full-arch intraoral scans were then obtained on the same day using CEREC Prime scanner. To minimise recall bias, scanned images were re-evaluated after a three-week interval. Treatment decisions at tooth level were compared between the two methods. Agreement was assessed using percentage agreement and Cohen's kappa statistics.

Results: A total of 330 tooth-level treatment decisions were analysed. Overall agreement between visual examination and intraoral scan evaluation was 95.2%, with 314 identical decisions and 16 discrepancies. Cohen's kappa demonstrated almost perfect agreement ($\kappa=0.93$), indicating a high level of consistency between methods.

Conclusion: Intraoral scan evaluation demonstrated substantial agreement with visual examination for treatment planning in mixed dentition. Digital scanning may represent a reliable alternative diagnostic tool for caries management in mixed dentition. Larger studies are recommended to confirm these findings and assess performance across different clinical conditions.

145 Accuracy and reliability of an artificial intelligence-based model for detecting dental caries and molar-incisor hypomineralisation using intraoral scanner images

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¹Ajman University, Ajman, United Arab Emirates **Aim:** To evaluate the diagnostic accuracy and reliability of an artificial intelligence (AI)-based model for detecting dental caries and molar incisor hypomineralisation (MIH) using intraoral scanner images in children.

Methods: A prospective diagnostic accuracy study was conducted in children (age 6–14 years). Full-arch scans (CEREC Primescan) yielded 1,188 images. Two calibrated paediatric dentists provided consensus reference diagnoses for caries (scores 0–5) and MIH (scores 0–3) for each tooth. The open-source AI model (<https://demo.dental-ai.de/>) analysed all images. Per-surface AI outputs were compared with the reference. Sensitivity, specificity, and accuracy were calculated for each category, and test-retest reliability was assessed by duplicate image analysis (Cohen's κ).

Results: The AI model showed excellent reproducibility: duplicate readings agreed in 98% of cases ($\kappa=0.959$ for caries; $\kappa=0.926$ for MIH; $p<0.001$). For caries detection, sensitivity was 90% for sound surfaces and 83% for early enamel lesions but fell below 20% for deep dentinal lesions. Specificity exceeded 98% for moderate-to-severe caries. For MIH detection, sensitivity was 23% for mild defects and 39% for moderate defects; the single severe MIH case was undetected. Specificity was 100% for moderate MIH, but overall specificity was $\approx 25\%$ due to many false-positive flags on unaffected teeth.

Conclusion: The AI model demonstrated strong reliability and high specificity, supporting its potential as a diagnostic adjunct in paediatric dentistry. However, its lower sensitivity in detecting early-stage and advanced lesions limits its applicability as an independent diagnostic modality. Enhancing scanner image quality and low-resolution AI detection will improve diagnostic precision and integration into routine paediatric dental care.

258 Minimally invasive management of post-traumatic aesthetic and functional complications in a paediatric patient: a case report

Sevval Karaman¹, Kardelen Demirel¹, Nagihan Cayiroglu¹, Pınar Serdar Eymirli¹

¹Hacettepe University, Ankara, Türkiye **Background:** Dental trauma in children may result in long-term aesthetic and functional complications requiring multidisciplinary man-

agement. The use of removable prosthetic appliances and inadequate oral hygiene may predispose to enamel demineralisation and caries development. This case report highlights the management of post-traumatic complications through minimally invasive treatment strategies.

Case report: A medically healthy 9 year-old girl presented for routine follow-up two years after decoronation of tooth #21 performed at another clinic following dental trauma. The patient had been using a removable prosthesis to replace the missing tooth. Clinical examination revealed poor oral hygiene, multiple white spot lesions, and cavitated caries lesions affecting teeth #53, #11, #12, and #22. Radiographic evaluation confirmed absence of pulpal pathology in the affected teeth.

Treatment: Non-cavitated white spot lesions were managed using resin infiltration to arrest lesion progression and improve aesthetics. Teeth presenting white spot lesions with localised enamel surface loss were treated with resin infiltration to arrest lesion progression and reinforce the porous enamel matrix, followed by adhesive composite resin restorations to restore morphology, function, and aesthetic integrity. Additionally, a removable appliance containing a prosthetic tooth was fabricated to maintain aesthetics and space during the transitional period. The patient was referred for orthodontic consultation for future planning.

Follow-up: Follow-up examinations demonstrated clinically acceptable restorations and satisfactory aesthetic improvement. Oral hygiene instructions were reinforced, and improved plaque control was observed.

Conclusion: Minimally invasive treatment approaches combined with interdisciplinary planning can successfully manage aesthetic and functional complications following dental trauma in paediatric patients.

267 Oral health behaviour and knowledge of early childhood caries among Lithuanian mothers with toddlers

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¹Department of Preventive and Paediatric Dentistry, Medical Academy, Lithuanian University of Health Sciences, Kaunas, Lithuania **Aim:** To evaluate the oral health behaviour and knowledge of early childhood caries (ECC) among Lithuanian mothers with toddlers.

Methods: The survey enrolled 327 Lithuanian mothers aged 19–52 years with toddlers. During 2022–2023, invitation to participate was shared in the target “Facebook” groups. The online self-administered questionnaire inquired about background characteristics, mothers’ knowledge of ECC, feeding habits of child and child’s tooth brushing.

The Bioethics Centre of the LSMU approved the study (No. BEC-OF-29). Participation was voluntary and anonymous. Statistical evaluation was by means of Chi-squared tests. A p-value ≤ 0.05 was set to indicate statistically significant differences.

Results: The mean age of mothers was 30.82 (SD 5.18) years. Most (54.7%) of mothers had a lower than university education and lived in urban areas (69.7%). Overall, 147 (45.5%) of participants knew the term ECC, while more mothers with university education knew this term than participants with lower education (87.1% vs. 12.9%, $P < 0.001$). Merely 15.2% of mothers quit nocturnal feeding after the first tooth eruption. More mothers living in urban areas quit nocturnal feeding after the first tooth eruption than living in rural ones (54.2% vs. 45.8%), $P = 0.018$). Two thirds of mothers (216; 66.5%) reported brushing teeth at least twice-a-day for their offspring and 137 (42.9%) mothers used fluoride toothpaste. More participants brushing teeth for child once-a-day chose fluoride-free toothpaste than fluoride toothpaste (71.0% vs. 29.0%, $P < 0.001$), respectively.

Conclusion: The Lithuanian mothers’ knowledge of ECC was insufficient. Maternal education about importance of proper oral hygiene habits is needed.

304 Biomimetic enamel regeneration in a 12 year-old patient—case report

Nikolai Krivorov¹, Irina Uzunova¹, Ani Belcheva¹

¹Medical University-Plovdiv, Plovdiv, Bulgaria **Background:** Early enamel lesions on permanent anterior teeth present both aesthetic and therapeutic challenges in paediatric dentistry. Minimally invasive strategies promoting biomimetic remineralisation are increasingly preferred over restorative treatment. Self-assembling peptide P11-4 (Curodont™ Repair) enables guided enamel regeneration by forming a scaffold within subsurface lesions.

Case report: A 12 year-old child came to the Department of Paediatric Dentistry, referred by a general dentist, presenting with white spots on the vestibular surfaces of the maxillary incisors. The lesions were classified as ICDAS – code 2 and assessed as active according to the Nyvad criteria – code 1. Baseline laser fluorescence values were recorded using DIAGNOdent Pen. Treatment: After professional cleaning and isolation, Curodont™ Repair was applied according to the manufacturer’s instructions without mechanical preparation, and an individual prophylactic program was drawn up.

Follow-up: Clinical and instrumental evaluations were performed at 1, 3, and 6 months using ICDAS, Nyvad activity criteria, and DIAGNOdent measurements. Progressive reduction in DIAGNOdent values was observed during follow-up. Clinically, lesions showed improved appearance and transition

from active to inactive status, with no evidence of cavitation or progression.

Conclusion: Within the limitations of a single case, P11-4 demonstrated favourable outcomes, supporting biomimetic remineralisation as a promising non-invasive approach for early enamel lesions in paediatric patients.

314 Knowledge and attitudes of Greek paediatric dentists regarding the use of minimal intervention dentistry in everyday clinical practice

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¹Paediatric Dentistry Department, National And Kapodistrian University of Athens, Athens, Greece **Aim:** Evaluate knowledge and application of Minimal Intervention Techniques (MIT), among Greek paediatric dentists and identify factors that influence their implementation in everyday clinical practice.

Methods: A 25 multiple-choice questionnaire was completed by 140 members of the Hellenic Society of Paediatric Dentistry. Data collected reported knowledge on techniques, frequency of use, and factors affecting decision. To justify reasoning three clinical cases were described along with a series of different treatment options. Descriptive statistics were used and regression analysis to explore associations with demographic characteristics.

Results: Participants in their majority were women, aged 31–40 years, with an experience of > 15 years. The most widely known techniques were application of SDF (92%) and selective caries removal (SCR) (91%), mainly from university education (91%). Seventy-three percent reported using them occasionally, with the main reasons being patient's co-operation (76%) and reduced need for anaesthesia (64%). Lack of evidence regarding long-term effectiveness (52%) and parental preference (50%) were the reasons for not choosing them. In the case of children with the less challenging behaviour, SCR were the technique mainly selected (13%), while less complex techniques such as SDF (49%) and Atraumatic Restorative Treatment (36%) being selected for non-cooperative children. The main factors influencing their use were age, years of experience and university education.

Conclusion: There is a clear need to enhance education and training of Greek paediatric dentists on MIT, ensuring their integration into daily clinical armamentarium, given the limited access to general anaesthesia and the growing public awareness of paediatric dental care.

318 Use of the Hall technique for caries-cavitated primary teeth in Danish municipal dental care: a questionnaire-based study

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¹Section for Oral Ecology, Paediatric Dentistry, Department of Dentistry and Oral Health, HEALTH, Aarhus University, Denmark, ²Section for Oral Ecology, Paediatric Dentistry, Department of Dentistry and Oral Health, HEALTH, Aarhus University, Denmark **Aim:** To investigate the knowledge, use, and barriers for clinical application of the Hall Technique for managing cavitated carious primary molars among municipal dentists in Denmark.

Methods: A nationwide questionnaire survey was distributed to municipal dentists across Denmark. The survey explored awareness, knowledge sources, clinical use, age indications, barriers, and attitudes toward the Hall Technique.

Results: A total of 99% of respondents (n = 280) reported awareness of the Hall Technique, and 59% used it for cavitated primary molars. Among the users, 62% applied it "often," typically based on individual assessments of the child's age and cooperation, and most often in the age group 5–6 years (76%). Among non-users, the most frequent barrier was lack of knowledge or experience (57%), while parental acceptance was rarely reported as a barrier (4%). Most respondents (74.9%) strongly agreed that Hall Technique is a relevant treatment option, but only 31% strongly agreed that they felt confident performing the procedure. Additionally, 41.5% strongly agreed that the method is cost-effective, and 67.3% consider it a first-choice option for children unable to cooperate with conventional restorative treatment.

Conclusion: Danish municipal dentists demonstrated high awareness and positive attitudes toward the Hall Technique, yet confidence and practical experience remain limited. Although the method is regarded as relevant for paediatric patients who cannot tolerate conventional restorative treatment, the lack of experience continues to hinder broader adoption. These findings highlight the need for strengthened undergraduate and continuing education to support more consistent and confident implementation of the technique in Denmark.

344 Changes of the salivary microbiota before and after dental treatment under general anaesthesia (DGA) among the children with severe early childhood caries (SECC)

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¹College of Stomatology, Xi'an Jiaotong University, Xi'an, China **Aim:** To observe the quantity of *Streptococcus mutans* in the saliva of children with severe early childhood caries (SECC) and the dynamic changes of the salivary microbiota before and after dental treatment under general anaesthesia (DGA).

Methods: Clinically, 48 children who underwent DGA for SECC were enrolled. Saliva samples were collected at three time points: before treatment, 3 months after treatment, and 6 months after treatment. Genomic DNA was extracted from the samples at different time points, and the quantity of *Streptococcus mutans* in saliva was calculated based on the standard curve. Additionally, 15 children were randomly selected to undergo DNA sequencing of the extracted samples to compare the differences in the microbial community before and after treatment.

Results: *Streptococcus mutans* quantity decreased significantly after treatment (pre-treatment: $6.42 \pm 9.36 \times 10^5$ CFU/ml; 3 months post-treatment: $1.07 \pm 2.53 \times 10^5$ CFU/ml; 6 months post-treatment: $2.2 \pm 2.37 \times 10^5$ CFU/ml). There was no significant difference in microbial species diversity, but community composition differed obviously, with a more scattered pre-treatment structure and obvious changes in genus-level relative abundance. At the genus level, the relative abundances of *Solobacterium*, *Atopobium*, *Lactobacillus*, and *Kingella* gradually decreased after treatment, while those of *Rothia* and *Actinobacillus* gradually increased. The relative abundance of *Neisseria* might first increase and then decrease.

Conclusion: The quantity of *Streptococcus mutans* in the saliva of SECC children decreased significantly within 6 months after DGA. There was no obvious change in the types of salivary microorganisms after DGA but the community structure changed gradually and became more aggregated.

362 Sugars and acidity in paediatric formulations: a hidden dental risk?

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group, Department of Pharmaceutical Analysis, Faculty of Pharmaceutical Sciences, Ghent University, Ghent, Belgium **Aim:** Liquid oral medicines frequently contain sugars and acids that may increase the risk of dental caries and erosion. This in vitro study aimed to evaluate the pH, titratable acidity, and sugar content of commonly used over-the-counter liquid oral medicines available in Belgium.

Methods: A random selection of 20 over-the-counter formulations was analysed, including 10 syrups, 7 granulates and 3 effervescent tablets. pH was measured using a digital pH meter with probes adapted to formulation viscosity. Titratable acidity was assessed by backward titration with sodium hydroxide. Sugar content (glucose, fructose, and sucrose) was quantified using high-performance liquid chromatography (HPLC) with a refractive index detector.

Results: Marked variability in pH was observed. The endogenous pH ranged from 2.37 to 9.26. Thirteen out of twenty formulations had a pH below 5.5, of which three were below 3. Titratable acidity varied widely (5.83–2333.30 μ L; $n = 16$), with particularly high values among effervescent tablets. Fermentable sugars were quantifiable in 7/20 products (6 syrups and 1 granule), with sugar concentrations up to 638.47 mg/mL in syrups and 879.97 mg/dose in a granule formulation. At labelled maximum daily doses, free sugar intake from individual products ranged from 0.19 to 14.9 g/day, potentially exceeding the WHO-recommended daily intake of free sugars for children.

Conclusion: Over-the-counter liquid oral medicines display considerable variation in pH, titratable acidity, and sugar content. Several formulations present potential cariogenic and erosive risks, highlighting the need for clearer labelling and increased awareness among healthcare professionals and patients.

371 Early childhood caries and smoking behaviours of household members among preschool children

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¹The University of Hong Kong, Hong Kong **Aim:** To assess the association between the prevalence and severity of caries in preschool children and the smoking behaviours of household members.

Methods: A total of 672 kindergarten children from 11 kindergartens were recruited and examined for dental caries and plaque. A validated parental questionnaire was utilised to collect the sociodemographic data, oral health-related habits, and smoking behaviours of household members. The impact of smoking exposure and other confounding variables was analysed by negative binomial regression using generalised linear models.

Results: Among the children, 42.9% (n=288) had household members who smoked. Of these, 15.7% (n=107) reported that their household members smoked at home, and 21.6% (n=145) indicated that household members smoked within 3 m of children. The mean caries scores were significantly higher for preschool children whose household members smoked at home ($p=0.010$) or smoked within 3 m of them ($p=0.008$). Additionally, preschool children whose parents smoked within 3 m had a significantly higher prevalence of caries ($p=0.027$) and higher mean caries scores ($p=0.003$). However, simply having household members who smoked or household members smoking at home was not significantly associated with a higher prevalence of caries ($p>0.05$). Although a greater proportion of children with household members who smoked belonged to lower socioeconomic backgrounds ($p<0.05$), regression analyses showed that exposure to parental smoking within 3 m is an independent factor associated with increased mean caries scores ($p=0.021$), after adjusting for other sociodemographic and clinical variables.

Conclusions: Close exposure to passive smoking increases the risk of dental caries among preschool children.

378 Intake of ultra-processed foods, essential nutrients and caries experience in children

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¹Department of Paedodontics, School of Dentistry, Faculty of Health Sciences, Aristotle University of Thessaloniki, Thessaloniki, Greece, ²Department of Preventive Dentistry, Periodontology & Implant Biology, School of Dentistry, Faculty of Health Sciences, Aristotle University of Thessaloniki, Thessaloniki, Greece **Aim:** To retrospectively examine the intake of ultra-processed foods and essential nutrients, in children visiting the Dental Clinic of the Aristotle University of Thessaloniki.

Methods: Patient records aged 5 to 16 years old who visited the Dental School during the time period 2021 to 2024 were used, to extract data on caries status, as well as detailed dietary records for three consecutive days (Thursday, Friday, and Saturday). Dietary records were evaluated using the Nutrium software to categorise foods as minimally, moderately, or ultra-processed and assess micro- and macro-nutrient intake. The caries experience was determined by the Decayed, Missing, and Filled Surfaces index for the primary (dmfs) and permanent (DMFS) dentition. The data were statistically analysed to evaluate the dietary parameters of this population.

Results: A total of 306 children (162 girls and 144 boys) participated in the survey. The median age of the group was 9 (min = 5, max = 16.5) years. The median DMFS + dmfs

score was 9 (min = 1, max = 46). Analysis of three-day diet records reveals that two-thirds of the total children's meals were processed foods, with 43% children consuming moderately processed and 56% consuming ultra-processed items. Added sugars intake was 105% (46 g) higher, and fibre was 39% (10.3 g) lower than the recommended amounts according to the European Food Safety Authority's Dietary Reference Values for the EU (2019). A significant ($p<0.05$) negative correlation was found between DMFS score and protein, vitamin C, vitamin D and phosphorus intake.

Conclusion: In the overall population studied, the high prevalence of ultra-processed food is highlighted. Low intake of some essential nutrients correlates with high caries experience.

402 Salivary superoxide dismutase (SOD) as an antioxidant response marker in children with severe early childhood caries (S-ECC): an ELISA-based case-control study

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¹George Emil Palade University of Medicine, Pharmacy, Science, and Technology of Târgu Mureş, Târgu Mureş, Romania **Aim:** Superoxide dismutase (SOD) is a key antioxidant enzyme that converts superoxide radicals into oxygen and hydrogen peroxide, supporting redox balance in the oral environment. Severe early childhood caries (S-ECC) is a multifactorial condition in which microbial challenge and inflammation may increase reactive oxygen species and alter salivary antioxidant defences. This study quantified salivary SOD and compared levels between children with S-ECC and caries-free controls.

Methods: Unstimulated whole saliva was collected from 115 children with S-ECC (3–5 years) and 43 age-matched caries-free controls. Samples were stored at -80°C until analysis. Extracellular SOD (SOD3) concentration (ng/mL) was determined using a sandwich ELISA. Independent-samples t-tests were used for group and sex-stratified comparisons; statistical significance was set at $p\leq 0.05$.

Results: Mean salivary SOD was higher in the S-ECC group (16.56 ± 5.08 ng/mL) than in controls (5.88 ± 3.11 ng/mL), with a mean difference of 10.69 ng/mL ($p<0.001$). Values ranged from 10.24 to 29.70 ng/mL in S-ECC and from 1.46 to 11.54 ng/mL in controls. Sex-stratified analysis also showed differences in boys (mean difference 10.37 ng/mL; $p<0.001$) and girls (mean difference 10.94 ng/mL; $p<0.001$).

Conclusion: Elevated salivary SOD in S-ECC suggests an upregulated antioxidant response associated with oxidative challenge and may be useful for risk assessment and monitoring. Given the non-invasive sampling, SOD

measurement could complement clinical indices and support preventive programs aimed at restoring oxidative balance in preschoolers affected.

407 Development of a digital cariology learning tool aligned with contemporary consensus and guidelines

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¹School of Dentistry, RCSI University of Medicine and Health Sciences, Dublin, Ireland, ²Division of Public and Child Dental Health, Dublin Dental University Hospital, Trinity College, Dublin, Ireland, ³Department of Restorative Dentistry, Cork Dental School and Hospital, University College Cork, Ireland **Aim:** To describe the development of a digital learning tool designed to support standardised teaching of cariology in undergraduate dental education.

Methods: A digital cariology course was developed using the SafetyCulture platform. Content was aligned with the cariology core curriculum and contemporary international consensus statements and clinical guidelines on caries terminology, diagnosis, risk assessment, and management. The course was designed as a microlearning programme using HTML-based templates and integrated multimedia, including instructional videos, clinical photographs, and direct links to key guidelines and consensus documents. Undergraduate dental students were involved as partners in the co-development process, contributing to content design, case relevance, and usability. Gamification features included quizzes, automated feedback, progress tracking, completion badges, and learning streaks.

Results: A structured digital course comprising sequential modules was created, covering cariology terminology and classification, clinical diagnosis, radiographic diagnosis, caries risk assessment, principles of caries management, and non-invasive, micro-invasive, and mixed interventions. Each module incorporated case-based activities and interactive assessments to support clinical reasoning. The course was optimised for mobile and desktop access, with built-in analytics enabling monitoring of engagement and module completion. The modular structure allows flexible curricular integration and facilitates ongoing updates in line with evolving cariology guidance.

Conclusion: The SafetyCulture platform supported the development of a scalable and standardised digital cariology learning tool aligned with current evidence and consensus. Future phases will include pilot testing and integration into undergraduate dental curricula across Irish institutions to support consistent, evidence-based cariology education.

427 Evaluation of different caries detection methods for proximal lesions in primary molars

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¹Private Practice, Kayseri, Türkiye, ²Department of Paediatric Dentistry, Faculty of Dentistry, Altınbaş University, İstanbul, Türkiye **Aim:** Dental caries remains one of the most prevalent chronic diseases in childhood, and early detection of proximal lesions in primary molars is clinically challenging. This study aimed to evaluate and compare different diagnostic methods used to detect proximal caries in primary molars.

Methods: This clinical study included children aged 6–9 years who attended the Department of Paediatric Dentistry at Altınbaş University for routine examination or treatment. A total of 178 proximal surfaces from 77 children were evaluated using four diagnostic methods: International Caries Detection and Assessment System (ICDAS-II), DIAGNOcam (near-infrared transillumination), bite-wing radiography, and an intraoral scanner (TRIOS 4). Correlation (Pearson's r) and Cohen's kappa analyses were performed to evaluate the agreement between methods using SPSS 28. Statistical significance was set at $p < 0.05$.

Results: Overall agreement among diagnostic methods was high ($r = 0.903$; $p = 0.001$). The strongest correlation was observed between DIAGNOcam and bite-wing radiography ($r = 0.765$), while the lowest correlation was found between bite-wing radiography and TRIOS 4 ($r = 0.640$). ICDAS showed significant agreement with bite-wing radiography ($r = 0.698$) and TRIOS 4 ($r = 0.719$). Kappa analysis revealed the highest agreement between DIAGNOcam and bite-wing radiography ($\kappa = 0.464$; moderate agreement) and the lowest between bite-wing radiography and TRIOS 4 ($\kappa = 0.120$; slight agreement). All comparisons were statistically significant ($p = 0.001$).

Conclusion: Different caries detection methods demonstrated varying levels of agreement in detecting proximal caries in primary molars. DIAGNOcam showed the highest consistency with bite-wing radiography. Near-infrared transillumination may serve as a valuable radiation-free adjunct in paediatric caries detection. Also, the combined use of diagnostic methods may improve clinical decision-making in paediatric dentistry.

437 Assessment of pH and potential cariogenic implications of commercial complementary infant foods

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¹Department of Paediatric Dentistry, Faculty of Dentistry, Altınbaş University, İstanbul, Türkiye **Aim:** To assess the

pH values and potential cariogenic implications of commercially available complementary infant foods of the same brand.

Methods: Four different formulations of commercially available complementary infant foods (6+ months) were purchased from retail stores in the İstanbul region. Ingredient labels were reviewed to identify fermentable carbohydrate sources and potential acidifying components. Each product was opened immediately prior to analysis and homogenised using a sterile spatula. pH measurements were performed at 25 °C using a calibrated digital pH meter with a glass electrode probe. Each sample was measured in triplicate, and results were recorded as mean \pm standard deviation. Differences among formulations were analysed using one-way ANOVA ($p < 0.05$).

Results: Mean pH values ranged from 4.30 ± 0.10 to 5.20 ± 0.10 . The mixed fruit–oat formulation exhibited the lowest pH, whereas the yogurt-containing formulation showed the highest pH. All products demonstrated pH values below the critical enamel pH of 5.5. A statistically significant difference in pH values was found among the formulations ($p < 0.001$). Formulations containing citrus and fruit juice concentrates presented lower pH values compared to the yogurt-based product.

Conclusion: All samples of formulations showed pH levels below the threshold for enamel demineralisation. Formulation differences significantly influenced acidity levels, suggesting potential implications for early childhood oral health.

503 Salivary evaluation of hBD-1 in paediatric patients with ECC, pre- and post-dental treatment, and its association with ICDAS II

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Methods: An observational, longitudinal, and analytical study was conducted. Children under six years-of-age attending the Paediatric Dentistry Postgraduate Program, at the University of Guadalajara. Parents or legal guardians provided informed consent in accordance with the Declaration of Helsinki. A clinical history was obtained, and evaluation was performed using ICDAS II. Two groups were formed: the ECC group ($n = 28$) and the reference group ($n = 22$). Two 2-mL samples of unstimulated saliva were collected per participant. Samples were centrifuged at 10,000 rpm for 10 min and stored at -80 °C until analysis by ELISA. The statistical comparison was performed by Mann Whitney U test.

Results: Baseline hBD-1 concentrations in the ECC group were significantly higher ($p < 0.05$) (715.92 ± 190.09 pg/mL) compared to the reference group (511.65 ± 225.45 pg/mL). In contrast, when comparing pre- and post-dental treatment hBD-1 levels within the ECC group, no statistically significant differences were observed.

Conclusion: The ECC group presented higher concentrations of hBD-1 than the reference group. Although there was a decreasing trend in hBD-1 levels after dental treatment in the ECC group, not statistically significant. In our study population, hBD-1 concentrations were not associated with caries severity according to ICDAS II, nor with the number of teeth affected by ECC.

Topic 09. Dental materials

34 Effects of dietary supplement syrups on the color stability and translucency of resin-based restorative materials used in paediatric dentistry

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¹Department of Paediatric Dentistry, Usak University School of Dentistry, Uşak, Türkiye, ²Department of Restorative Dentistry, Usak University School of Dentistry, Uşak, Türkiye **Aim:** This study aimed to evaluate the effects of commonly used paediatric dietary supplements on the colour stability and translucency of resin-based restorative materials used in paediatric dentistry.

Methods: Five resin-based restorative materials used in paediatric dentistry (Filtek Z250, Filtek Z550, Dyract, Beautifil II, and Omnichroma) were evaluated. Resin specimens ($n = 120$) were randomly allocated into three subgroups according to immersion solution: artificial saliva (control), iron syrup, and vitamin syrup ($n = 8$ per subgroup). After 24 h storage in artificial saliva, resin specimens were immersed in dietary supplements for 6 h at 37 °C (≈ 2 year simulated exposure). Colour measurements were performed using a spectrophotometer. The colour change (ΔE_{00}) and

relative translucency parameter (RTP00) values of the specimens were calculated using the CIEDE2000 formula. Data were analysed using robust ANOVA and the Kruskal–Wallis test ($p < 0.05$).

Results: Both iron and vitamin syrups caused significantly greater colour changes compared to the control group; however, no significant difference was observed between the two syrups. Among the materials, Dyract exhibited the highest colour change, whereas Filtek Z550 and Beautifil II demonstrated the highest colour stability. At baseline, translucency values differed significantly among the materials, with Omnichroma showing the highest translucency ($p < 0.001$). After immersion, changes in translucency were mainly influenced by material type, and the greatest decrease was observed in Omnichroma ($p < 0.05$).

Conclusion: Long-term use of paediatric supplement syrups may negatively impact the aesthetic properties of restorative materials. Material composition is a key determinant of translucency and colour stability.

72 In vitro assessment of the discoloration effects of silver diamine fluoride on primary dentine

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¹Altınbaş University Faculty of Dentistry, Department of Paediatric Dentistry, Istanbul, Türkiye **Aim:** Caries-arresting agents used in early childhood caries management may cause undesirable discoloration of dental hard tissues, compromising aesthetics. This in vitro study evaluated the discoloration effect of 38% silver diamine fluoride (SDF) on primary dentine and assessed whether potassium iodide (KI) could reduce this effect.

Methods: Discoloration produced by gel and liquid SDF formulations (Advantage Arrest) and a KI-containing SDF system (Riva Star) was evaluated. Colour measurements were obtained using a VITA Easyshade V spectrophotometer based on the CIE Lab* colour system. Colour changes (ΔE) were recorded at baseline, immediately after application, at 1, 5, 15, and 30 min, and at 1 day, 1 week, and 4 weeks. Due to non-normal data distribution, Kruskal–Wallis, Dunn's, Friedman, and Bonferroni-adjusted Wilcoxon signed-rank tests were applied ($p < 0.05$).

Results: SDF application caused significant and progressive dark discoloration of primary dentine. The addition of KI significantly reduced discoloration and resulted in more aesthetically acceptable outcomes ($p < 0.05$). The Riva Star group showed significantly higher L*, a*, and b* values than the Advantage Arrest gel and liquid groups, particularly at 60 min, 1 week, and 4 weeks ($p < 0.05$).

Conclusion: Although SDF is effective for caries arrest, its discoloration potential may limit use in aesthetically sensitive areas. Combining SDF with potassium iodide

significantly reduces colour changes, offering a more aesthetic alternative for visible regions.

77 Long-term outcome of the hall technique as a treatment approach for hypomineralised second primary molars

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Methods: Thirty-five healthy children (mean age 4.6 ± 1.1 years) with at least one HSPM-affected primary molar were included. A total of 106 molars were treated with PMCs using the Hall Technique, without local anaesthesia or tooth preparation. Baseline assessments included a clinical and radiological intake and questionnaires completed by parents and patients. Annual follow-up visits involved standardised clinical and radiological evaluations performed by two independent dental examiners. All collected data was systematically stored and analysed using a Microsoft Excel database. The study was approved by the Ethics Committee for Research of the University Hospitals & KU Leuven (B322201837979).

Results: Follow-up data were available for 62 PMCs at four years. After four years, 90.3% of crowns demonstrated clinically successful & acceptable outcomes. From the 40 PMCs with accessible radiological images, 100% were rated successful. The Hall Technique was well-tolerated by all participants. Crown wear was observed in a limited number of cases, requiring replacement in one participant. One crown failed due to infection at the level of root furcation. Limited data up to seven years confirmed sustained performance in a smaller sub-cohort.

Conclusion: PMCs placed using the HT appear to be an effective, minimally invasive, and well-tolerated treatment option for HSPM in young children, potentially reducing the need for sedation or general anaesthesia.

131 Class II resin composite restorations in carious lesions of primary molars with or without pulpotomy. A 24 month prospective comparative study

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Athens, Greece Aim: To investigate the success rate of Class II resin composite restorations in primary molars following pulpotomy and to compare these restorations with Class II restorations in primary molars in the same patient, but without pulpotomy underneath.

Methods: The study was designed as a prospective clinical study using a split-mouth design. Following power analysis, 40 resin composite restorations were placed in carious primary molars after pulpotomy and 40 in primary molars without pulpotomy.

All restorations were performed under local anaesthesia and isolation. In cases without pulpotomy, a fifth-generation adhesive system and resin composite were used. In cases with pulpotomy, a glass ionomer cement was placed as an intermediate layer prior to the final resin composite restoration using the same restorative materials. Evaluation of the restorations was performed at 12 and 24 months according to the modified USPHS criteria. All restorations were placed by the same dentist (NNL), and all blind evaluations were carried out by the same dentist (MA) following calibration. Three patients did not return for evaluation (6 teeth).

Results: Seventy-four restorations were evaluated at 12 and 24 months. A statistically significant difference between the groups was observed for the marginal integrity (MI) criterion at 12 and 24 months. For the remaining criteria, excellent/acceptable (Alpha/Bravo) results were recorded, with no statistically significant differences between the groups. No secondary caries or loss of restorations was observed.

Conclusions: Class II resin composite restorations of primary molars following pulpotomy demonstrate good clinical performance after 24 months.

178 Medical history (MH) documentation and completion – 3 cycle audit

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¹Liverpool Dental Hospital, Liverpool, United Kingdom Aim: Health data documentation is legally required in the UK and vital for patient safety, diagnosis, and disease management. Maintaining up-to-date MH in patient records is crucial. The aim was to assess the completion of MH sections for paediatric patients, using electronic records for new paediatric patients at LUDH.

Methods: Data collection included the completeness of medical history documentation (complete or incomplete), clinician type, and patient ASA classification. Standard: 100% completion of MH for new patients.

Results: Cycle 1 (Sept–Oct 2024) reviewed 181 patients over 2 months; 91.7% had complete histories, 8.3% incomplete. Contributors: consultants (91.6%), specialists (5.4%), postgraduates (1.8%), trainees (1.2%). For incomplete histories: trainees (5.4%), postgraduates (1.8%), trainees

(1.2%). Over 90% documentation completion, with ASA class linked to quality—ASA 1 slightly better. Action: staff meeting emphasised documentation; supervisors encouraged to improve in daily huddles. Cycle 2 (June–July 2025); 23 patients were reviewed. MH was complete in 89%, incomplete in 11%. Incomplete records, mainly by postgraduates and DCTs. Action: reinforced the importance of documentation through a staff meeting. Cycle 3 (Jan–Feb 2026): 45 patients, mostly ASA I (82.2%) and some ASA II (17.8%). Medical history was complete in 91.1% and incomplete in 8.9%, involving DCTs and Strs (2 cases each).

Conclusions: Overall, compliance was high in a low-risk group. Incomplete records, mainly by junior clinicians, highlight the need for training and supervision. Continued efforts are needed to reach 100%, including emphasising documentation in staff meetings and daily huddles.

179 Micro-shear bond strength of light-cured and dual-cured universal adhesives to primary and permanent dentine: an in vitro study

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¹Department of Paediatric Dentistry, Aristotle University of Thessaloniki, Thessaloniki, Greece, ²Department of Operative Dentistry, Aristotle University of Thessaloniki, Thessaloniki, Greece Aim: To evaluate the immediate and aged micro-shear bond strength (μ SBS) of dual-cured and light-cured universal adhesives to primary and permanent dentine.

Methods: Twenty caries-free primary molars and twenty permanent third molars were selected and sectioned to expose mid-coronal dentine. Specimens were divided into four distinct groups ($n = 10$): A: Permanent tooth/ No thermocycling, B: Primary tooth/ No thermocycling, C: Permanent tooth/ Thermocycling, D: Primary tooth/ Thermocycling. Two universal adhesives (Scotchbond Universal Adhesive and Futurabond U) were applied to separate, clearly demarcated regions on each specimen. Resin micro-rods were fabricated and half of the specimens were subjected to thermocycling aging (10,000 thermocycles between 5 °C and 55 °C). μ SBS values were measured using a wire-loop micro-shear test, and failure modes were assessed under an optical microscope. Data were analysed using Welch's ANOVA and factorial GLM.

Results: Micro-shear bond strength was significantly higher in permanent dentin compared with primary dentine [(mean \pm SD)5.83 \pm 2.04 MPa vs 3.78 \pm 1.32 MPa; $p < 0.001$]. No statistically significant differences were found between Scotchbond Universal and Futurabond U ($p = 0.201$). Thermocycling did not significantly influence

bond strength ($p = 0.499$). Predominantly adhesive failures were observed across all experimental groups.

Conclusion: Both universal adhesives exhibited comparable bond strength to primary and permanent dentine. Permanent dentine consistently showed higher bond strength, while thermocycling did not significantly reduce adhesion. These findings support the suitability of both adhesives under the tested conditions for the restoration of primary and permanent teeth, though long-term clinical studies are warranted.

193 Effect of simulated gastric acid on the microhardness of fissure sealants

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¹Department of Paediatric Dentistry, Faculty of Dentistry, Ege University, Izmir, Türkiye, ²Department of Paediatric Dentistry, Faculty of Dentistry, Izmir Tinaztepe University, Izmir, Türkiye **Aim:** This in vitro study aimed to quantitatively evaluate the erosive effects of simulated gastric acid exposure on the surface microhardness of contemporary fissure sealant materials.

Methods: A total of 42 cylindrical specimens (4 mm × 2 mm) were fabricated and randomly allocated to six experimental groups ($n = 7$ per group): Group1: Beauti-Sealant (Shofu, Japan), Group2: Conseal F (SDI, Australia), Group3: Clinpro (3 M ESPE, USA), Group4: UltraSeal XT Hydro (Ultradent, USA), Group5: Fissured Nova (Imicryl, Türkiye), and Group6: Riva Protect (SDI, Australia). The specimens were kept in distilled water for 24 h prior to exposure to a standard 10 day gastric acid cycling regimen, consisting of six daily cycles of 60 s immersion in simulated gastric acid ($pH \approx 1.2$) followed by 30 min remineralisation in artificial saliva. Surface microhardness measurements were obtained at baseline and after acid exposure using a Vickers microhardness tester (SHIMADZU, JAPAN). Statistical analyses were performed using SPSS software.

Results: Significant intergroup differences were observed in baseline microhardness values ($p < 0.05$). No statistically significant difference was found between the groups in their post-exposure microhardness values ($p > 0.05$). Although Riva Protect exhibited the greatest numerical reduction after acid cycling, no statistically significant intergroup differences were detected in post-exposure values or in the magnitude of change ($p > 0.05$). All materials demonstrated a significant decline relative to baseline ($p < 0.05$), indicating susceptibility to acid-induced degradation. Despite initial baseline differences, post-exposure microhardness values converged across all groups, suggesting a uniform softening effect after repeated acid challenge.

Conclusion: All tested fissure sealant materials experienced a measurable reduction in microhardness after

repeated gastric acid exposure, highlighting their limited resistance to highly acidic oral environments and intrinsic erosive challenges.

196 Non-Invasive, template-assisted direct composite veneers for masking anterior MIH defects: 12 month results

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¹Department of Paediatric Dentistry, Hacettepe University Faculty of Dentistry, Ankara, Türkiye, ²Department of Paediatric Dentistry, Istanbul Health and Technology University Faculty of Dentistry, Istanbul, Türkiye **Aim:** To evaluate the 12 month clinical performance of template-assisted direct resin composite restorations as a non-invasive treatment option to mask MIH-related discolorations in young permanent incisors.

Methods: A total of 80 permanent anterior teeth from 45 children aged 7–14 years, diagnosed with MIH based on EAPD criteria, were included in the study. Resin composite restorations were placed without tooth preparation using a direct veneer template system. To conceal the MIH lesions, an additional opaque composite layer was applied within the template over the body composite. Clinical performance was assessed at baseline and at 3, 6, and 12 months using modified USPHS criteria. Tooth sensitivity was evaluated using the Schiff Cold Air Sensitivity Scale, and parent–child satisfaction was measured with a 5-point Likert scale.

Results: The clinical success rate was 97.5% at 12 months. Two complete failures were recorded as a result of restoration fractures, characterised by moderate chipping affecting approximately half of the restoration. Statistically significant changes over time were noted in marginal adaptation, marginal discoloration, restoration fractures, and wear ($p < 0.05$). In contrast, no significant differences were found over time regarding colour match, surface texture, or post-operative sensitivity ($p > 0.05$). Both parents and children expressed high levels of satisfaction, with 95.6% giving combined ratings of 4 or 5 for the overall aesthetic and functional results.

Conclusion: At 12 months, the template-assisted direct veneers provided non-invasive, fast and cost-effective treatment for successfully masking MIH-related discolorations in young incisors.

240 Whitening without oversight: illegal tooth whitening products readily available to children online

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¹University of Liverpool, Liverpool, United Kingdom **Aim:** It is illegal to perform tooth whitening on anyone under

18 years in the UK under the Cosmetic Products Enforcement Regulations 2013. Whitening products must only be supplied following examination by a registered dental professional, and breach of these regulations is a criminal offence. The General Dental Council enforces the regulations, stating that products releasing 0.1%–6% hydrogen peroxide (HP) cannot be used for paediatric patients, except where intended to treat or prevent disease. Consequently, children seeking tooth whitening may try to access products online for home use. This exploratory review aimed to identify the availability and concentration of whitening products sold online.

Methods: To mimic expected adolescent behaviour, exploratory searches of search engines, social media platforms, and popular ecommerce websites were conducted, with snowballing where appropriate. Search terms included teeth whitening products, whitening services, and related synonyms. Products available for purchase in the UK were included.

Results: A total of 139 products were identified. 52% ($n=72$) did not disclose a comprehensive ingredient list. 22% ($n=30$) contained 6%–36% HP. Of these, 60% ($n=18$) were marketed as home-use whitening gels, and 83% ($n=25$) provided no safety information. Remaining products contained harmful abrasives or alternative active agents, such as phthalimidoperoxycaproic acid.

Conclusion: Whitening products releasing up to 36% HP are readily and directly available online. The risks from misuse are significant, highlighting the need for further research into children's behaviours in the digital age when they face barriers to tooth whitening, and for stronger professional advocacy for children.

272 Cariostatic efficacy of different molecular weights of poly-gamma glutamic acid (γ -PGA), on artificial demineralisation

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¹Queen Mary University of London, London, United Kingdom **Aim:** Polygamma-glutamic acid (γ -PGA) is a naturally occurring biodegradable, hydrophilic, non-toxic and non-immunogenic biopolymer with established applications in medical and food industries. It has been demonstrated that the salivary protein statherin has inhibitory effects against artificial caries demineralisation using porous hydroxyapatite (HAp) discs as an enamel model. However, its clinical use is limited due to restricted availability and high production cost. Therefore, γ -PGA has been proposed as a cheaper biomimetic alternative, binding strongly to calcium ions via its α -carboxyl groups, forming a coating on the enamel surface, thereby reducing demineralisation. The aim was to

investigate the efficacy of increasing molecular weights of γ -PGA in inhibiting demineralisation at pH 4.0.

Methods: Three different molecular weights of 1% γ -PGA were tested using porous HAp discs (12 mm diameter, 2 mm thickness, 20% porosity) to simulate natural enamel. Ion Selective Electrodes (ISEs) and Inductively Coupled Plasma Optical Emission spectroscopy (ICPOES) were used to measure the kinetics calcium ion loss following treatment with γ -PGA.

Results: All discs showed a reduction in calcium loss of approximately of between 15 and 43% within the same molecular weight group. There was variability and limited reproducibility. No correlation was observed between inhibition and molecular weight.

Conclusion: All molecular weights of γ -PGA demonstrated reduction in HAp demineralisation rates. However, the results variability demonstrates the complexity of the mechanisms involved, highlighting the need to optimise the experimental conditions. Further analysis using micro-CT and Fourier Transform Infrared Spectroscopy will provide additional insight into mineral density changes and chemical interactions at demineralising surfaces.

285 Efficacy of a prophylactic paste with PRG (pre-reacted glass ionomer) technology in reducing dental plaque index: an in situ pilot study

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Aim: To evaluate the efficacy of a prophylactic paste containing PRG technology in reducing the dental plaque index on permanent human teeth.

Methods: This randomised, crossover, split-mouth pilot study evaluated three prophylactic agents: pumice and water (negative control), conventional fluoride prophylactic paste (positive control), and PRG technology prophylactic paste (test paste). Six volunteers wore intraoral devices containing four enamel specimens each. Two specimens underwent a cariogenic challenge (20% sucrose) and two did not, all protected by a wire grid to prevent tongue interference. Plaque coverage was assessed at 24 h and 7 days using a modified OHI-S (scores 0–3). Data were analysed using repeated-measures ANOVA and Tukey's test ($\alpha=0.05$).

Results: PRG technology prophylactic paste resulted in significantly lower dental plaque accumulation compared to

the control groups ($p < 0.001$). Under cariogenic challenge, the PRG paste showed mean scores of 0.75 at 24 h and 1.42 at 7 days, whereas other agents exceeded 2.0 at 7 days, indicating substantially greater plaque accumulation. Post hoc analysis revealed no significant difference between conventional prophylactic paste and pumice ($p = 0.471$), suggesting only the PRG formulation promoted a substantial reduction. Although time and cariogenic challenge increased plaque formation ($p = 0.001$), Pro-Care Gel® consistently maintained superior performance, supporting that its controlled multi-ion release enhances dental plaque control.

Conclusion: Prophylactic paste with PRG technology may be significantly more effective in reducing dental plaque than conventional fluoride prophylactic paste and pumice, providing a sustained preventive effect for up to 7 days, even under cariogenic challenge.

287 Influence of LED spectral emission on polymerisation efficiency of a TPO-initiated radiopaque resin infiltrant

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¹Centre for Oral Bioengineering, Institute of Dentistry, Queen Mary University of London, London, United Kingdom, Department of Paediatric Dentistry, College of Dentistry, Prince Sattam bin Abdulaziz University, Alkharij, Saudi Arabia, ²Institute of Dentistry, Queen Mary University of London, London, United Kingdom, ³Centre for Oral Bioengineering, Institute of Dentistry, Queen Mary University of London, London, United Kingdom **Aim:** Optimisation of polymerisation is critical for the clinical performance of resin infiltrants. Type I photoinitiators such as diphenyl(2,4,6-trimethylbenzoyl)phosphine oxide (TPO) require appropriate spectral activation, and incompatibility with curing devices may compromise conversion. The aim was to evaluate the influence of monowave and polywave LED curing systems on the degree of conversion (DC%) of experimental TPO-based resin infiltrants.

Methods: Experimental infiltrant formulations (TEGDMA/UDMA resin matrix) containing TPO at concentrations of 0.5–3.0% (w/w) were prepared. Six independent specimens per concentration per light source ($n = 6$) were photoactivated using either a monowave LED (≈ 470 nm) or a polywave LED (380–515 nm). The degree of conversion (DC%) was determined using FTIR spectroscopy. The optimal TPO formulation was compared with a conventional camphorquinone (CQ) control system.

Results: Polymerisation efficiency was significantly influenced by curing modality ($p < 0.001$). For the optimised 2% TPO formulation, polywave irradiation achieved significantly higher DC% ($81.31 \pm 0.86\%$) compared with monowave curing ($53.67 \pm 2.42\%$) ($p < 0.001$). A

similar pattern was observed for the 3% TPO formulation ($77.93 \pm 4.91\%$ vs. $54.38 \pm 5.02\%$, $p < 0.001$). The conventional CQ formulation cured with monowave LED achieved $71.93 \pm 3.20\%$. These findings demonstrate that spectral emission profile significantly influences polymerisation efficiency.

Conclusions: TPO based resin systems require activation by an appropriate polywave LED light source to achieve optimal polymerisation efficiency. Clinicians should therefore consider the specific photoinitiator chemistry present within a composite material to ensure its optimal clinical performance.

288 Comparative evaluation of self-cure, light-cure, dual-cure bulk fill resin composite against conventional light-cure composite: a study on microleakage

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¹Department of Family Oral Health, National University of Malaysia, Selangor, Malaysia, ²Department of Restorative Dentistry, National University of Malaysia, Selangor, Malaysia **Aim:** This study aimed to compare the microleakage of three bulk-fill resin composite systems, which are self-cure (Stela Automix™), light-cure (Filtek™ One Bulk Fill Restorative) and dual-cure (ACTIVA™ BioACTIVE Restorative™) with a conventional light-cure resin composite (Filtek™Z350 XT Universal Restorative).

Methods: In this in vitro study, forty sound extracted human teeth were selected and randomly divided into four restorative material groups ($n = 10$). Standardised cavity preparations were made and restored according to the respective manufacturer's instructions. Following restorations, all specimens were subjected to thermocycling and subsequently immersed in 2% methylene blue dye solution for 24 h. Specimens were then sectioned longitudinally through the centre of the restorations. Dye penetration along the tooth restoration interface was assessed under a stereomicroscope at 30× magnification. Microleakage was scored based on the extent of dye penetration observed. The data were statistical analysed using Kruskal–Wallis test in SPSS software. **Results:** A statistically significant difference in microleakage was observed among the tested composite groups ($p < 0.05$). Post hoc pairwise analysis demonstrated a significant difference between two composite groups ($p < 0.05$).

Conclusion: The findings suggest that the type of resin composite and curing mechanism can influence marginal sealing ability, with dual-cure resin composite providing superior performance. However, long-term clinical studies are

recommended to validate these results under intraoral conditions and to evaluate the durability of these materials over time.

291 Effect of irrigation with effective ecoproduce (EEP) on mechanical property of root dentin surface: an in vitro study

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¹Department of Family Oral Health, Paediatric Dentistry, National Universiti of Malaysia, Selangor, Malaysia, ²Department of Craniofacial Diagnostics & Biosciences, National University of Malaysia, Selangor, Malaysia **Aim:** To evaluate the effect on root dentine surface after root canal irrigation with 6.25% 6 month fermentation pineapple/orange (6:4 ratio) EEP by assessing fracture resistance.

Methods: Twenty-four extracted premolar teeth were decoronated at the cemento-enamel junction to obtain standardised root lengths of 12 mm. The specimens were randomly assigned into six groups (n=4) according to the irrigant used during instrumentation and final irrigation: Group A, EEP with 17% ethylenediaminetetraacetic acid (EDTA); Group B, 5.25% sodium hypochlorite (NaOCl) with 17% EDTA (positive control); Group C, distilled water with 17% EDTA; Group D, distilled water only (negative control); Group E, 6.25% EEP only; and Group F, 5.25% NaOCl only. Irrigation was performed after each file size change and followed by the designated final irrigant. Fracture resistance was measured using a universal testing machine at a crosshead speed of 1 mm/min until fracture occurred, and the maximum load was recorded in Newtons. Data normality was assessed using the Shapiro–Wilk test, and comparisons were analysed using one-way ANOVA ($\alpha=0.05$). **Results:** Mean fracture resistance ranged from 288.44 ± 55.19 N to 1363.13 ± 674.66 N. Group C showed the highest mean fracture resistance, followed by Group E, while Group A showed the lowest value. However, one-way ANOVA revealed no statistically significant differences among the groups ($F(5,18)=1.261$, $p=0.323$).

Conclusion: Irrigation with 6.25% six month fermented pineapple/orange EEP did not significantly affect root dentin fracture resistance and may be considered a potential alternative irrigant.

321 Mesoporous silica functionalised tricalcium silicate cement as an osteostatin delivery platform

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¹ELOHA (Equal Lifelong Oral Health for All) Research Group, Paediatric Dentistry, Oral Health Sciences, Ghent University Hospital, 9000 Ghent, Belgium, ²Core Tissue and Cell Culture, Department of Human Structure and Repair, Faculty of Medicine and Health Sciences, Ghent University, Ghent, Belgium **Aim:** To optimise tricalcium silicate cement (TSC) modified with mesoporous silica, unloaded or pre-loaded with osteostatin, and to evaluate physicochemical performance, cytocompatibility and mineralisation.

Methods: TSC with 20 wt% strontium titanate (SrTiO_3) as radiopacifier and calcium chloride (CaCl_2 ; 0–1.5 mol/L) as liquid were used as the base cement. A two-factor sequential simplex design screened 19 formulations by varying Santa Barbara Amorphous-15 mesoporous silica (SBA-15; 0–5 wt%) as additive. Setting time (Gillmore needles) and 24 h compressive strength were recorded. Lead unloaded (U-V14, U-V17) and osteostatin-loaded (L-V8, L-V19) cements were assessed for calcium ion (Ca^{2+}) release and pH over 28 days, apatite formation, and human dental pulp stem cell (hDPSC) responses for viability (live–dead staining), cytotoxicity (MTT assay) and mineralisation (Alizarin Red and Von Kossa). Statistics analyses were done using ANOVA with Bonferroni post-hoc testing ($\alpha=0.05$).

Results: Final setting times were shorter than the reference (>90 min), reaching 65.0 ± 0.0 to 71.2 ± 1.0 min ($p < 0.001$). At 24 h, compressive strength ranged from 59.6 ± 12.8 to 124.1 ± 31.7 MPa. Several formulations were significantly stronger than the reference (44.98 ± 8.7 MPa; $p \leq 0.018$ unloaded, $p \leq 0.015$ loaded). At 14 days, all selected formulations released more Ca^{2+} than the reference ($p < 0.001$) with cumulative Ca^{2+} release around $3 \mu\text{mol mm}^{-2}$ by 28 days. hDPSC viability remained $>90\%$. Osteostatin release at 24 h was $2.0 \pm 0.2 \mu\text{g/mL}$ and approximately doubled mineralisation compared to unloaded cement.

Conclusion: SBA-15 additive to TSC enabled faster setting with strong early mechanical performance and sustained ion release while maintaining hDPSC cytocompatibility. Osteostatin loading further enhanced mineralisation.

327 Longevity of prefabricated crowns for primary molar teeth: a retrospective analysis

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Germany, ²Paediatric Dentistry, ZAHNZIRKUS Dental Practice, Frankfurt, Germany **Aim:** Prefabricated primary molar crowns (PPMCs) are a popular treatment option for primary teeth, where aesthetic demands are also increasing. The aim of this retrospective study was to evaluate the longevity of ceramic crowns (CC) for primary molars in comparison to stainless steel crowns (SSC).

Methods: PPMC that were applied in at a private practice in Germany between 2014 and 2016 and had a follow-up period of at least 6 months were reviewed. The survival data and influencing factors (Patient's gender, age, and caries history, type of anaesthesia used during restoration procedure, tooth type) were analysed using Kaplan–Meier estimator, Cox regression analysis, Chi² test, and Tarone–Ware test ($p < 0.05$).

Results: 521 SSC and 108 CC out of a total of 244 patients (mean age: 5.2 years) were followed up. The average survival time was 6.4 years for SSC and 6.1 years for CC, with no statistically significant difference between the two material groups ($p > 0.05$). Factors that showed a statistically significant influence on the longevity of the restoration were the gender of the patient ($p < 0.005$), the type of anaesthesia used ($p < 0.001$), and the patient's caries history ($p < 0.001$). The most common reasons for the failure of the restorations were odontogenic infections (36,3%), radiographic signs of inflammation (22,5%), and pain (19,6%).

Conclusion: The longevity of PPMC depends less on the choice of material than on patient-related factors, which underscores the importance of individualised prophylaxis following restorative therapy. Furthermore, the results should be prospectively clinically evaluated.

342 Innovative fluoride-rechargeable layered double hydroxide (LDH) as a remineralising agent for use in paediatric dentistry

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¹Dental Institute, Queen Mary University of London, London, United Kingdom **Aim:** To develop a novel LDH-containing fissure sealant as a sustained and rechargeable fluoride source, and to evaluate its effect on enamel margins under demineralisation conditions.

Methods: Nine human premolars were sectioned buccolingually, and standardised grooves (3 × 1 mm) were created. Each groove was filled with (1) LDH sealant; (2) Fluoride-sealant (3 M™ Clinpro™), and (3) non-F control sealant (N=6). Each specimen was subjected to a 72 h demineralisation protocol using acetic buffer (pH 4.0), followed by five pH-cycling periods, each consisting of 3 h demineralisation in artificial saliva (AS4, pH 4.0) and 21 h remineralisation (AS7, pH 7.0), with fluoride charging (NaF, 1500 ppm)

performed between the two phases. X-ray microtomography (XMT) analysis was conducted at each experimental stage to quantify mineral changes within the enamel.

Results: Significant differences in mineral change were observed among groups ($p < 0.001$). From baseline to the final scan, LDH demonstrated the greatest increase of mineral at the bottom of the groove ($0.047 \pm 0.023 \text{ cm}^{-1}$) and the surface enamel-sealant margins ($0.208 \pm 0.047 \text{ cm}^{-1}$), followed by the Fluoride-sealant (0.020 ± 0.020 ; $0.195 \pm 0.104 \text{ cm}^{-1}$ respectively). The control group exhibited persistent net demineralisation (-0.081 ± 0.035 ; $-0.367 \pm 0.061 \text{ cm}^{-1}$ respectively). Incremental analysis confirmed sustained mineral recovery in the LDH group after demineralisation-Fluoride cycling.

Conclusions: The Fluoride recharging ability of the LDH-incorporated sealant demonstrates superior remineralisation compared with the commercial fluoride-sealant and non-Fluoride sealant, under Fluoride-demineralisation cycling, on the exposed margin of enamel-sealant interface. This supports the potential of LDH technology as a rechargeable therapeutic approach for enhanced caries prevention.

360 Development of a 3D-printed bioreactor system for long-term ex vivo culture of vital human molars

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¹ELOHA (Equal Lifelong Oral Health for All) research group, Paediatric Dentistry, Oral Health Sciences, Ghent University Hospital, Ghent, Belgium, ²Department of Reconstructive Dentistry and Oral Biology, Oral Health Sciences, Ghent University Hospital, Ghent, Belgium **Aim:** In vivo evaluation of dental materials is frequently constrained by ethical and practical limitations. Consequently, the development of a relevant ex vivo model capable of maintaining tooth vitality under controlled laboratory conditions is essential for translational dental research. The present study aimed to develop a 3D-printed bioreactor system for the long-term culture of vital human molars.

Methods: Freshly extracted, intact human third molars were placed in custom-designed 3D-printed containers within a closed, sterile bioreactor maintained at 37 °C. The system provided controlled perfusion of α -MEM supplemented with 10% foetal bovine serum and 1% penicillin–streptomycin. Constant hydrostatic pressure, equivalent to physiological intra-pulpal pressure, was regulated using computer-controlled pumps. Teeth were retrieved after 1, 2, 4, 6, and 8 weeks of incubation and processed for H&E histological evaluation.

Results: Histological assessment up to 4 weeks demonstrated preservation of normal pulp architecture, including a continuous odontoblastic layer lining the pulpal wall, a

distinct cell-free zone, and an underlying cell-rich zone. Abundant collagen fibres, fibroblasts, and vascular structures were observed. At 6 and 8 weeks, pulp vitality and overall tissue organisation were maintained, although the cell-free zone was less clearly distinguishable.

Conclusion: The proposed 3D-printed bioreactor system successfully maintained the vitality and structural integrity of human third molars for up to 8 weeks *ex vivo*. This reproducible and physiologically relevant model provides a platform for investigating the biological effects of dental materials and therapeutic procedures on the pulp–dentine complex, bridging the gap between conventional *in vitro* testing and *in vivo* experimentation.

385 Superior therapeutic efficacy of apoptotic extracellular vesicles derived from stem cells of the apical papilla: a proteomic comparison analysis with bone marrow mesenchymal stem cells

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¹The University of Hong Kong, Hong Kong SAR, China, ²Sun Yat-sen University, Guangdong, China **Aim:** To compare the proteomic profiles and angiogenesis capacities of apoptotic extracellular vesicles (apoEVs) derived from stem cells of the apical papilla (SCAP) and bone marrow mesenchymal stem cells (BMMSCs).

Methods: SCAP and BMMSCs were cultured and induced to undergo apoptosis to isolate SCAP-apoEVs and BMMSC-apoEVs. Proteins were extracted and analysed using liquid chromatography–tandem mass spectrometry. Functional enrichment was performed via Gene Ontology enrichment and the Kyoto Encyclopaedia of Genes and Genomes pathway analysis. Tube formation assay was conducted to compare the angiogenesis capacities of human umbilical vein endothelial cells (HUVECs) treated by SCAP-apoEVs and BMMSC-apoEVs.

Results: A total of 5,073 proteins were identified in SCAP-apoEVs and BMMSC-apoEVs, with 457 showing significant difference. Proteomic profiling revealed that SCAP-apoEVs are significantly enriched in proteins governing cell adhesion and extracellular matrix–receptor interactions, specifically those related to vascular endothelial cell function. Conversely, SCAP-apoEVs exhibited lower levels of fibrotic and senescence markers. Tube formation assay also demonstrated that SCAP-apoEVs can significantly further promote angiogenesis in HUVECs than BMMSC-apoEVs.

Conclusion: SCAP-apoEVs show superior therapeutic potential for angiogenesis compared to BMMSC-apoEVs, providing a potent, cell-free alternative for regenerative therapy.

453 The use of eggshells as a barrier material for regenerative endodontics

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²University of Health Sciences, Türkiye **Aim:** To upcycle eggshell waste by converting it into a barrier material suitable for regenerative endodontic approaches.

Methods: Eggshell-derived CaCO₃ and CaO were used as the main fillers, with SiO₂ incorporated into the PEGDMA resin matrix (30% v/v). Characterisation was confirmed by SEM–EDS and XRD analyses. Degree of conversion was assessed by FTIR. Water sorption–solubility, calcium ion release, and pH measurements were evaluated. Biocompatibility was tested with the CCK-8 assay on HDPSCs. Statistical analyses were performed using SPSS 29, and a *p*-value < 0.05 was considered statistically significant.

Results: The experimental groups (eggshell derived CaO, CaCO₃, CaO + SiO₂, and CaCO₃ + SiO₂) exhibited significantly higher water sorption values compared with the control groups (Biodentine and TheraCal LC) (*p* < 0.001). The CaO + SiO₂ and TheraCal LC groups exhibited the lowest water solubility values, and no statistically significant difference was detected among the other groups (*p* > 0.05). The highest calcium ion release was observed in the Biodentine group on day 3 and day 7 (285.17 mg/L and 158.04 mg/L, respectively), followed by the CaO and CaO + SiO₂ groups. All groups, except for CaCO₃ and CaCO₃ + SiO₂, exhibited alkaline pH values ranging from 11.38 to 13.32 at all time points (days 1, 3, 7, 14, and 28). A high viability ratio (> 80%) was observed in the experimental groups.

Conclusion: This study demonstrates that eggshell-derived CaO- and CaCO₃-based materials possess favourable physicochemical characteristics, sustained alkaline pH and calcium ion release. These findings support the use of upcycled eggshell waste as a sustainable bioactive barrier material in regenerative endodontics.

486 Morphological and compositional alterations of *in vivo* aged metallic dental appliances

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¹Department of Paediatric Dentistry, Dental School, National and Kapodistrian University of Athens, Athens, Greece, ²Department of Biomaterials, Dental School, National and Kapodistrian University of Athens, Athens, Greece **Aim:** The aim of the present study was to assess the morphological and elemental alterations of metallic dental appliances, such as retrieved prefabricated metal crowns

(PMCs), stainless steel brackets and orthodontic archwires after intraoral exposure.

Methods: In vivo aged stainless steel appliances were collected. The intraoral exposure time varied from 3 to 101 months. For every retrieved appliance one new appliance of the same type was used as a reference. The reference and in vivo aged appliances were examined by high-vacuum scanning electron microscopy and energy-dispersive X-ray microanalysis. The elemental composition between the as received and in vivo aged appliances was statistically analysed by t-test ($\alpha = 0.05$).

Results: In vivo aged crown surfaces demonstrated significant morphological alterations with accumulation of amorphous intraoral integuments, biting imprints, wear and occlusal perforations. The results of microanalysis showed that there were no statistically significant differences in the elemental composition of the stainless steel crowns between the two conditions. In contrast, orthodontic brackets and archwires frequently exhibit surface corrosion, after intraoral aging, while the bulk composition of the alloys generally remains stable.

Conclusion: Under the conditions of the present study, retrieved prefabricated paediatric stainless steel crowns exhibit morphological changes mainly due to plastic deformation, without changes in elemental composition while brackets and archwires demonstrate greater susceptibility to corrosion-related compositional alterations.

Topic 10. Endodontics

43 Service evaluation of root canal treatments (RCTs) under general anaesthesia (GA) in paediatric patients at the Royal London Hospital (RLH)

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¹**Bart's Health NHS Trust, London, United Kingdom** **Aim:** In our paediatric dental department, we conduct multi-stage RCTs under GA for various reasons. We wanted to assess our consultant-led service to ensure that we are delivering high-quality care.

Method: We collected retrospective data from our electronic records from January to December 2024. We identified all the children in our department who received RCT treatment under GA. Data was anonymised and collected in Excel. Patient demographics, procedural information and the number of visits for root canal treatment was collected.

Results: 11 patients attended for RCT under GA. 100% had anterior tooth RCT, with 82% having a closed apex. The need for RCT was mainly due to trauma, 72%. 73% were neurodiverse, and 73% had pre-operative radiographs. 27% of patients had a further RCT under GA planned, whereas

73% were scheduled for treatment in the dental chair. Irrigation protocols varied; the most common was chlorhexidine or saline. The most common stage completed was extirpation.

Conclusion: Most of the patients we provided RCT under GA were neurodiverse and could not cooperate with treatment in the dental chair. Anterior tooth trauma is the most likely cause of needing an RCT. We identified significant variation in irrigation protocols, which has sparked many local discussions. Based on the success of this service evaluation, we plan to collect data from our 2025 patients and work collaboratively with the Eastman Dental Hospital to conduct a combined service evaluation covering all patients from the North and East of London.

48 Microbiological efficacy of irrigation protocols in primary teeth: a metagenomic study

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¹**Department of Clinical Sciences, College of Dentistry, Ajman University, Ajman, United Arab Emirates,** ²**Department of Paediatric and Preventive Dentistry, Swami Vivekanand Subharti University, Meerut, Uttar Pradesh, India** **Aim:** To evaluate the microbiological effectiveness of different root canal irrigation protocols used during chemico-mechanical preparation of irreversibly inflamed and nonvital primary teeth using metagenomic analysis.

Methods: Forty children requiring single-visit pulpectomy in primary teeth were randomly allocated into four groups ($n = 10$). Group I—1% sodium hypochlorite (NaOCl), Group II—1% NaOCl followed by 2% chlorhexidine (CHX), Group III—2.5% NaOCl, and Group IV—normal saline. Root canal samples were collected before and after irrigation. Microbial DNA was extracted and analysed using 16S rRNA gene sequencing. Changes in microbial composition, alpha and beta diversity, and differential taxonomic abundance were assessed using Kruskal–Wallis tests with false discovery rate correction and LEfSe analysis.

Results: Baseline samples demonstrated a polymicrobial profile predominantly comprising Proteobacteria, Firmicutes, Bacteroidetes, Actinobacteria, and Fusobacteria. Post-irrigation analysis revealed protocol-dependent microbial alterations. The 1% NaOCl group showed a moderate reduction in microbial diversity, while the 1% NaOCl + 2% CHX group demonstrated effective suppression of pathogenic taxa with relative preservation of overall microbial balance. In contrast, 2.5% NaOCl resulted in a marked loss of microbial diversity, and saline irrigation produced minimal microbiological changes.

Conclusions: Root canal irrigation protocols significantly influence the microbial ecology of primary teeth. The

combination of 1% NaOCl and 2% CHX appears to provide an optimal balance between effective disinfection and microbial preservation, highlighting its potential clinical advantage in paediatric endodontics.

51 Prevalence of pulp therapy failure in primary teeth treated under general anaesthesia: a systematic review and meta-analysis

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¹Department of Preventive and Paediatric Dentistry, Lithuanian University of Health Sciences, Kaunas, Lithuania **Aim:** This review aimed to evaluate the prevalence of pulp therapy failure in primary teeth treated under general anaesthesia and to compare the long-term clinical outcomes of pulpotomy and pulpectomy.

Methods: The review protocol was registered in PROSPERO (CRD42024628775). A comprehensive literature search was conducted up to 28 September 2025. Eligible studies included healthy paediatric patients with primary teeth diagnosed with pulpitis, pulp necrosis, or apical periodontitis, treated under general anaesthesia. Pulp therapy failure was defined by clinical signs (tenderness to percussion, localised pain, swelling, abscess, or fistula) and/or radiographic findings (periapical or furcation radiolucency, internal or external root resorption). Failure prevalence was calculated using proportional meta-analysis with Freeman–Tukey transformation. Comparative analyses were performed using a random-effects model with log risk ratio effect size, applying the Sidik–Jonkman estimator and Knapp–Hartung adjustment.

Results: Thirteen studies met the inclusion criteria. Failure rates for pulpotomy ranged from 3.1% at 6 months to 12.2% at 24 months, while pulpectomy failure rates ranged from 3.3% at 6 months to 12.5% at 24 months. No statistically significant differences were observed between the two procedures at 6-, 12-, or 18-month follow-up. During 24 month evaluation, pulpectomy demonstrated a borderline significantly lower failure rate compared with pulpotomy (RR = 0.66; 95% CI: 0.44, 0.98; p = 0.05).

Conclusion: Despite differing clinical indications, pulpotomy and pulpectomy showed comparable overall failure rates. Long-term follow-up showed a tendency toward higher success with pulpectomy, supporting its consideration when prolonged tooth retention is a priority.

97 Complete pulpotomy in symptomatic permanent molars: a 2 year follow-up case series

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¹Kütahya Health Sciences University Faculty of Dentistry, Kütahya, Türkiye, ²Bahçeşehir University Dental Hospital Department of Paediatric Dentistry, Istanbul, Türkiye **Background:** Complete pulpotomy is a vital pulp therapy approach involving removal of coronal pulp tissue while preserving the radicular pulp to maintain pulp vitality. This case series presents the clinical management of moderate pulpitis in mature and immature permanent molars treated with complete pulpotomy.

Case report: Seven systemically healthy patients presented with moderate pulpitis in seven permanent molars with mature and immature apices. Clinical examination revealed deep dentin caries and provoked pain in all cases. Two patients reported spontaneous pain, and none had soft-tissue findings. Radiographic evaluation revealed widening of the periodontal ligament space in four cases.

Treatment: Following the administration of local anaesthesia and rubber-dam isolation, caries removal was performed, which resulted in pulp exposure. A decision was made to proceed with a complete pulpotomy due to the condition of the pulp tissue and the inability to achieve haemostasis during the partial pulpotomy attempt. Haemostasis was obtained using sterile saline solution, followed by disinfection with 2% sodium hypochlorite. MTA was applied over the pulp tissue, covered with a resin-modified glass-ionomer cement, and restored with composite resin.

Follow-up: Clinical and radiographic evaluations were conducted at 6, 12, and 24 months. All cases remained asymptomatic, with no clinical or radiographic pathology. Continued root development was observed in immature teeth.

Conclusion: Complete pulpotomy may be considered a conservative treatment technique for deeply carious teeth, even with spontaneous pain and complete apical maturation, provided that appropriate case selection and ideal isolation are ensured.

111 Full coronal pulpotomy using calcium-silicate materials in MIH-affected first permanent molars in children: a case series

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¹KBPD-KIMS, Kuwait **Background:** Molar incisor hypomineralisation (MIH) is a qualitative enamel defect affecting first permanent molars (FPMs), predisposing them to hypersensitivity, rapid caries progression, and early pulpal involve-

ment. Histological evidence demonstrates underlying pulpal inflammation in MIH-affected teeth, complicating treatment decisions. Vital pulp therapy (VPT), particularly pulpotomy in MIH-affected molars, has emerged as a biologically conservative approach, with reported success rates of up to 86% over 24 months, and may be considered in reversible and selected irreversible pulpitis using calcium-silicate-based materials.

Case reports: This case series included seven MIH-affected FPMs, six diagnosed with reversible pulpitis and one with features consistent with irreversible pulpitis, in healthy children aged 7–10 years. Treated teeth involved maxillary and mandibular FPMs on both right and left sides, with patient behaviour ranging from Frankl ratings F1–F4.

Treatment: All cases were treated by a single operator. Local anaesthesia with rubber dam isolation and 3.5× magnification loupes was used in all cases, with inhalation sedation employed as an adjunct pharmacological behaviour management technique in three cases. Full coronal pulpotomy was performed using calcium-silicate-based bio-ceramic materials (NeoPutty® and TotalFill®). All teeth were restored with Smart Dentine Replacement (SDR) as a base, followed by stainless steel crowns as definitive restorations.

Follow-up: Over a mean follow-up period of 15 months, all treated teeth demonstrated favourable clinical and radiographic outcomes.

Conclusion: Full coronal pulpotomy using calcium-silicate-based materials appeared to be a viable and biologically conservative treatment option for MIH-affected FPMs presenting with reversible and selected cases of irreversible pulpitis.

113 Pectin's impact on SHED stem cells viability and mineralisation for regenerative endodontic applications

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¹Paediatric Dentistry, School of Dentistry, University of Leeds, Leeds, United Kingdom, ²Division of Oral Biology, School of Dentistry, University of Leeds, Leeds, United Kingdom **Aim:** Regenerative endodontic therapy (RET) is a treatment for non-vital immature teeth. Despite advancement, challenges persist in eliminating bacterial biofilms while maintaining cell-friendly environments to promote root growth. Natural materials such as pectin offer alternatives to overcome limitations of current intracanal medications. This study aims to confirm biocompatibility and mineralisation ability of pectin with SHED stem cells for potential RET application.

Methods: SHEDs (n=4) were seeded on monolayers and bovine dentin slices coated with 2% pectin hydrogel

from Herbstreith & Fox (Germany). Cell viability, proliferation, and cytotoxicity were assessed at 24 h, 3, 7 days. Calcium nodule formation was assessed using Alizarin Red Stain (ARS) and quantification assay at 14 and 28 days. Data were analysed using two-way ANOVA with Tukey's test or Kruskal–Wallis and Dunn's tests by GraphPad Prism.

Results: SHEDs maintained a similar viability to the control group (uncoated group) at all time points. The proliferation rate in the pectin group was higher than that in the control group at 3 and 7 days. The Pectin coated group showed a slightly higher cell death rate than the control group at 24 h and 3 days. However, this decreased significantly after cell acclimatisation at 7 days. The pectin-coated samples showed higher ARS and higher quantities of minerals than the uncoated controls at 14 and 28 days (P=0.0443).

Conclusion: This study confirmed Pectin's biocompatibility and mineralisation ability with SHED cells, indicating possible use of pectin hydrogels with SHED stem cells in RET for children and young adults.

171 Evaluation of the 2 year clinical and radiological success of pulpotomy treatments performed with Proroot MTA, Neoputty MTA and Theracal PT in primary teeth

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¹Necmettin Erbakan University, Faculty of Dentistry, Department of Paediatric Dentistry, Konya, Türkiye, ²Specialist in Paediatric Dentistry, Private Practice, Adana, Türkiye **Aim:** This study was designed to evaluate the two year follow-up of pulpotomy treatments performed using three different materials.

Methods: Children aged 4–10 years who attended our paediatric dentistry clinic were included in the study. Pulpotomy treatment was performed on 61 lower primary molars, randomly assigned to three different material groups: Pro-Root MTA (Group 1), NeoPUTTY (Group 2) and TheraCal PT (Group 3). All procedures were performed by a single operator. Follow-up evaluations were conducted at 9 and 24 months. The data were analysed using IBM SPSS Statistics and the level of statistical significance was set at $p < 0.05$.

Results: At 9 months, clinical success was 100% in Groups 1 and 2 with one failure (5.6%) in Group 3; however, no significant differences were found between groups in clinical ($p=0.371$) or radiographic outcomes ($p=0.320$). Radiographic success was 86.5% and although lower in Group 3 (76.5%), the difference was not significant. At 24 months, all groups showed 100% clinical success. Radiographic success also did not differ significantly between groups ($p=0.270$), with an overall rate of 91.7%. Complete radiographic success was achieved in Group 1 while limited failures (13.3%)

occurred in Groups 2 and 3. Intra-group changes over time were not significant ($p = 1.000$).

Conclusions: Radiographic failure rates decreased over time, likely reflecting pulp–periapical healing. The best outcomes at 9 and 24 months were achieved with ProRoot MTA while NeoPUTTY and Theracal PT demonstrated similar performance.

233 The uses of vital pulp therapy in the management of deep caries in posterior permanent teeth in children and young adult's cross-country survey

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¹University Of Liverpool, Liverpool, United Kingdom, ²Newcastle University, Newcastle, United Kingdom **Aim:** To explore paediatric dentists' management of deep carious lesions in posterior permanent teeth in children.

Methods: A cross-sectional online survey incorporating clinical vignettes was conducted. Ethical approval was obtained prior to data collection. The survey was designed by the primary researcher in collaboration with the research team, then piloted and reviewed to ensure clarity and content validity. It was distributed internationally via paediatric dentistry associations and professional networks. The questionnaire collected demographic and professional characteristics, Likert-scale responses exploring perceptions of pulpotomy success, evidence and training needs, and vignette-based treatment planning decisions across staged clinical scenarios. Data were analysed descriptively.

Results: A total of 206 responses were analysed from clinicians practising in the UK, Europe, Arab countries, North America, Australia, and other regions. Vital pulp therapy, particularly coronal pulpotomy, was commonly selected for asymptomatic teeth. As symptoms progressed, treatment shifted towards root canal treatment and extraction, with extraction more frequently selected under general anaesthesia. Practice setting influenced decision-making: hospital/public clinicians favoured pulpotomy, community services showed higher extraction rates, and private selected root canal treatment more often. Regional differences were observed. UK respondents selected extraction more frequently in symptomatic and general anaesthesia scenarios. European clinicians demonstrated patterns broadly similar to the UK. Arab countries showed greater preference for tooth preservation. Inclusion of a congenitally missing premolar increased selection of tooth-preserving approaches.

Conclusion: While Vital pulp therapy is widely considered, differences in treatment selection highlight the need for consistent training, clearer guidance, and stronger long-term evidence to support its use in paediatric dental practice.

295 Regenerative endodontic management of traumatic crown fractures in a child with dravet syndrome under general anaesthesia—case report

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¹Semmelweis University, Budapest, Hungary **Background:** Management of dental trauma in children with severe neurological disorders is clinically challenging due to limited cooperation and increased treatment complexity. This case report presents the use of regenerative endodontic therapy for traumatic crown fracture in a child with Dravet syndrome.

Case report: An 8 year-old girl diagnosed with Dravet syndrome was referred to the Department of Pedodontics and Orthodontics, Semmelweis University one week after dental trauma affecting both maxillary central incisors. Clinical and radiographic examination revealed a non-complicated crown fracture of the left, and non-complicated crown fracture with subluxation and periapical lesion of the right central incisor. Due to severe behavioural management difficulties associated with the patient's neurological condition, treatment was planned under general anaesthesia.

Treatment: The right central incisor underwent a regenerative endodontic procedure following current protocols. After minimal mechanical instrumentation, chemical disinfection was achieved using low-concentration sodium hypochlorite, followed by saline irrigation. Intracanal medication with calcium hydroxide was placed. After 4 weeks at a subsequent stage, bleeding was induced to create a scaffold, and a bioceramic material was applied as a coronal barrier before definitive restoration. Both central incisors received composite restorations to re-establish aesthetics and function.

Follow-up: Clinical and radiographic follow-ups at 3 and 6 months showed absence of symptoms, satisfactory healing on radiographical image, and stable restorations.

Conclusion: Regenerative endodontic therapy under general anaesthesia represents a viable treatment option for managing dental trauma in paediatric patients with complex medical conditions, supporting tooth preservation of immature permanent teeth and favourable short-term outcomes.

388 Decoronation of severely destroyed immature permanent teeth: two case reports

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¹University of Health Sciences, Gülhane Faculty of Dentistry, Department of Paediatric Dentistry, Ankara, Türkiye **Background:** Severe coronal destruction of immature permanent

anterior teeth in growing patients may lead to early tooth loss, compromising alveolar ridge development and future prosthetic rehabilitation. Even in cases where the tooth is deemed non-restorable, retention of the root within the alveolar bone plays a critical role in preserving alveolar bone volume. Decoronation is a conservative surgical approach that maintains the root within the alveolus, promoting continued bone development during growth.

Case report: Two systemically healthy male patients aged 10 and 13 years presented with aesthetic concerns. Clinical and radiographic examination revealed extensive crown destruction in the maxillary canine of the younger patient and the maxillary central incisor of the older patient, both with incomplete root development. In the first case, Turner hypoplasia was suspected. Due to subgingival extension of coronal loss, both teeth were deemed non-restorable.

Treatment: Under local anaesthesia, coronal remnants were removed at the gingival level. A horizontal incision and mucoperiosteal flap elevation were performed. The roots were reduced to the level of the surrounding alveolar crest. Pulp tissue was extirpated, and apical bleeding was induced to allow clot formation. Flaps were repositioned and sutured for primary closure. Temporary aesthetic rehabilitation was provided using removable appliances.

Follow-up: Clinical and radiographic evaluations at 1, 3, 6, and 9 months and at 1 year demonstrated absence of symptoms, pathological mobility, or space loss. Radiographs confirmed preservation of alveolar bone height and maintenance of ridge contour.

Conclusion: Decoronation is a predictable and effective approach for preserving alveolar ridge volume in growing patients with non-restorable immature permanent teeth, facilitating future definitive prosthetic rehabilitation while maintaining bone contour during growth.

400 Clinical and radiographic outcomes of Odontopaste versus triple antibiotic paste in lesion sterilisation and tissue repair: a 6 month randomised controlled trial

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¹Faculty of Dentistry UITM, Malaysia, Selangor, Malaysia, ²Ministry of Health, Putrajaya, Malaysia **Aim:** To evaluate and compare the 6 month clinical and radiographic outcomes of Odontopaste® and Triple Antibiotic Paste (TAP) in lesion sterilisation and tissue repair (LSTR) therapy.

Methods: This single-blinded randomised controlled trial included primary molars diagnosed with irreversible pulpitis or pulp necrosis in children aged 5–9 years. Teeth were randomly allocated to Odontopaste® (n = 22) or TAP (n = 21). Clinical evaluations were conducted at 1 week, 3 months,

and 6 months; radiographic assessment was performed at 6 months. Clinical success was defined as absence of pain, tenderness, swelling, sinus tract, and abnormal mobility. Radiographic success was defined as reduction or absence of periapical/furcation radiolucency without progression of pathological resorption. Analyses followed the intention-to-treat principle, with missing 6-month outcomes considered failures. Regression modelling accounted for clustering of multiple teeth within patients. Statistical significance was set at $p < 0.05$.

Results: All 43 randomised molars were analysed. Two TAP teeth lost to follow-up were classified as failures. At 6 months, clinical success was observed in 86.4% (19/22) of teeth treated with Odontopaste® compared with 66.7% (14/21) in the TAP group (RR = 1.30; 95% CI: 0.92, 1.83). Radiographic success rates were 77.3% (17/22) for Odontopaste® and 66.7% (14/21) for TAP (RR = 1.16; 95% CI: 0.79, 1.69) with no significant differences between the groups for both outcomes ($p > 0.05$).

Conclusions: Odontopaste® showed higher, though not statistically significant, clinical and radiographic success compared with TAP at 6 months and may be considered a potential alternative intracanal medicament for LSTR therapy. Further larger-scale trials with longer follow-up are recommended.

404 Fabrication of PCL-based zinc oxide eugenol point for root canal sealing of primary teeth

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¹Department of Paediatric Dentistry, Faculty of Health Sciences, School of Dentistry, Aristotle University of Thessaloniki, Thessaloniki, Greece, ²Department of Prosthodontics, Faculty of Health Sciences, School of Dentistry, Aristotle University of Thessaloniki, Thessaloniki, Greece **Aim:** The aim of this study was to fabricate and characterise a novel resorbable zinc oxide–eugenol (ZOE) point incorporating polycaprolactone (PCL), designed for endodontic treatment of primary teeth.

Methods: Experimental ZOE–PCL cones were fabricated by incorporating 1 ml of 5% PCL (80 kDa), dissolved in acetic acid, into a ZOE system consisting of 0.09 g zinc oxide powder and 36 µL eugenol. The formulation was optimised to achieve suitable flexibility and handling, and manually shaped into tapered cones. Chemical composition was analysed using ATR-FTIR, crystallinity was determined by X-ray Diffraction (XRD), and surface morphology was examined by Scanning Electron Microscopy (SEM). Pre-conditioning in DMEM for 4 days was performed to remove residual acetic acid. Cytocompatibility was evaluated using MTT assay on human periodontal ligament cells at 24 and

72 h (concentrations 1, 5, 10 mg/ml), and compared with conventional ZOE. Statistically significant differences were determined using t-test ($p < 0.05$).

Results: ATR-FTIR confirmed characteristic PCL, eugenol, and ZnO functional groups, indicating successful integration without chemical degradation. XRD analysis revealed diffraction peaks consistent with zinc acetate and PCL. SEM demonstrated a compact, non-porous surface with rough texture and EDX confirmed the presence of Zn, O, and C. MTT assay showed that the experimental formulation at the lowest concentration exhibited the highest cell viability at both time points, suggesting enhanced metabolic activity and cytocompatibility ($p < 0.05$).

Conclusions: The fabricated ZOE–PCL material demonstrated favourable chemical integrity, improved cytocompatibility, and appropriate handling properties, supporting its potential as a resorbable, point-form obturation material for primary teeth.

415 Radiographic assessment of periapical healing following root canal treatment using fractal analysis: a case series in paediatric patients

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¹Department of Paediatric Dentistry, Faculty of Dentistry, Izmir Katip Celebi University, Izmir, Türkiye **Background:** Periapical lesions are commonly associated with pulpal infections, and assessment of periapical healing can be performed using qualitative methods such as the Periapical Index (PAI) and quantitative approaches like fractal analysis. This case series aimed to evaluate the clinical outcomes of conventional root canal treatment in teeth with periapical lesions and to assess periapical healing using PAI and fractal analysis over a nine-month follow-up period.

Case reports: This case series included 9–13 year-old patients presenting with mandibular-first-molars (teeth 36 and 46) exhibiting periapical lesions classified as PAI 3 or PAI 4, for which root canal treatment was indicated.

Treatment: Standardisation of periapical radiographs was achieved using customised bite blocks and are-operative radiographs were obtained accordingly. Root canal treatments were performed in accordance with the guidelines of the American Association of Endodontists. Post-operative periapical radiographs were acquired at 6 and 9 months using the same protocol. Regions of interest (ROIs) in the periapical areas were defined using ImageJ software and fractal analysis measurements were performed using the box-counting-method. Clinical and radiographic assessments were conducted at baseline and follow-up visits.

Follow-up: At the final follow-up (9 months), there were no clinical signs of mobility, sensitivity to percussion/

palpation. Radiographic evaluation revealed a reduction in periapical lesions, which was demonstrated qualitatively by PAI scoring and quantitatively by fractal analysis.

Conclusion: Fractal analysis may serve as an objective quantitative adjunct to PAI in evaluating periapical healing after root canal treatment, potentially reducing observer-dependent variability in radiographic assessment.

431 Inflammation alters the phenotype and immunomodulatory function of human dental pulp stem cells

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¹ELOHA (Equal Lifelong Oral Health for All) Research Group, Paediatric Dentistry, Oral Health Sciences, Ghent University Hospital, Ghent, Ghent, Belgium, ²Radiobiology Lab, Department of Human Structure and Repair, University of Ghent, Ghent, Belgium **Aim:** To evaluate the influence of pulp inflammation and isolation technique on the viability, mesenchymal phenotype and immunomodulatory function of human dental pulp stem cells (DPSCs).

Methods: Pulp tissue from 38 patients (49 extracted teeth) from healthy ($n = 16$) and inflamed pulp ($n = 33$) underwent isolation attempts using three approaches: snap-freezing with mechanical fracture, bone-cutter sectioning at the cemento-enamel junction and coronal pulp extirpation during pulpotomy. Early proliferation was assessed by confluency at days 6, 10 and 14. Viability and metabolic activity were analysed using live–dead staining and MTT assay. Flow cytometry quantified MSC-associated markers (CD73, CD90, CD105) and exclusion markers (CD14, CD19, CD34, CD45, HLA-DR). Immunomodulatory capacity was investigated by co-culture of PHA-activated, CellTrace-labelled T lymphocytes with DPSCs, with T-cell proliferation measured by flow cytometry. Statistical analysis used Kruskal–Wallis with Dunn post-hoc and Mann–Whitney U test ($\alpha = 0.05$).

Results: No viable cells were obtained following snap-freezing. Viable cultures were established in 70% of bone-cutter preparations and 31.6% of extirpation preparations (success rates calculated within each technique). Healthy samples showed higher confluency than inflamed samples at day 6 ($p = 0.0060$) and day 10 ($p = 0.0025$). All cell lines were CD73 positive ($> 99\%$), but inflamed samples showed lower CD90 (51.0–76.1%) and CD105 (16.0–46.4%) and fewer CD73, CD90 and CD105 triple-positive cells (15.8–44.2%) compared with healthy controls (95.9–97.9%). Co-culture experiments indicated reduced T-cell proliferation with healthy DPSCs, whereas inflamed DPSCs showed limited suppression.

Conclusion: Viable DPSCs can be isolated from inflamed pulp by bone-cutter and extirpation techniques.

Inflammation reduced MSC marker co-expression and impaired in-vitro T-cell suppression.

462 Endodontic treatment of type III coronal dens invaginatus with periradicular lesions in young permanent teeth

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¹Department of Paediatric Dentistry, College of Stomatology, Xi'an Jiaotong University, Xi'an, China **Background:** Dens invaginatus (DI) is a developmental dental anomaly, with its clinical manifestations and therapeutic strategies varying significantly according to its type and severity. Type III DI is recognised as one of the primary etiological factors leading to peri-radicular infection. This report presents a series of cases regarding the endodontic management of type III DI accompanied by peri-radicular lesions in young permanent teeth.

Cases report: Four patients diagnosed with type III coronal dens invaginatus (CDI) and concurrent peri-radicular lesions were enrolled in this study.

Treatment: Following comprehensive oral clinical examinations and radiographic evaluations, all patients received endodontic treatment. Among them, three cases underwent endodontic access to the invaginated canals, followed by chemomechanical instrumentation, intracanal medication, obturation, and additional periodontal surgical procedures when clinically indicated. The remaining patient underwent simultaneous endodontic treatment for both the invaginated canal and the main root canal.

Follow-up: Long-term follow-up (ranging from 1 to 3 years) revealed that all patients remained free of clinical symptoms and positive clinical signs. Radiographic examinations demonstrated a reduction or complete resolution of periapical radiolucency, along with normal pulp vitality in the affected teeth.

Conclusion: Through effective disinfection and obturation of the invaginated canal, the pulp vitality of teeth affected by type III CDI can be preserved with minimal damage to the tooth structure. This therapeutic approach is conducive to promoting the continued root development of young permanent teeth.

466 Antimicrobial efficacy of irrigation solutions in endodontic treatment of permanent teeth in children

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¹Department of Paediatric Dentistry, Bukovinian State Medical University, Chernivtsi, Ukraine **Aim:** To evaluate the

effectiveness of various irrigants for endodontic treatment of permanent teeth in children and adolescents.

Methods: The study was conducted in 178 children aged 6–17 years with irreversible pulpitis of permanent teeth, taking into account the stages of root system formation, dentine mineralisation and the apical zone. Three clinical groups were formed depending on the irrigation protocol: Group 1 – standard (2% chlorhexidine + 17% EDTA without activation, n = 50); Group 2 – comparison (6% sodium hypochlorite (NaOCl) + 7% maleic acid (MA) without activation, n = 64); Group 3 – main (6% NaOCl + 7% MA + Er:YAG laser activation, n = 64). The antimicrobial activity of the solutions was studied using a ‘dentine dust suspension’ model. The agar-well diffusion method was used to measure the growth inhibition zones (GIZ, mm). For each irrigant, 6 replicates were performed. Statistical data processing: IBM SPSS Statistics 26.0 and GraphPad Prism 9.0.

Results: The study demonstrated the highest antimicrobial efficacy in Group 3. This combination provided the highest GIZ values (> 20 mm) for the microorganisms studied (*E. faecalis*, *P. aeruginosa*, *C. albicans*, *E. coli*, *S. epidermidis*), confirming the presence of a pronounced synergistic effect between the chemical action of irrigation agents and the physical hydrodynamic activation of laser radiation.

Conclusions: The proposed combined approach — a combination of NaOCl, maleic acid and erbium laser — can be recommended for optimising endodontic treatment for permanent teeth in children, as it provides high disinfection efficiency while maintaining the bio-mechanical integrity of dentine.

Topic 11. Growth and development

39 Non-invasive ultrasound assessment of temporomandibular joint involvement in juvenile idiopathic arthritis: a prospective study

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¹Department of Biomedical, Surgical and Dental Sciences, Milan University, Milan, Italy, ²Fondazione IRCCS Cà Granda Ospedale Maggiore Policlinico, Milan, Italy **Aim:** Juvenile idiopathic arthritis (JIA) is a chronic autoimmune disease in which the temporomandibular joint (TMJ) is frequently involved. If left untreated, TMJ involvement may lead to significant symptoms and functional impairments. The aim of this study was to evaluate the reliability of ultrasound (US) imaging in monitoring TMJ involvement in patients diagnosed with JIA and to assess its ability to detect different pathological alterations.

Methods: Patients with a previous diagnosis of JIA were enrolled in this prospective observational study. All

participants underwent a comprehensive US examination of the TMJ to investigate pathological features such as condylar profile abnormalities, erosive changes, bone apposition, osteophyte formation, disc displacement, and soft tissue alterations. Examinations were performed independently by two experienced operators who were blinded to clinical data. US findings were compared with clinical signs and conventional imaging to calculate sensitivity, specificity, and predictive values.

Results: A total of 46 patients (39 females and 7 males), aged between 7 and 19 years, were included. Among them, 15% were asymptomatic despite showing discordant findings, while 85% presented at least one TMJ manifestation. Sensitivity, specificity, and negative predictive value (NPV) of US in detecting TMJ involvement were calculated using conventional imaging as the reference standard.

Conclusions: Ultrasound demonstrated good agreement with conventional diagnostic methods; however, it cannot replace traditional imaging techniques for diagnostic purposes. Nevertheless, US appears to be a valuable non-invasive tool for monitoring TMJ-related secondary changes in JIA during routine follow-up, offering advantages such as low invasiveness, cost-effectiveness, and real-time dynamic assessment.

57 A systematic review, meta-analysis and survey exploring parent/carer support for dental teams to provide weight screening and refer children to behavioural weight management programmes

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¹Centre for Lifestyle Medicine and Behaviour, Loughborough University & School of Clinical Dentistry, The University of Sheffield, Sheffield, United Kingdom, ²Centre for Lifestyle Medicine and Behaviour, Loughborough University, Loughborough, United Kingdom **Aim:** A systematic review and meta-analysis synthesised the views of the public and dental teams on delivering behavioural weight management interventions in dental settings. Acceptability amongst the public of weight management interventions was explored in a survey.

Methods: Five databases were searched for the systematic review (PROSPERO: CRD42022323478) from inception to April 2023. Proportional meta-analyses and thematic analysis were used to summarise data. For the survey, participants were recruited from 22 dental sites in England and NIHR—Be Part of Research. Descriptive statistics, logistic regression and thematic analysis summarised data.

Results: 7851 studies were screened and 33 were eligible for inclusion. The average frequency of BMI screening reported by dental teams for children was 15% ($p < 0.01$; 95% CI:3, 33). A significant proportion of the public were

supportive of weight screening (83%; 95% CI:76, 88) and discussion (85%; 95% CI:70, 96) in dental settings. Enablers of weight discussion included associating weight with oral health. 3580 adult participants completed the survey; 23.8% ($n = 815/3423$) had a child < 18 years. 57.5% ($n = 399/694$) parents/carers reported they would be comfortable with their child(ren)'s weight/height being measured at dental appointments. The most common reason for being unsure/not wanting children's measurements taken was their child being in good health/no weight-related concerns ($n = 123$). Acceptable dental-led support for children to grow into a healthy weight included referral to the child's GP for support ($n = 448/672$, 66.7%) and information/referral to local weight management programmes ($n = 417/671$, 62.1%; $n = 379/662$, 57.3%).

Conclusion: Parents/carers appear receptive to weight screening and support for their children in dental settings.

119 Dental effects from radiotherapy, presenting in a 10 year-old patient: a case report

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¹University of Glasgow, Dental Hospital & School, Glasgow, Scotland, United Kingdom, ²The Royal Hospital for Children, Greater Glasgow & Clyde NHS Trust, Glasgow, Scotland, United Kingdom **Background:** Children with cancers of the head and neck may receive radiotherapy. Unfortunately, exposed fields can include tooth bearing areas. This case demonstrates the effects over time, radiotherapy may have on children's dentitions.

Case report: Patient M is a female patient, diagnosed in 2017 with a Rhabdoid tumour of the neck, metastasising locally and in her lungs. At 2 years old, she received chemotherapy and radiotherapy of 54 Gy, 30 fractions, in November 2017. Exposed areas of radiotherapy included extensive mandibular and maxillary regions, substantially prior to skeletal maturation. This brings significant risk of: Osteoradionecrosis (ORN), hypodontia, hypoplasia, aplastic mandibular and maxillary growth, xerostomia and mucosal fibrosis or scarring. These often present as late effects. At 10 years old, her diagnosis included: poor oral hygiene, hypoplastic first premolars, crowding in her upper left labial segment, hypodontia of lower second premolars, and incomplete root development of mandibular incisors and all first permanent molars.

Treatment: Following attendance and planning at Glasgow's Joint Orthodontic Paediatric dental clinic, a formulated treatment plan prioritised prevention and maintenance of her dentition. Regular exams with radiographic reviews will detect any pathological changes. Treatment included preventative sealants and oral hygiene advice.

Follow-up: long-term planning for the eventual loss of first permanent molars.

Conclusion: This case demonstrates both the effects of radiotherapy on a growing child and their teeth, and the need to prioritise prevention, to enable maintenance of the dentition. The history, presentation and management of this case is informative for paediatric dentists Internationally.

134 Labial frenectomy: indications and contraindications. Developing a local protocol in a Secondary Care Hospital

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¹Mid Yorkshire Teaching NHS Trust, Wakefield, United Kingdom **Background:** The labial frenum is soft tissue consisting of muscle and connective tissue that attaches the upper lip to the labial gingivae of maxillary central incisors. Labial frenectomy is the surgical procedure involving complete removal of the labial frenum. The Oral and Maxillofacial Surgery department (OMFS) at Pinderfields Hospital, Wakefield regularly receives referrals from general dental practitioners and orthodontic specialists for patients showing signs and symptoms indicating possible need for labial frenum assessment.

Methods: A review of current evidence regarding labial frenectomies in adults and paediatric patients was completed followed by expert consultation with orthodontic, paediatric, oral surgery and OMFS clinicians to create a local protocol.

Results: A local level protocol was agreed upon using the existing evidence and expert opinion. **Conclusion:** The current level of evidence indicating the need for labial frenectomy is poor with some common themes. Clinical considerations identified included midline diastema closure, oral hygiene disruption, breastfeeding issues, patient age and altered frenum morphology. A higher level of evidence is required to assess indications, contraindications and appropriate timing of labial frenectomies to ultimately improve patient care.

141 A case report: dental abnormalities presenting 6 years post bone marrow transplant

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¹Bristol Dental Hospital, Bristol, United Kingdom **Background:** Bone marrow transplant (BMT) is a highly successful treatment for Acute Lymphoblastic Leukaemia. Pre-transplant conditioning treatments prepare the recipients body for BMT and usually involve high doses of chemotherapy and total body irradiation. This can have a profound effect on dental development in paediatric patients.

Case report: This case report details a 9 year-old child, diagnosed with Acute Lymphoblastic Leukaemia, who underwent BMT aged 3. A pre-BMT dental screening took place in 2019, and no dental pathology was detected. Conditioning treatment involved total body irradiation and chemotherapy. Current medications include penicillin V, vitamin D and hydrocortisone, with an allergy to Vancomycin. In 2024, patient was referred for a dental assessment. Dental abnormalities of permanent incisors and first permanent molars were seen, with a typical MIH appearance. However, radiographs revealed very short, conical roots. As more permanent teeth erupt, the full extent of their dental defects became evident.

Treatment: Initial treatment involved acclimatisation and restorations of enamel defects, using resin composites and fissure sealants, with nitrous oxide inhalation sedation. Steroid cover was required for treatment involving local anaesthetic. The provisional long-term plan involves placing onlays once molars and premolars are sufficiently erupted.

Follow-up: Patient remains under three-month reviews by the paediatric dentistry team.

Conclusion: Ameloblasts and odontoblasts are damaged from irradiation and chemotherapy, resulting in dental abnormalities. Coupled with a history of invasive medical interventions, children often experience medical anxiety and require specialist dental care. A multidisciplinary approach for ongoing assessment and protection of the developing dentition and provision prosthetic replacements.

168 The development of an online tool for radiographic tooth stage reliability

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¹Queen Mary University of London, London, United Kingdom, ²Universiti Malaya, Kuala Lumpur, Malaysia **Aim:** All dental age estimation studies using radiographs require a measure of reliability. The aim of this study was to develop an online tool for researchers to test and quantify their tooth stage reliability using Demirjian, Goldstein and Tanner (1973) tooth stages.

Methods: A scoping review determined that Demirjian staging was the most common dental age estimation method used in the literature. Where reliability measurements were undertaken, a sample of between 20 and 200 radiographs were assessed. Mandibular permanent tooth staging of 102 radiographs using the Demirjian method was undertaken. Programme development was carried out using Laravel, powered by Hypertext Preprocessor for the server-side programming and coding, and SQLite for the system's database structure using Structured Query Language. Five sets of 50 radiographs were developed from the original set. The

radiographs were presented in a random order for the first and second staging attempts to minimise recall bias.

Results: The reliability programme was deployed through the QMUL server. Users select how many radiographs they want to score by the Demirjian method. Reliability can be calculated and results presented as Cohen's kappa and weighted kappa coefficients. User feedback using questionnaires was carried out among postgraduates and experts in Forensic Dentistry to optimise the programme.

Conclusion: This online tool for quantifying mandibular permanent tooth stage reliability using Demirjian's method has potential for both research and training.

174 The association between caries and root resorption of primary mandibular molars and developing premolars in a split-mouth radiographic study

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¹Queen Mary University of London, London, United Kingdom, ²Ministry of Health, Botswana **Aim:** Previous studies have shown an association between apical bone loss of primary molars and premolar development. The aim was to investigate the effect of caries on root resorption of primary molars and on the development of premolars.

Methods: This retrospective split-mouth study analysed 116 panoramic radiographs of children aged 3–11 years, comprising of 152 carious mandibular primary molars (82 females, 70 males). Carious lesions were scored using ICCMS radiographic scoring criteria, and teeth were included if caries extended at least into the middle third of dentine. For primary molars, remaining root length was measured, and for premolars, vertical distance to the occlusal plane was recorded, both using ImageJ software. Premolar developmental stage was assessed according to Nolla's criteria. Side-to-side differences between carious and contralateral sound molars were evaluated using paired t-tests and Wilcoxon signed-rank tests, with the level of significance set at $p < 0.05$.

Results: Carious primary mandibular molars had significantly shorter remaining root length than their contralateral sound molars on linear measurement ($p < 0.001$). Premolars replacing carious molars showed a small but statistically significant difference in Nolla developmental stage compared with premolars replacing caries-free molars ($p = 0.014$). There was no statistically significant difference in vertical eruption distance between premolars adjacent to carious versus sound predecessors ($p = 0.166$).

Conclusions: Caries with periapical pathology is associated with greater root resorption but exerts limited influence on the intrinsic developmental timing and eruption position of succedaneous premolars within the age range studied.

259 Surface electromyography assessment of oral muscle activity in children with autism spectrum disorders: a pilot study

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¹Department of Oral, Surgical and Dental Sciences, University of Milan, Milan, Italy **Aim:** Autism spectrum disorders (ASDs) are developmental disorders characterised by deficits in social communication and repetitive behaviours, often accompanied by motor impairments, including altered oral motor function and chewing difficulties. This study aimed to evaluate oral muscle activity in patients with ASDs using surface electromyography (sEMG).

Methods: Patients with ASDs and age-matched controls were evaluated using sEMG (Kinelock Dental®). Recordings were obtained at rest and during maximum inter-cuspation. The following parameters were analysed: IMPACT (muscle force), BAR (baryCentre), POC TA and MM (percentage overlapping coefficient of anterior temporalis and masseter muscles), TORS (torsion), and KOI (Kinelock Overall Index). Due to non-normal data distribution, group comparisons were performed using the Kruskal–Wallis test.

Results: Twenty-seven participants were included (15 controls and 12 ASDs patients), aged 10–14 years. The mean values for ASDs vs controls were the following: POC TA (82.0 vs 82.4), POC MM (83.3 vs 85.9), BAR (85.2 vs 90.1), TORS (90.1 vs 90.1), ASIM (0.6 vs -0.5), IMPACT (136.0 vs 105.7), KOI (76.1 vs 78.6). No statistically significant differences were observed between groups for any of the parameters (all $p > 0.05$). However, IMPACT values exhibited a wider range in the ASDs group (45.9–487.3) vs controls (44.2–231.6), indicating greater variability in muscle force among ASDs participants.

Conclusions: Although no statistically significant group differences were identified, the increased variability observed in some sEMG parameters in the ASDs group warrants further clarification. Given the pilot nature of this study, further investigations with larger cohorts are required to draw definitive conclusions.

298 Restorative management of a unilateral anterior open bite caused by ankylosis of an autotransplanted palatally impacted canine: multidisciplinary case report

Joseph Thompson¹

¹Barts Health NHS Trust, London, United Kingdom **Background:** Canine impaction reportedly affects 1.5% of the population and requires multidisciplinary management due to its variable aetiology and the complexity of surgical,

orthodontic and restorative treatment options. Autotransplantation is the most invasive surgical option for maintaining an immovable canine, however the associated risks include ankylosis, root resorption, and endodontic complications, which may necessitate secondary intervention. One systematic review reports canine survival rates of up to 67.9% after 21 years, with established prognostic factors including apex status, extra-oral time and stage of root formation.

Case report: A medically healthy 13 year-old female was referred to the Royal London Dental Hospital regarding a palatally impacted upper left permanent canine. Following attendance at a multidisciplinary clinic, surgical autotransplantation was employed without complication. Post-operative endodontic treatment was deemed inappropriate. Three years later the patient was re-referred by their orthodontist regarding an inability to mobilise the autotransplanted canine. On re-presentation the upper left incisors and canine were infraoccluded due to ankylosis of the canine, creating a unilateral anterior open bite.

Treatment: Minimally invasive restorative treatment was favoured, with diagnostic wax ups approved prior to direct composite bonding by injection moulding, to close the inter-arch space. Pre/post-op clinical photos are available.

Follow-up: Subsequent orthodontic treatment was not required as the patients' aesthetic and functional concerns were addressed. The patient was discharged to her general dentist for routine maintenance.

Conclusions: The importance of multidisciplinary management of impacted canines is highlighted, with focus given to the patient's specific aesthetic and functional concerns to avoid over-treatment.

411 'Say Ahhhhh': a delayed presentation of soft palate cleft in a 9 year-old patient

Sara Najim¹, Carly Dixon¹, Lucy McClean¹

¹Manchester Foundation Trust, Manchester, United Kingdom Background: Early identification of cleft palate in the United Kingdom is supported by antenatal ultrasound screening and routine neonatal examinations, as undetected clefts can contribute to feeding difficulties, speech abnormalities, and psychosocial challenges. The Royal College of Paediatrics and Child Health recommends examination of the palate within 72 h of birth and again at 6–8 weeks, with reassessment within 24 h if the soft palate cannot be adequately visualised. Despite these measures, isolated soft palate clefts may occasionally remain undiagnosed. **Case report:** This case report describes an incidental finding in a 9 year-old patient presenting with dental trauma. A 9 year-old patient was referred for assessment of trauma to the upper right central incisor (UR1).

Treatment: During comprehensive intra-oral examination, a cleft of the soft palate was identified. The patient was born in the UK and had no prior specialist assessment. Communication barriers at the initial appointment, combined with the absence of an interpreter, limited detailed history-taking. At a subsequent review with link-worker, the patient's mother reported hyper-nasal speech compared with siblings and episodes of fluid escaping through the nose.

Follow-up: The patient was referred to the regional cleft multidisciplinary team for consultant-led assessment and consideration of surgical management.

Conclusion: This case illustrates that isolated soft palate clefts may remain undetected despite established screening pathways in the UK. It emphasises the importance of thorough soft tissue examination during dental assessments and highlights the clinician's responsibility to recognise incidental findings and initiate timely multidisciplinary referral to support optimal long-term functional outcomes.

420 Oral health in children and young people with type 1 diabetes mellitus

Shaikha Salim Saif Al Marhubi¹, Siobhan M. Lucey¹, Mairead Harding², Colin P Hawkes³, Micheal Cronin⁴

¹Oral Health and Development, Cork University Dental School and Hospital, Cork, Ireland, ²Oral Health Services Research Centre, University College Cork, Cork, Ireland, ³Paediatrics and Child Health, University College Cork, Cork, Ireland, ⁴School of Mathematical Sciences, University College Cork, Cork, Ireland Aim: To investigate oral health status of children and young people (CYP) with Type 1 Diabetes Mellitus (T1DM).

Methods: Following ethical approval, CYP aged 8–16 years with T1DM (cases) and healthy siblings (controls) were recruited. Clinical assessments included: d3vcMFT (8–10 years only), D3vcMFT, Gingival Index (GI), Plaque Index (PI). Resting, stimulated flow rates (RFR, SFR), resting salivary pH (RSpH), stimulated saliva buffering capacity (SSBC) were assessed using Saliva-Check Buffer kit (GC Europe N.V.). For cases, continuous glucose monitoring (CGM) data and HbA1C levels were recorded. Data were analysed in SPSS Statistics (Version 29) with $p < 0.05$.

Results: A sample of $n = 41$ (25 cases; 16 controls) was recruited. Caries experience in cases and controls was as follows; mean D3vcMFT 0.4 vs 0.5 and d3vcMFT 0.6 vs 1.3, respectively. Gingival health and oral hygiene were similar in both groups (mean GI 0.44 vs. 0.47, $p = 0.8$; mean PI 0.55 vs. 0.59, $p = 0.7$). There was no difference regarding normal RFR (44% vs. 56%; OR 0.6 (95% CI 0.17–2.16)). Mean SFR (mL/min) were similar (0.94 vs 0.99, $p = 0.8$). A greater proportion of cases demonstrated medium RSpH (52% vs. 38%, OR 1.8 (95% CI 0.5, 6.5)). Correspondingly,

less cases had normal SSBC (40% vs 56%, OR 0.5 (95% CI 0.15, 1.85) but not statistically significant). No associations were found between CGM, HbA1C data and SFR, RSpH, or SSBC ($p > 0.05$).

Conclusions: In this sample, there was no difference in oral health status of CYP with or without T1DM. Further research is required to explore associations between salivary parameters and T1DM.

511 A case of stunted root growth in the lower right posterior segment without a background of significant local or systemic disturbances in an 11 year-old male patient

Cherry Chang¹, **Kirstie Lau**¹, **Ferranti Wong**¹

¹**Royal London Dental Hospital, London, United Kingdom** **Background:** Short root anomalies (SRA) are rare, poorly understood developmental disorders in root formation, affecting 1.3–10 percent of the population. It can be associated with genetic or environmental factors. While affected teeth can remain functional with appropriate management, orthodontic treatment can prove challenging due to reduced periodontal support and increased risk of mobility and resorption during treatment.

Case report: A 11 year-old male patient presented to the paediatric dental department with stunted root development of 46 and 47 with no history of trauma, chemo/radiotherapy or significant long term systematic illnesses. The 45 is found to be hypoplastic. While all first and second premolars have taurodontism. He also presents with a Class 2 division 2 malocclusion.

Treatment: The 45 was restored following CBCT imaging of the right mandible. The patient is currently managed conservatively.

Follow-up: We are awaiting further dental development. His case was discussed at the hypodontia clinic for treatment planning due to guarded prognosis of multiple teeth in the lower right quadrant requiring multidisciplinary input prior to orthodontic management.

Conclusion: This is an interesting case of SRAs affecting multiple teeth in the same quadrant which would benefit from management in a multidisciplinary setting.

Topic 12. Orthodontics

12 Impact of waiting times on paediatric orthodontic referrals to OMFS: a two-cycle comparative study

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¹**Dentist, United Kingdom, ²Dentist, United Kingdom** **Aim:** To evaluate referral quality, waiting times, and treatment-plan concordance in paediatric orthodontic referrals to Oral and Maxillofacial Surgery (OMFS), and to assess the effect of pathway adjustments implemented after the first audit cycle.

Methods: Retrospective comparison of two 3-month audit cycles was conducted. Cycle 1 (January–March 2025) included 25 patients; Cycle 2 (August–October 2025) included 29 patients. Data collected included patient age, referral completeness, need for additional investigations, consistency between referral and final surgical plan, and waiting time from referral to treatment under general anaesthesia (GA). Findings were compared to assess improvements and identify ongoing service pressures.

Results: Cycle 2 demonstrated a younger mean age at referral (12.4 years vs. 13.96 years), suggesting earlier recognition of surgical need within orthodontic care. The proportion of patients requiring further investigations at OMFS review decreased from 60 to 38%, indicating improved referral quality. Treatment-plan discrepancies reduced from 16% in Cycle 1 to 0% in Cycle 2, eliminating last-minute changes which can compromise informed consent and perioperative planning. Despite these improvements, long NHS waiting times persisted: over half of Cycle 2 patients (55%) waited > 12 months for GA, with continued risks of dental movement and altered treatment needs.

Conclusion: Enhanced referral processes improved documentation quality and treatment-plan stability; however, prolonged NHS GA waiting-times remain a major barrier to optimal paediatric care. Expanding the use of local anaesthesia, behavioural management, and inhalation sedation may help reduce reliance on GA and mitigate delays. Ongoing monitoring and service redesign are required to address systemic waiting-time pressures.

20 Multidisciplinary management of a patient with impacted maxillary canines and its associated complications

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¹Department of Orthodontics, Liverpool University Dental Hospital, Liverpool, Merseyside, United Kingdom, ²Department of Paediatric Dentistry, Liverpool University Dental Hospital, Liverpool, Merseyside, United Kingdom **Background:** Impacted maxillary canines present complex diagnostic and management challenges requiring input from multiple specialties. Early identification and coordinated treatment planning are critical to optimise both functional and aesthetic outcomes.

Case report: A 15 year-old male with a Class II Division 1 incisor relationship on a skeletal 2 base with average vertical proportions presented with bilateral impacted maxillary canines with poor prognosis for alignment and a poor prognosis UL6.

Treatment: A multidisciplinary approach was adopted involving oral surgery, paediatric dentistry, orthodontics, and restorative dentistry. The oral surgery team surgically removed both impacted canines as well as the UL6. During extraction, the UR2 became mobile due to a large bony defect, requiring paediatric endodontic intervention. The UR2 was then splinted to the UR1 to maintain stability. Orthodontic treatment was carried out to align the arches and redistribute space to facilitate future prosthetic replacement of the UL3. However, during space closure, the UR4 became ankylosed and required surgical extraction.

Follow-up: Orthodontic treatment optimised space for prosthetic replacement of UR3 and UL3. UR2 was electively extracted and added onto the Hawley retainer at debond. The patient is under review with the restorative team for bone grafting and implant placement in both upper canine regions to replace UR3,2 and UL3.

Conclusion: This case highlights the importance of interdisciplinary collaboration in managing complex cases involving impacted teeth and treatment-related complications. Comprehensive planning and coordinated care ensured a favourable functional and aesthetic outcome despite multiple procedural challenges.

85 Evaluation of anchorage teeth displacement during slow maxillary expansion in mixed dentition: a 3d finite element analysis study

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¹Private Practice, Türkiye, ²Ankara Yıldırım Beyazıt University, Ankara, Türkiye **Aim:** The aim of this study was to evaluate and compare the displacements of anchorage teeth

during slow maxillary expansion (SME) in the mixed dentition period under different clinical scenarios involving varying numbers of available abutment teeth.

Methods: Tooth movements during SME were simulated using three-dimensional finite element analysis (FEA). Four different models were created based on the presence of the permanent first molar and primary first and second molars. Cone-beam computed tomography data were used to construct the models, and analyses were performed with Algor Fempro software. A displacement force of 0.5 mm, corresponding to two activations of a removable expansion plate, was applied in accordance with the SME protocol. Total displacements in the x, y, and z axes were calculated for each tooth.

Results: The greatest displacement occurred in the second primary molars, particularly when the first primary molars were absent (0.095 mm). This was followed by displacement of the permanent first molars when both primary molars were missing (0.079 mm). In the absence of only the second primary molars, primary first molars showed the highest displacement (0.071 mm). When all anchorage teeth were present, movements were more evenly distributed and overall displacement was reduced (maximum 0.080 mm). In all scenarios, crown displacement was greater than root displacement.

Conclusion: Missing teeth increase undesirable movements of anchorage teeth during SME, especially in teeth adjacent to edentulous spaces. Performing SME in the presence of a greater number of anchorage teeth may help minimise unwanted tipping effects and improve treatment stability.

87 "Can A Small Rock Stop a Truck?" case report of enamel pearl blocking eruption

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¹General Dentist, Ministry of Health, Kuwait, ²Consultant Orthodontist, Ministry of Health, Kuwait **Background:** Delayed eruption of a maxillary central incisor in the mixed dentition is commonly associated with supernumerary teeth, trauma, or local odontogenic obstruction. Enamel pearls are developmental anomalies typically located on molar root surfaces and are rarely identified in the anterior region. Their presentation as a mechanical barrier to eruption is therefore uncommon and clinically significant.

Case report: A medically fit 9 year-old boy presented with delayed eruption of the maxillary right central incisor. Clinical examination demonstrated adequate space for eruption and a palpable labial bulge, while the contralateral incisor had erupted more than six months earlier. Panoramic and periapical imaging revealed a well-defined radiopaque structure on the labial aspect of the unerupted tooth. Differential

diagnoses included a mesiodens and odontoma. An enamel pearl acting as a mechanical obstruction was confirmed radiographically and intraoperatively during surgical exposure.

Treatment: An interceptive multidisciplinary approach was undertaken. A 2×4 fixed orthodontic appliance was placed to facilitate traction prior to surgery. Under local anaesthesia, the incisor was surgically exposed, the enamel pearl removed, and an orthodontic attachment with gold chain traction bonded to guide eruption.

Follow-up: Progressive eruption was observed at 4 and 10 weeks, with complete eruption and alignment by 15 weeks. Periodontal health, vitality, functional occlusion, and aesthetics were satisfactory. The patient continued to be under orthodontic review to monitor long-term stability.

Conclusion: Anterior enamel pearls, although rare, should be considered in delayed incisor eruption. Early radiographic diagnosis and timely surgical-orthodontic management can facilitate eruption and reduce treatment complexity.

94 Management of an impacted permanent central incisor in mixed dentition using a removable appliance: two case reports

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¹Marmara University Faculty of Dentistry Department of Paediatric Dentistry, Istanbul, Türkiye, ²Marmara University Faculty of Dentistry Department of Oral and Maxillofacial Surgery, Istanbul, Türkiye **Background:** Supernumerary teeth in the anterior maxilla may prevent eruption or cause ectopic eruption of permanent incisors during mixed dentition, leading to orthodontic problems. Here we presented two cases of forced eruption using a removable appliance.

Case reports: Case 1 involved an 8 year-old female patient with a complaint of a non-erupting upper incisor. Clinical examination and CBCT revealed an impacted supernumerary tooth obstructing the eruption of #21. Case 2 involved an 11 year-old male patient with a non-erupting maxillary incisor. CBCT revealed an impacted supernumerary tooth obstructing eruption of #11.

Treatment: In Case 1, a removable Hawley appliance with a hook was designed preoperatively. During surgery, the supernumerary tooth was removed. An attachment was bonded to the exposed impacted #21. A standardised closed-eruption technique was applied, and the ligature wire was tied to the hook of the Hawley appliance using an elastic chain. The patient was scheduled for monthly follow-ups. In Case 2, the case underwent a similar treatment protocol. In both cases, impacted #21 (Case 1) and impacted #11 (Case 2) became clinically visible in the oral cavity after

approximately 2 months, the Hawley appliance was removed at 5 months. After removal of the Hawley appliance, physiological eruption of both incisors was followed up.

Follow-up: Follow-up is ongoing at 24 months for both cases.

Conclusion: Early removal of the supernumerary tooth with closed-eruption exposure and removable-appliance traction enabled predictable eruption and stable mid-term outcomes in mixed dentition. This approach may be more comfortable for children than fixed appliances.

146 Correlations between malocclusions and dyslalias: a cross sectional observational study on 880 patients

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¹Fondazione IRCCS Cà Granda Ospedale Maggiore Policlinico, Milan, Italy, ²Department of Biomedical, Surgical and Dental Sciences, Milan University, Milan, Italy **Aim:** This study aimed to evaluate the relationship between malocclusions and dyslalias in children and to emphasise the importance of an early interdisciplinary approach between orthodontists and speech therapists.

Methods: A cross-sectional observational study was conducted on 880 children (448 males, 432 females) aged 6–10 years who attended the Department of Orthodontics, University of Milan. Each child underwent a comprehensive orthodontic examination and a standardised speech evaluation performed by a speech therapist. Occlusal traits (including sagittal discrepancies, vertical alterations, transverse anomalies, crowding, and dental asymmetries) were recorded and correlated with the presence and type of dyslalia. Findings were compared with those of an age-matched control group.

Results: A clear association between specific malocclusions and speech disorders emerged. Class III malocclusion, diastema, increased overjet, anterior open bite, deep bite, and dental asymmetries showed a strong correlation with dyslalias. Crowding and anterior crossbite demonstrated a moderate association. In contrast, Class II malocclusion, upper incisor protrusion, posterior crossbite, and temporomandibular disorders were weakly associated with speech alterations. The prevalence and severity of dyslalia increased in proportion to the severity of the occlusal discrepancy.

Conclusions: Malocclusions appear to play a more consistent role in influencing speech disorders than dyslalias do in affecting the stomatognathic system. Early identification of occlusal anomalies may therefore be crucial in preventing or reducing speech alterations. These findings support the need for structured collaboration between paediatric dentists, orthodontists, and speech therapists in growing patients.

151 Speech sound analysis and oral health-related quality of life during early orthodontic treatment with clear aligners and removable appliances in mixed dentition

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¹Marmara University Faculty of Dentistry, Department of Paediatric Dentistry, Istanbul, Türkiye, ²Marmara University Faculty of Dentistry, Department of Orthodontics, Istanbul, Türkiye **Aim:** To prospectively evaluate the early impact of clear aligners and removable orthodontic appliances on oral health-related quality of life (OHRQoL) and acoustic speech parameters in children undergoing interceptive orthodontic treatment during mixed dentition.

Methods: This prospective cohort study included 24 children aged 6–12 years presenting with anterior dental crossbite and treated with clear aligners (n = 12) or removable appliances (n = 12). OHRQoL was assessed using COHIP-SF 19 at baseline and OHIP-14 on days 1, 3, 7, and 14. Speech sound analysis was performed longitudinally at the same time points using acoustic measurements of vowel formant frequencies (F1–F2) and fricative centre of gravity (CoG), analysed with Praat software to objectively characterise articulation changes during early appliance adaptation.

Results: Baseline characteristics and COHIP-SF 19 scores were comparable between groups (p > 0.05). Inter-group comparisons demonstrated no significant differences in OHIP-14 scores on days 1 and 3 (p > 0.05); however, scores were significantly higher in the removable appliance group on days 7 and 14 (p < 0.05), indicating a greater negative impact on OHRQoL compared with the clear aligner group. Acoustic analyses revealed transient alterations predominantly affecting the vowels /a/ and /e/, which were more pronounced in the removable appliance group, whereas /i/ remained relatively stable. Fricative CoG values showed greater reductions in the removable appliance group, while corresponding parameters in the clear aligner group remained comparatively stable.

Conclusion: Clear aligner therapy was associated with more favourable early OHRQoL outcomes and fewer transient speech sound alterations compared with removable orthodontic appliances during the initial phase of interceptive treatment in children with mixed dentition.

190 Influence of pharmacological therapies on tooth movement in growing patients: a systematic review

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tostomatologia II, Milano, Italy, ³Scuola di Specializzazione in Odontoiatria Paediatrica, Università degli Studi di Milano, Milano, Italy **Aim:** to underline the importance of pharmacological factors in modulating orthodontic tooth movement in growing patients. As an increasing number of children and adolescents undergoing orthodontic therapy are affected by chronic conditions requiring long-term pharmacological treatment, awareness of drug–orthodontic interactions has become crucial for safe and effective clinical management.

Methods: A systematic review conducted according to PRISMA 2020 guidelines and registered in PROSPERO has been assessed. A comprehensive search of PubMed and Scopus was performed to identify studies published between 2000 and 2025, including human, animal, and in vitro investigations.

Results: Sixty-four studies were included. Non-steroidal anti-inflammatory drugs were effective in reducing orthodontic pain in young patients but frequently showed a tendency to reduce tooth movement. Antiresorptive agents consistently limited orthodontic tooth movement, while biologically active substances including parathyroid hormone, prostaglandins, vitamin D, and vitamin E demonstrated potential to enhance bone remodelling and accelerate tooth displacement during growth. Hormonal and endocrine factors contributed to age- and sex-related variability in treatment response, whereas topical antimicrobials, fluorides, and probiotics improved periodontal and enamel health without significantly affecting tooth movement.

Conclusion: Pharmacological agents may substantially influence orthodontic biomechanics, treatment duration, and tissue responses in growing patients. A comprehensive and careful paediatric medication history, combined with an individualised, growth-oriented treatment plan, is essential to optimise orthodontic outcomes, ensure patient safety, and minimise potential drug–orthodontic interactions. Further high-quality clinical studies are needed to strengthen the evidence base and support evidence-based, pharmacologically informed orthodontic care in children and adolescents.

248 Management of an impacted maxillary second premolar associated with secondary impaction of the second primary molar

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¹ Department of Paediatric Dentistry, School of Dentistry, National & Kapodistrian University of Athens, Athens, Greece, ²Department of Orthodontics, School of Dentistry, National & Kapodistrian University of Athens, Athens, Greece **Background:** Submergence of primary molars may interfere with normal exfoliation and disrupt the eruption of permanent successors, leading to secondary impaction,

space loss, and occlusal discrepancies. Early management is critical to avoid complex surgical and orthodontic treatments. This report outlines the clinical decision-making process and the outcome in the management of secondary impaction of a maxillary second primary molar.

Case report: An 8.5 year-old boy was referred for dental assessment. Medical history was non-contributory. Clinical examination revealed the submergence of tooth 65 and significant space loss between teeth 64 and 26. Radiographic assessment confirmed secondary impaction of tooth 65 resulting in further apical displacement of tooth 25.

Treatment: In order to distalise the tooth 26 and gain the necessary space for the normal eruption of teeth 24 and 25 the treatment encompassed the placement of fixed edge-wise appliance and the use of a cervical pull headgear. After the distalisation of 26 into the correct occlusal position a surgical removal of 65 was performed. Follow-up: Clinical and radiographic monitoring was carried out periodically. Tooth 24 erupted five months postoperatively. No surgical exposure or orthodontic traction for tooth 25 was required, which had erupted in a favourable position 12 months into treatment. Radiographic evaluation demonstrated continued root development with no signs of pathological resorption.

Conclusion: Early diagnosis and orthodontic space management combined with timely extraction of secondary impacted primary molars can successfully resolve eruption disturbance and impaction. This approach facilitates the spontaneous eruption of permanent successors, reducing the need for invasive intervention.

278 Assessment of patients' acceptability of removable appliances for impacted incisors in mixed dentition

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¹Marmara University, Department of Paediatric Dentistry, Istanbul, Türkiye, ²Marmara University, Department of Maxillofacial and Oral Surgery, Istanbul, Türkiye **Aim:** Impacted teeth in the maxillary anterior region are frequently encountered during the mixed dentition period, and removable appliances may be used for their early management. This study aimed to evaluate the tolerance and acceptability of these appliances in children treated during mixed dentition.

Methods: Thirty children (20 boys, 10 girls) who completed forced eruption treatment with removable space maintainers were included in this survey study. Demographic and medical history data were collected using a structured parent questionnaire. Treatment protocol, procedures, and duration were recorded from clinical files. General well-being was assessed using the parent-reported KIDSCREEN-10 questionnaire. Patient acceptability was evaluated through an

emoji-based questionnaire addressing treatment experience, functional effects (eating, speaking, sleeping, oral hygiene), psychosocial perception, and clinical outcomes during appliance use. Associations between questionnaire outcomes and age at treatment initiation, gender, number of involved teeth, treatment duration, and KIDSCREEN-10 total score were analysed using the non-parametric Mann–Whitney test (SPSS v.25).

Results: Single-tooth eruption was performed in 19 patients, while 11 had multiple teeth erupted. The mean age at treatment initiation was 9.8 ± 1.3 years, and the mean treatment duration was 7.36 ± 3.95 months. The mean KIDSCREEN-10 total score was 40.7 ± 5.1 . High satisfaction levels were reported for the treatment process, tooth eruption, and dentist-related items. Functional domains showed moderate impact, with few low-satisfaction responses. No associations were observed between questionnaire outcomes and treatment duration, age, or gender; however, a significant association was found between treatment duration and KIDSCREEN-10 scores ($p = 0.028$).

Conclusion: Children treated with removable appliances demonstrated high overall acceptability and satisfaction.

495 Alveolar bone loss during orthodontic treatment: findings with cone beam computed tomography

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¹Algerian Dental University, Algeria **Aim:** Cone beam computerised tomography (CBCT) has given orthodontics a new diagnostic dimension. The aim of this study was to determine buccal and lingual/palatal alveolar bone level changes in patients treated with full fixed appliances.

Methods: CBCT scanning was performed before and after treatment of 20 Angle Class I patients, aged between 11 to 13 years-old, with bimaxillary crowding. The standardised treatment plan included full fixed appliances in both jaws and extraction of four premolars. The buccal and lingual/palatal bone levels were measured for all teeth from first molar to first molar in both jaws and the buccal-lingual root position in the alveolar process was measured. Four patients had one or more tooth/teeth displaced out of the alveolar process to the extent that at least half of the root was displaced outside the alveolar process with no detectable bone covering the apical foramen. The most common teeth were the mandibular incisors and, in some patients, the buccal roots of the maxillary molar.

Results: Statistically significant differences were found in the degree of proclination of the lower incisors that occurred during treatment. The displaced incisors were on average proclined 10 degrees more than the non-displaced incisors.

Conclusion: CBCT reveals information in new dimensions and changes that previously were not visible can now be analysed in detail. The clinical significance of these new findings is difficult to quantify as the clinical treatment procedures have remained more or less unchanged for decades.

500 Successful management of a 9 year-old child with caries and anterior teeth crowding

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¹University of Khartoum, Khartoum, Sudan, ²The University of the Western Cape, Cape Town, South Africa **Background:** Caries management of a 9 year-old child with caries, poor oral hygiene enamel hypoplasia, and crowding of the anterior teeth in the mix dentition phase is challenging.

Case-report: a 9 year-old child was presented to the Department of paediatric dentistry at Tygerberg hospital, Cape Town, South Africa in April (2019). The mother came complaining of rotten and mobile teeth. She reported ICU admission of the child for few days after delivery due to the swallowing of birth secretions during the delivery. She neither reported any medical problem nor allergy to drugs or food. The dental examination showed caries in; 55, 53, 63, 64, 65, 74, 73, 41 and 31. 72 was a retained deciduous. 31 showed enamel hypoplasia.

Treatment: The case was managed through—Oral hygiene education and restorations to the carious teeth. Two phases of orthodontic therapy: 1) Early preventive orthodontic phase through lingual arch application followed by 2) late phase of fixed appliance therapy.

Follow up: was continued for 1 year at the Department of paediatric dentistry by (Jafar RM). For the late phase, the child was referred to (Julyan J) at the orthodontic department who followed the child for 3 years. The case was moderated by three supervisors at paediatric dentistry department (Shaikh, Mulder & Mohamed) and one supervisor from the orthodontic department (Harris, A).

Conclusion: The present case-report showed a successful, collaborative child dental management. It also highlights the role of the preventive orthodontics in the success of the orthodontic treatment.

504 Interceptive, growth-guided treatment of anterior crossbite with the LM activator: a case series

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¹School of Dental Medicine University of Zagreb, Zagreb, Croatia, ²Dental Clinic, University Hospital Centre Zagreb, Croatia **Background:** Anterior crossbite is a common

orthodontic problem in mixed dentition and may lead to functional and aesthetic complications such as progressive tooth wear, fractures of the anterior teeth, periodontal problems and TMJ disorders if not treated early.

Case report: The aim of this case series was to present three anterior crossbite correction cases in children aged 7 to 8 years and to evaluate the influence of patient cooperation on treatment duration. All patients were treated using myofunctional appliance, the LM Activator. The appliance was worn during the night and part-time during the day. Regular follow-up visits were scheduled to monitor treatment progress. Successful correction of anterior crossbite was achieved in all patients; however, treatment duration varied.

Results: In the first case, early diagnosis and excellent patient cooperation resulted in rapid correction. In the second case, treatment was successful but required a longer period due to moderate cooperation. In the third case, correction was also achieved, but the treatment duration was the longest because of poor patient compliance.

Follow up: Follow-up examinations were conducted every three months over a two year period and showed stable results in all cases, without relapse.

Conclusion: Early treatment with the LM Activator provides favourable outcomes and helps prevent more complex malocclusions. Although removable appliances are effective, treatment duration and efficiency are strongly influenced by patient cooperation. Therefore, patient motivation and parental involvement are essential factors for successful and timely correction. Further studies with larger samples are needed to confirm these findings.

518 Correlation between changes of occlusal planes and morphologies of chin and mandibular symphysis in children with skeletal class II malocclusion treated with high-pull headgear activator

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¹Nanjing Children's Hospital of Nanjing Medical University, Nanjing, China **Aim:** To investigate the relationship between alterations of inclination of occlusal planes (OPs) and shapes and positions of chin and mandibular symphysis (MS) in children with skeletal Class II malocclusion treated with a high-pull headgear activator (HPHA).

Methods: Cone beam computed tomography (CBCT) images of 33 children (8.83 ± 1.15 years old) with skeletal Class II malocclusion treated with (HPHA) were recruited before and after treatment. CBCT data in DICOM format were exported into Dolphin Imaging 11.9.5. To measure the chin volume, the dolphin volume sculpting tool was used to outline the chin region and calculate its volume. Measurements were carried out to evaluate changes in OPs, chin,

MS and chin volume, as well as to analyse the correlation between OPs and profile variations.

Results: After treatment, there were a reduction of the angle of posterior OP (-0.970 ± 4.28) with no statistically significant difference. The height of chin, height and width of MS, as well as the volume of chin significantly increased by 1.09 ± 1.04 mm, 1.09 ± 0.778 mm, 0.276 ± 0.383 mm, 210 ± 170 mm³, respectively. There was an inverse correlation observed between OP variations and chin position, the height of chin and MS. Additionally, there was a negative correlation observed between OP changes and Wits value among patients with skeletal Class II malocclusion.

Conclusion: After treatment with HPHA for skeletal Class II patients, vertical control of OPs may help to improve sagittal discrepancy of mandible. In addition, OP variations may be related to changes of chin and MS height.

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