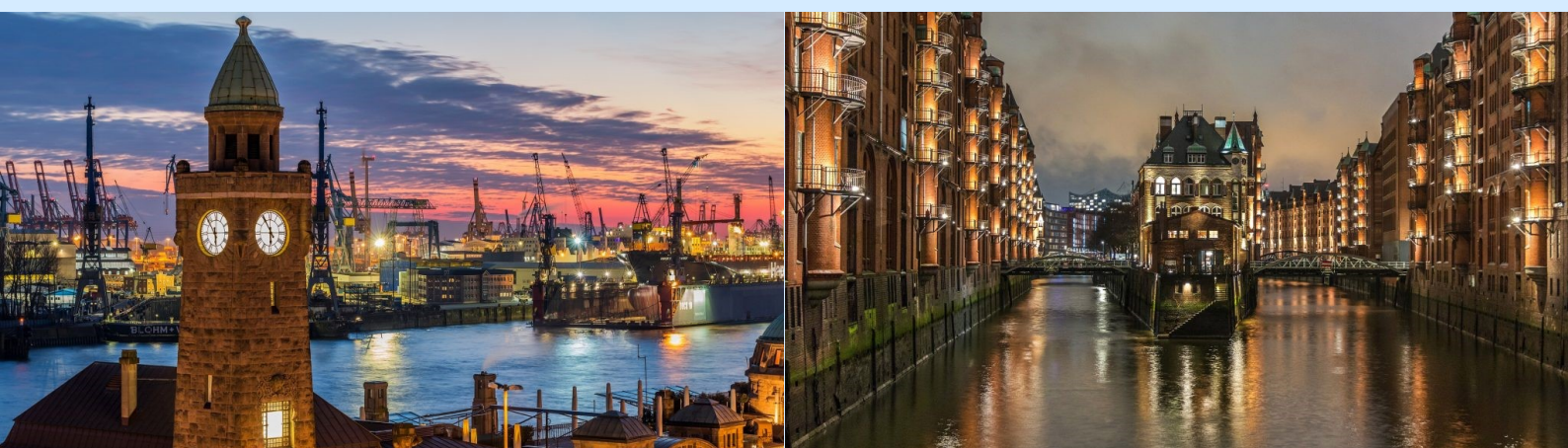


# Congress Book



**15<sup>th</sup> EAPD Congress**  
**3<sup>rd</sup> and 4<sup>th</sup> of July, 2020**  
**Online**  
**Hamburg, Germany**

**15<sup>th</sup> Congress of the  
European Academy  
of Paediatric  
Dentistry**

July 3 - 4, 2020 | Virtual Congress



**"Towards New Horizons  
in Paediatric Dentistry"**

## Chair of the Congress:



Prof. Jack Toumba  
EAPD President

## Local Organising Committee

**Chair:** Ulrich Schiffner

### Members:

**Katrin Bekes**  
**Sabine Dobersch-Paulus**  
**Norbert Krämer**  
**Jan Kühnisch**

## EAPD Board

**Jack Toumba** - President  
**Rita Cauwels** – Past President  
**Elias Berdouses** – President Elect  
**Sotiria Gizani** – Secretary  
**Richard Steffen** - Treasurer

The 15<sup>th</sup> EAPD Congress was held together with the 27<sup>th</sup> annual congress of the German Society of Paediatric Dentistry DGKiZ



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**15<sup>th</sup> Congress of the European Academy of Paediatric Dentistry**  
July 3 - 4, 2020 | Virtual Congress

**”Towards New Horizons in Paediatric Dentistry“**





**Friday, 3 July 2020**

## „Molar Incisor Hypomineralisation“

Welcome & Opening		
11:45	Welcome and Opening of the Conference	
12:00	Award ceremony	
12:15	Break + visit of the industrial exhibition	
Etiology (chair Prof. Bekes)		
12:30	Prof. Dr. J. Kühnisch (DE)	MIH - A worldwide burden? What do we know and what do we need to know
12:55	Prof. S. Babajko (FR)	Are endocrine disruptors responsible for hypomineralisation in human teeth?
13:20	Dr. E. Salmela (FI)	MIH and possible associations with childhood illnesses and antibiotics
13:45	Discussion	
13:55	Break + visit of the industrial exhibition	
Treatment Session 1 (chair Prof. N. Krämer)		
14:10	Dr. R. Steffen (CH)	The challenge of pain control for MIH-teeth
14:35	Prof. Dr. D. Manton (AU)	Non-invasive treatment of MIH – enamel remineralisation –
15:00	Discussion	
15:05	Break + visit of the industrial exhibition	
Treatment Session 2 (chair Prof. U. Schiffner)		
15:20	Prof. Dr. N. Krämer (DE)	Direct posterior restorations in MIH molars
15:45	Prof. Dr. K. Bekes (AT, DE)	Indirect posterior restorations in MIH molars
16:10	PD Dr. C. Kirschneck (DE)	Extraction of severely affected teeth and space management – the orthodontic solution
16:35	Dr. N. A. Lygidakis (GR)	Treatment options of MIH incisors
16:50	Dr. M. E. C. Elfrink (NL)	Treatment options of HSPM
17:15	Discussion	
17:30	Break + visit of the industrial exhibition	

<b>CP Gaba-Symposium „Caries prevention – is there any chance without fluoride?“ (chair: Dr. S. Ciftci)</b>		
<b>17:45</b>	<b>Prof. Dr. K. Bekes (AT, DE), Prof. Dr. U. Schiffner (DE)</b>	Dialog about effectivity of fluoridated vs fluoride free dentifrices and varnishes
<b>18:10</b>	<b>Discussion</b>	
<b>18:15</b>	<b>End of scientific program day 1</b>	

<b>DGKiZ</b>		
<b>18:30</b>	<b>DGKiZ General Assembly</b>	
<b>19:00</b>	<b>EAPD Council Meeting</b>	
<b>20:00</b>	<b>EAPD General Assembly</b>	

*All the sessions indicated on our programme will be based on Central European Summer Time (CEST)*

## **Saturday, 4 July 2020**

### **„Paediatric Dentistry in a Changing Society“, „Traumatology“, sponsored symposia, oral and poster presentations**

<b>Paediatric Dentistry in a changing society (chair Dr. E. Berdouses)</b>		
<b>09:00</b>	<b>Dr. D. Koch (CH)</b>	The impact of COVID 19 on the society
<b>09:25</b>	<b>Prof. Dr. P. Coulthard (GB)</b>	The impact of COVID 19 on the daily practice of Dentistry
<b>09:50</b>	<b>Prof. Dr. S. Gizani (GR)</b>	Oral health of refugee and migrant children – implications in the provision of paediatric dental care
<b>10:20</b>	<b>Discussion</b>	
<b>10:30</b>	<b>Break + visit of the industrial exhibition</b>	

<b>10:45 – 15:30 Sponsored symposia (partly in parallel)</b>		
<b>3M-Symposium Early Childhood Caries (chair Prof. M. Duggal)</b>		
<b>10:45</b>	<b>Prof. Dr. M. Duggal (SG,GB)</b>	Welcome
<b>10:55</b>	<b>Dr. R. Steffen (CH)</b>	Preventive Strategies and fluoridation protocols
<b>11:10</b>	<b>Prof. Dr. B. Drummond (GB)</b>	Treatment with tooth preparation: Direct restorations for ECC therapy
<b>11:25</b>	<b>Prof. Dr. K. Bekes (AT, DE)</b>	Treatment with tooth preparation: Pre-fabricated crowns – SSC or aesthetic crowns?
<b>11:40</b>	<b>Discussion</b>	
<b>11:45</b>	<b>Break + visit of the industrial exhibition</b>	

<b>Oral B-Symposium (chair Dr. N. Lygidakis)</b>		
<b>12:15</b>	<b>Dr. P. Day (GB)</b>	What is the Strong Teeth – Strong Kids project?
<b>12:35</b>	<b>Dr. K. Gray-Burrow (GB)</b>	Co-Design and development of a complex oral health intervention called 'Strong Teeth'
<b>13:00</b>	<b>Dr. P. Day, Dr. K. Gray-Burrow (GB)</b>	Results from an early phase study to examine the impact of 'Strong Teeth-Strong Kids' project on parents and dental teams
<b>13:10</b>	<b>Discussion</b>	
<b>13:15</b>	<b>Break + visit of the industrial exhibition</b>	
<b>SIZ - Symposium (chair Prof. U. Schiffner)</b>		
<b>13:30</b>	<b>Prof. Dr. S. Paris</b>	10 years experience in caries infiltration
<b>13:55</b>	<b>Discussion</b>	
<b>14:00</b>	<b>Break + visit of the industrial exhibition</b>	

<b>Dental Trauma – Currently treatment protocols Guidance and Guidelines (chair Prof. S. Gizani)</b>		
<b>14:15</b>	<b>Dr. H. Nazzal (Qatar, GB)</b>	The preservation and regeneration of the traumatised dental pulp: A clinical guidance.
<b>14:40</b>	<b>Prof. Dr. A. O'Connell (IRE)</b>	What is NEW in IADT Guidelines, 2020
<b>15:10</b>	<b>Discussion</b>	
<b>15:15</b>	<b>Break + visit of the industrial exhibition</b>	
<b>Dental Trauma – Currently treatment protocols Interdisciplinary management of severe trauma (chair Prof. R. Cauwels)</b>		
<b>15:45</b>	<b>Prof. Dr. G. Krastl (DE)</b>	Saving the unsavable: Interdisciplinary treatment options for fractured, necrotic immature teeth
<b>16:10</b>	<b>Prof. Dr. M. Duggal (SG/GB)</b>	Replacing the unsavable - An Interdisciplinary approach to achieve biological long-term outcomes for children and adolescents
<b>16:35</b>	<b>Discussion</b>	
<b>16:45</b>	<b>Closing remarks</b>	

*All the sessions indicated on our programme will be based on Central European Summer Time (CEST).*

## Additional Options of sponsored lectures / workshops (in parallel) Hall 2

Kulzer (chair: Mrs. Janet Flöring)		
12:45	Prof. N. Krämer (DE)	Early Childhood Caries – restoration under COVID 19 conditions
13:10	Discussion	

Ivoclar Vivadent AG (chair: Prof. D. Jevremović)		
13:30	Prof. I. Radovic (SRB)	Bread and butter of prevention in practice
13:55	Discussion	

Dentyply (chair: Dr. O. Elsner)		
14:15	Dr. F. Pfefferkorn (DE)	Surefil one – A new, self-adhesive restorative and its potential for pediatric dentistry
14:40	Discussion	

*All the sessions indicated on our programme will be based on Central European Summer Time (CEST)*

## Scientific programme - oral and poster presentations (3.-4. July on demand)

Shortlisted for DGKiZ Awards oral and poster presentations	
Oral Presentation DGKiZ	
<b>Cariology</b>	
<b>Moham Abudrya</b>	Treatment of hypersensitive carious primary teeth using silver diammine fluoride and potassium iodide: an observational
<b>Ali Al-Ani</b>	National oral health survey on refugee children and adolescents in Germany from 2016-2017
<b>Birte Schulz</b>	Caries in preschool children in Hamburg
<b>Dental Anomalies</b>	
<b>Julia Priller</b>	Effect of sealing of hypersensitive MIH molars on OHRQoL one and four weeks after treatment
<b>Karim Elhennawy</b>	Knowledge, perception, and attitudes regarding molar incisor hypomineralisation (MIH) amongst German dental students

<b>Heide L. Klatt</b>	Oral health among 7- to 9-year-old preterm children
<b>Vasiliki Tzortzini</b>	Demarcated opacities and enamel defects in primary molars in 3- to 6-year-old preschool children in Hamburg
<b>Gabriele Schindler-Hultsch</b>	New horizons in paediatric oral surgery - Digital volume tomography in combination with minimally invasive laser-assisted surgery
<b>Eirini Stratigaki</b>	Validation of molar incisor hypomineralisation treatment need index by dental students
<b>Growth and development</b>	
<b>Jan Rienhoff</b>	Multiple supernumerous teeth, transposed and ankylosed primary and permanent teeth and further vertical growth problems
<b>Orthodontics</b>	
<b>Yvonne Wagner</b>	Influence of a programme for prevention of early childhood caries on early orthodontic treatment needs
<b>Others</b>	
<b>Sarra Boukhobza</b>	Changes in oral health-related quality of life among Austrian preschool children after dental treatment under general anesthesia
<b>Jeanette Buchhardt</b>	The influence of testosterone on clinical bruxism in children and adolescents

## Poster Presentation DGKiZ

### Cariology

<b>1</b>	<b>Cia Solanke</b>	Is early childhood caries associated with a negative impact on oral health-related quality of life in children?
<b>2</b>	<b>Frederic Meyer</b>	Comparative efficacy of a hydroxyapatite and a fluoride toothpaste for prevention and remineralization of dental caries in children
<b>3</b>	<b>Julia Winter</b>	Association between caries experience & restorative care in deciduous teeth and the socioeconomic status of 7- to 8-year-olds
<b>4</b>	<b>Antje Geiken</b>	Implementation of the new German fluoride recommendations by dentists in Northern Germany - a survey
<b>5</b>	<b>Styliani Bernidaki</b>	Recurrence of ECC after treatment under general anaesthesia: A 24-month record-based follow-up study
<b>6</b>	<b>Imke Wolter</b>	Caries in 1- and 2-year-old children in Hamburg

### Dental Anomalies

<b>7</b>	<b>Karim Elhennawy</b> <b>Omar Rajjoub Eldik<sup>#</sup></b>	Impact of Molar Incisor Hypomineralization children's oral health-related quality of life
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8	<b>Antje Geiken Bettina Stein<sup>#</sup></b>	Deciduous molar hypomineralization and molar-incisor hypomineralization - an exploratory study in Northern Germany
9	<b>Paola Benning-Chalari</b>	Prevalence of developmental defects in enamel in the permanent dentition of children and adolescents
10	<b>Nina Danevitch</b>	Comparison of seven universal adhesives regarding bonding to dentine of primary teeth after different storage periods
11	<b>Mirja Moehn</b>	Margin quality of tooth-colored primary molar crowns
<b>Growth and development</b>		
12	<b>Ina Schueler</b>	Clinical and microbiological periodontal health parameters in children with different dentition-stages
<b>Dental Traumatology</b>		
13	<b>Sophie Lembacher</b>	A three-year retrospective study on the pattern and treatment outcome of dental trauma in immature teeth*
<b>Others / Special Need</b>		
14	<b>M. Salim Doueiri</b>	Diagnose of the hypersensitivity of MIH molars under nitrous oxide and/or a local anesthetic using EPT
15	<b>Hala Hadid</b>	Association between parent-child attachment, caries experience and dental plaque in children and adolescents in Germany
16	<b>Peter Schmidt Max Diekamp<sup>#</sup></b>	Restoration of an upper anterior tooth in an adolescent with autism spectrum disorder – a student case report
17	<b>Peter Schmidt Gisela Goedicke-Padligur<sup>#</sup></b>	Orofacial therapy with oral stimulation plates by Castillo-Morales in a girl with infantile brain damage

# Presenter

## Shortlisted Abstracts for the EAPD Awards (3.-4. July on demand)

### EAPD Young Researcher Travel Award

#### Oral Presentations

1.	<b>Canan Duman</b>	Efficacy of two minimally invasive methods of caries removal: a randomized split- mouth clinical trial preliminary findings
2.	<b>Oliver Sumner</b>	Calcium hydroxide + iodoform paste as a canal dressing in poor prognosis avulsed permanent teeth
3.	<b>Konstantina Chatzidimitriou</b>	Direct pulp capping in carious primary molars using three different direct pulp capping materials. Twelve-month clinical trial

#### Poster Presentations

1.	<b>Raluca Vacaru</b>	Clinical and microbiological evaluation of deep carious lesions treated with stepwise technique
2.	<b>Jasmine May Cachia Mintoff</b>	Does resin infiltration work in cases of developmental enamel anomalies?
3.	<b>Christina Charisi</b>	A study of the microstructure of teeth with Molar Incisor Malformation (MIM).
4.	<b>Husam Al Siyabi</b>	The burden and impact of Amelogenesis Imperfecta care at Eastman Dental Hospital
5.	<b>Konstantina Roussou</b>	Detection of organic and inorganic components released from five restorative materials using GC-MS and ICP-OES.
6.	<b>Sofia Papadaki</b>	Bioceramic Endodontic Cements (BEC) for the treatment of Inflammatory External Root Resorption (IERR)
7.	<b>Wei Xi Tan</b>	Which tooth is best to estimate age using the London Atlas?
8.	<b>Katerina Tagkalaki</b>	Dental treatment of a 4-year-old patient with non-syndromic Pierre Robin sequence. Case presentation.

### Swiss Paediatric Dental Society (SVK) Sedation Award

#### Poster Presentations

1.	<b>Selcuk Mert Ozcelik</b>	Effectiveness of the "Pain-free Dental Injection" (PaFeIn) teaching model in children: a randomized, controlled study
2.	<b>Apostolina Theocharidou</b>	Comparison of efficacy, acceptance and preference between needless and conventional infiltration technique in adult volunteers.
3.	<b>Amede Okwesa</b>	Medication history and care-seeking behaviour of children attending a children's dental emergency clinic at a UK teaching hospital

### EAPD Young Scientist Award

#### Oral Presentations

1.	<b>Maria Katsouda</b>	Behaviour and gagging interaction in 4-12 year old children throughout dental treatment.
2.	<b>Ashana Gupta</b>	Happy teeth and healthy mouths: Optimising oral health knowledge for families of paediatric patients.
3.	<b>Nikos Lygidakis</b>	Antibacterial properties of novel dental composites containing polylysine.

4.	<b>Elanagai Rathinam</b>	Calcium dynamics and molecular signaling of dental pulp stem cells in the regeneration potential of calcium silicate cements
5.	<b>Isabel Olegario</b>	Stainless steel crown versus bulkfill composites post primary molars pulpectomy: 1-year survival and acceptance results of a RCT
6.	<b>Hayat Alghutaimel</b>	Decellularised bovine dental pulp as a biological scaffold for regenerative endodontic therapy
7.	<b>Erin Giles</b>	Home video-recording as an objective data collection method to assess parent-child toothbrushing
8.	<b>Trimeriou Angeliki Sofia</b>	Dental fear, caries experience and periodontal health in children and adolescents with hearing impairment.
<b>Poster Presentations</b>		
1.	<b>Emily Mampay</b>	Hall technique: a treatment option for hypomineralized second primary molars?
2.	<b>Fiona Noble</b>	Children and parent's views on a brief pre-operative communication aid
3.	<b>Silvia Caruso</b>	Oral health status in patients affected by Wilson's disease: clinical diagnostic study.
4.	<b>Bieke Kreps</b>	Implementing a course and clinic for cleft and craniofacial conditions in NYU's Advanced Education Program in Pediatric Dentistry

## Oral Abstracts – List of titles

- O 1 Parent perspectives on a simple intervention to reduce child dental anxiety at their first hospital visit**  
Tajmehr N\*, Zaitoun H, Timms L, Knap R, Marshman Z  
Charles Clifford Dental Hospital, Sheffield Teaching Hospital NHS Foundation Trust, United Kingdom
- O 2 Dental treatment with inhalation sedation ‘PROMs and PREMs’ in improving oral-health-related quality of life (OHRQoL)**  
Gillway DJ\*, Ondhia A, Kandiah T  
Surrey and Sussex Healthcare NHS, United Kingdom
- O 3 The effect of monthly professional tooth brushing on caries incidence and increment among Brazilian schoolchildren: a 2-year RCT.**  
Hesse D\*, Soviero VM, Dos Reis PP, Jorge RC, Bonifacio CC  
Department of Paediatric Dentistry, Academic Centre for Dentistry Amsterdam (ACTA), The Netherlands
- O 4 Dentists’ decisions for deep carious lesions management in permanent teeth in children and adolescents**  
Aiem E\*, Garcia A, Domejean S, Muller Bolla M  
Department of Paediatric Dentistry, Faculty of Dentistry, Cote Azur University, CHU Nice, Nice, France
- O 5 Treatment of hypersensitive carious primary teeth using silver diammine fluoride and potassium iodide: an observational cohort study**  
Abudrya MH\*, Splieth C, Mourad MS, Santamaria R  
Department of Preventive and Paediatric Dentistry, University of Greifswald, Germany
- O 6 Comparison of remineralisation induced by calcium silicate-based cement and glass ionomer cement on demineralised dentine in-vitro**  
Kuru E\*, Eronat N, Ilktac R  
Ege University, Faculty of Dentistry, Department of Paediatric Dentistry, Turkey
- O 7 Effects of varying intra-oral attachment sites of fluoride slow-release glass devices.**  
Toumba KJ\*  
Department of Developmental and Preventive Sciences, Faculty of Dentistry, University of Kuwait, Kuwait
- O 8 National Oral Health Survey on Refugee Children and Adolescents in Germany from 2016-2017**  
Al-Ani A\*, Takriti M, Schmoeckel J, Alkilzy M, Splieth C  
University of Greifswald, Germany
- O 9 Does the access to paediatric general anaesthesia in France meet the dental treatment needs?**  
Maniere M\*, Vital S, Muller-Bolla M  
Paediatric Dentistry Department, Faculty of Dentistry, University Hospital, Strasbourg, France
- O 10 Caries in preschool children in Hamburg**  
Schulz B\*, Imke W, Schiffner U  
University Medical Center Hamburg-Eppendorf (UKE), Germany
- O 11 Aesthetic paediatric dentistry in a changing society: A case report**  
Belfer M\*, Kosyreva T  
Peoples' Friendship University of Russia, Russian Federation

- O 12 Association between early childhood asthma, MIH and Hypomineralization of second primary molar**  
Salem K\*, Lotfi G, Raeesi A  
Department of Paediatric Dentistry, Faculty of Dentistry, Tehran Medical Sciences, Islamic AZAD University, Tehran, Iran
- O 13 Prevalence of Hypomineralised Second Primary Molars (HSPM) in Syrian Preschool Children**  
Halal FA\*, Raslan N  
Department of Paediatric Dentistry, Tishreen University, Latakia, Syrian Arab Republic
- O 14 Impact of smog on the prevalence of Molar Incisor Hypomineralisation (MIH).**  
Glodkowska N, Emerich K\*  
Department of Paediatric Dentistry, Medical University of Gdansk, Poland
- O 15 Knowledge, perception, and attitudes regarding molar incisor hypomineralisation (MIH) amongst German dental students**  
Elhennawy K\*, Splieth CH, Manton DJ, Jost-Brinkmann P, Schwendicke F  
Department of Orthodontics, Dentofacial Orthopedics and Pedodontics, Charite - Universitaetsmedizin Berlin, Germany
- O 16 Molar Incisor Hypomineralisation (MIH) in southern Poland.**  
Glodkowska N\*, Emerich K  
Department of Paediatric Dentistry, Medical University of Gdansk, Poland
- O 17 Oral health among 7- to 9-year-old preterm children**  
Klatt HL\*, Heinrich-Weltzien P  
Section of Preventive and Paediatric Dentistry, Jena University Hospital, Germany
- O 18 Do GIC sealants prevent caries and post-eruptive breakdown in first permanent molars affected by MIH?**  
Bonifacio CC\*, Olegario IC, Schavereus M, Pedroza IM, Hesse D  
Department of Paediatric Dentistry, Academic Centre for Dentistry Amsterdam (ACTA), Amsterdam, The Netherlands
- O 19 Validation of molar incisor hypomineralisation treatment need index by dental students**  
Stratigaki E\*, Pflugi N, Steffen R, Verna C  
Dept of Paediatric Oral Health & Orthodontics, University Center of Dental Medicine, Basel, Switzerland
- O 20 Effect of sealing of hypersensitive MIH molars on OHRQoL one and four weeks after treatment**  
Priller JM\*, Stamm T, Bekes K  
Department of Paediatric Dentistry, Medical University of Vienna, Vienna, Austria
- O 21 Demarcated opacities and enamel defects in primary molars in 3- to 6-year-old preschool children in Hamburg**  
Tzortzini V\*, Schiffner U  
University Medical Center Hamburg- Eppendorf, Department of Periodontics, Preventive and Restorative Dentistry, Hamburg, Germany
- O 22 New horizons in paediatric oral surgery - Digital volume tomography in combination with minimally invasive laser-assisted surgery**  
Schindler-Hultzsch G\*  
Aachen Dental Laser Center, RWTH Aachen University, Germany
- O 23 Extensive wear of stainless steel crowns; an evaluation of 2500 crowns**  
Krikken JB\*, Elfrink ME, Heijdra JS, Weerheijm KL, Veerkamp JS  
PREP/ Kindermondzorgcentrum Snoet, Badhoevedorp, The Netherlands

- O 24 Analyses of heavy metals in RetroMTA, ProRoot and NeoMTA**  
Ozcan H\*, Seymen F  
Istanbul University, Faculty of Dentistry, Department of Paediatric Dentistry, Istanbul, Turkey
- O 25 Properties and potentialities of silicone in orthodontic applications: an in vitro study**  
Pellegrino GS\*, Pellegrino M, Fioretti L, Pellegrino G  
Department of Medical Physics and Biomedical Engineering, University College London, United Kingdom
- O 26 The effect of different curing intensity and time on the mechanical properties of restorative materials**  
Bayrak GD\*, Yaman-Dosdogru E, Selvi-Kuvvetli S  
Department of Paediatric Dentistry, Faculty of Dentistry, Yeditepe University, Istanbul, Turkey
- O 27 Radiopacifiers in tricalcium silicate based biomaterials contribute to more than radiopacity**  
Rajasekharan S\*  
Department of Paediatric Dentistry and Special Care, Ghent University, Ghent, Belgium
- O 28 The effect of different toothpastes on surface roughness of two restorative materials: An in vitro study**  
Yaman-Dosdogru E\*, Bayrak GD, Tonguc-Altin K, Selvi-Kuvvetli S  
Yeditepe University, Faculty of Dentistry, Department of Paediatric Dentistry, Turkey
- O 29 Clinical and radiographic evaluation of pulpotomies in primary molars using tricalcium silicate cements**  
Turk A\*, Vilella S, Veloso A, Guinot F, Viroles M  
International University of Catalonia (UIC), Spain
- O 30 Digital design for accurate orienting and dimensioning of artificial dental socket for tooth autotransplantation**  
Ashkenazi M\*, Dafna S, Shuster A  
Paediatric Dentistry Clinic, The Oral and Dental Health Center, Sheba Medical Center, Tel Hashomer, Israel
- O 31 Improving confidence of medical paediatric staff in managing acute dental problems within the Emergency Department.**  
Sudarshan S\*, Patel T, Fong F, Whatling R  
Paediatric Dentistry Department, Royal London Hospital, Barts Health NHS Trust, United Kingdom
- O 32 Web-based dental trauma database using Eden Baysal dental trauma index: A Turkish multicenter study**  
Eden E\*, Buldur B, Duruk G, Ezberci S  
Ege University, School of Dentistry, Department of Pedodontics, Turkey
- O 33 Pulp is involved in pathophysiology of external root resorption**  
Vital S\*, Lagorsse M, Grosborne M, Kedhir S, Bardet C  
Pediatric Dentistry, Universite de Paris, Hospital Louis Mourier, APHP, EA2496 Orofacial Pathologies, Imaging and Biotherapies, France
- O 34 Outcome of vital pulp therapy (VPT) in deeply carious molars affected with MIH defects: a randomized clinical study**  
Al-Batayneh OB\*, Abdelghani IM  
Preventive Dentistry Dept, Jordan University of Science and Technology, Jordan
- O 35 Does aqueous ozone promotes proliferation on dental pulp cells? A comparative study with NaOCl and EDTA**  
Kucuk F\*, Cetiner S  
Department of Paediatric Dentistry, Faculty of Dentistry, Near East University, Cyprus

- O 36 Technical Outcomes of Orthograde Endodontic Treatment Conducted on Children; A Three Cycle Audit**  
Rovira-Wilde A\*, Longridge N, Gallichan N, Al-Badri S  
Charles Clifford Dental Hospital Sheffield, United Kingdom
- O 37 Evaluation of facial appearance in patients with repaired cleft lip and palate**  
Alotaibi Y\*, Alhayek S, Alsalem M, Omair A  
Saudi Board Resident in Pediatric Dentistry, King Abdulaziz Medical City, Pediatric Dentistry Department, Riyadh, Kingdom of Saudi Arabia
- O 38 Multiple supernumerous teeth, transposed and ankylosed primary and permanent teeth and further vertical growth problems**  
Rienhoff J\*, Rienhoff S, Schilke R, Eulzer C  
Kinderzahnarztpraxis Magic Dental Hannover, Germany
- O 39 Development of a multi-disciplinary evidence-based consensus to guide the diagnosis and management of Ankyloglossia and oral frenula**  
Chinotti M, Silva MJ\*  
The University of Melbourne/Murdoch Children's Research Institute, Australia
- O 40 Prevalence of non-JP2 and JP2 genotypes of Aggregatibacter actinomycetemcomitans and oral hygiene practice in Kenyan adolescents**  
Haubek D\*, Mulli T, Kemoli A, Noerregaard MM, Lindholm M  
Aarhus University, Denmark
- O 41 The effect of anti-inflammatory therapy on periodontal treatment in children**  
Pikilidi T\*, Kiselnikova L, Romanovskaya V, Danilova I  
Department of Pediatric Dentistry Moscow State University of Medicine and Dentistry named after A.I. Evdokimov, Russian Federation
- O 42 A rare presentation of a solitary bone cyst in an 11 year old girl**  
Patrick A\*  
Royal National ENT and Eastman Dental Hospital, UCLH, United Kingdom
- O 43 Prevalence of Aggregatibacter actinomycetemcomitans and periodontal status of Danish adolescents: a cross-sectional study**  
Jensen AB\*, Noerskov-Lauritsen N, Johansson A, Haubek D  
Section for Pediatric Dentistry Department of Dentistry and Oral Health Aarhus University, Denmark
- O 44 The Role of Pediatric Dentists in the Diagnosis of a Rare Case of Langerhans Cell Histiocytosis with Oral Manifestations**  
Hammouri EH\*  
Jordanian Royal Medical Services, Jordan
- O 45 Characteristics of facial cellulitis of odontogenic origin presenting to the emergency department of a children's hospital**  
Mohan A\*, Chan E, Sidhu N, Casas MJ  
The Hospital For Sick Children, Canada
- O 46 Assessment of an ambulatory protocol for treatment of children with facial cellulitis of odontogenic origin**  
Chan EK\*, Mohan A, Sidhu N, Casas MJ  
Montreal Children's Hospital, Canada
- O 47 Influence of a programme for prevention of early childhood caries on early orthodontic treatment needs**  
Wagner Y\*, Knaup I, Knaup T, Jacobs C, Wolf M  
Department of Orthodontics, Section Preventive Dentistry and Pediatric Dentistry, Jena University Hospital, Germany, Deutschland



- O 48 Removable orthodontic appliances and alterations in oral microbiota: A perspective longitudinal study**  
Pellegrino M\*, Pellegrino GS, Fioretti L, Pellegrino G  
Private practitioner, Italy
- O 49 Cranio-facial skeletal pattern: correlation with oral breath in growing children**  
Muntean A\*, Simu M, Suhani R, Lupse I, Cosma L  
Paediatric Dentistry Department, Faculty of Dental Medicine, University of Medicine and Pharmacy, Romania
- O 50 Dental Screening for Paediatric patients prior to Bone Marrow Transplant at the Bristol Royal Children's Hospital**  
Hardwick C\*, Power R  
University Hospitals Bristol NHS Foundation Trust, United Kingdom
- O 51 A study of parental presence/absence technique for child dental behaviour management**  
Boka V\*, Arapostathis K, Van Loveren C, Veerkamp J, Kotsanos N  
Department of Paediatric Dentistry, Aristotle University of Thessaloniki, Greece
- O 52 Quality assessment of intraoral radiographs in the primary and mixed dentition taken at the Dental School of Western Australia**  
Aps JK\*, Ng P, Lee K  
University of Western Australia, Dental School, Division of Oral Diagnostic & Surgical Sciences, Australia
- O 53 Evaluating dental radiography compliance for paediatric patient assessment in secondary care: a United Kingdom multi-centre survey**  
Dave M\*, Barry S, Davies J  
The University of Manchester, United Kingdom
- O 54 The impact of robotic distraction technique in children**  
Kasimoglu Y\*, Kocaaydin S, Batu S, Ince G, Tuna EB  
Department of Pedodontics, Faculty of Dentistry, University of Istanbul, Turkey
- O 55 Content analysis of smartphone apps promoting tooth brushing for children**  
Hotwani K\*  
VSPM Dental College and Research Centre, Nagpur, Maharashtra, India
- O 56 The influence of testosterone on clinical bruxism in children and adolescents**  
Buchhardt J\*, Kiess W, Koerner A, Kratzsch J, Hirsch C  
Department of Pediatric Dentistry, University Hospital Leipzig, Germany
- O 57 Student perceptions of traditional and novel scenario-based digital paediatric dentistry tutorials**  
Graham AV\*, Rodd H, Hughes J, Yesudian G, Gilchrist F  
Charles Clifford Dental Hospital, Sheffield Teaching Hospitals NHS Foundation Trust, United Kingdom
- O 58 Correspondence between the paediatric dental team and referring practitioners – How well are we communicating?**  
Ondhia A\*, Marshall S, Kandiah T  
Barts Health NHS Healthcare Trust, United Kingdom
- O 59 Children's perception of pain in conjunction with tooth extraction – a Grounded Theory study**  
Berlin H\*, Hallberg U, Ridell K, Toft D, Klingberg G  
Department of Pediatric Dentistry, Faculty of Odontology, Malmoe University, Malmoe, Sweden



- O 60 Oral health and orofacial aesthetics related outcomes of the ICHOM cleft set: evaluation and recommendations.**  
Kind L\*, Versnel S, Koudstaal M, Wolvius E, Kragt L  
Department of Oral and Maxillofacial Surgery, Special Dental Care and Orthodontics, Erasmus University Medical Center, Rotterdam, The Netherlands
- O 61 Alveolar Rhabdomyosarcoma of Parameningeal origin – A rare entity**  
Rosenthal D\*, Mumtaz S  
Royal Free London NHS Foundation Trust, United Kingdom
- O 62 Nitrous oxide impairs spatial working memory in mice**  
Emmanouil D\*, Klein E, Chen K, Zhang Y, Quock R  
Department of Paediatric Dentistry, School of Dentistry, NKUA, Greece
- O 63 Changes in oral health-related quality of life among Austrian preschool children after dental treatment under general anaesthesia**  
Boukhobza S\*, Meissner N, Glatthor J, Bekes K  
Department of Paediatric Dentistry, Medical University of Vienna, Austria
- O 64 Sociodemographic and behavioural determinants of infant oral health knowledge among expectant mothers**  
Al-Sane MA\*  
Faculty of Dentistry, Kuwait University, Kuwait
- O 65 Dental health needs of migrant children**  
Berat P\*, Elmerich C, Folliguet M, Vital S  
University of Paris - Paediatric Dentistry, Department of Oral Medicine, Louis Mourier Hospital, HUPNVS AP-HP Colombes (92), France
- O 66 Effective method to teach oral education in pupils aged 6 to 12 at the Pureza de María School in Catalonia (Spain)**  
Fernandez Sencion JN\*, Veloso A, Viroles M, Guinot F  
International University of Catalonia, Spain
- O 67 Unique Needs of Immigrant Children and patients with Special Needs: Lessons Learned from a California model providing dental treatment under general anaesthesia**  
Rydell-Anderson VA\*  
Attorney/Healthcare Consultant, S. Fitch Consulting LLC, Healdsburg, CA, USA
- O 68 The Analysis of Dental Treatment under General Anaesthesia in Medically Compromised and Healthy Children**  
Koberova R\*, Merglova V, Kovacsova F, Suchanek J, Cermakova E  
Dept. of Paediatric Dentistry, Faculty of Medicine Charles University and University Hospital, Hradec Kralove, Czech Republic
- O 69 A novel use of Virtual Reality (VR) in Dentistry**  
Cunningham A\*, Evans C, McGrath C, Coyle C  
Belfast Trust, United Kingdom
- O 70 Office based Propofol sedation for paediatric dental treatment in ASA I and II children: Mortality and incidents in 25.000 patients**  
De Jong CJ\*  
Kindertand, The Netherlands
- O 71 Development of an integrated dental care pathway for young people with cleft lip/palate**  
FitzGerald K\*, McGovern E, Tuohy M  
Children's Health Ireland at Crumlin, Ireland
- O 72 Parents' perceptions of oral care in a paediatric cancer unit**  
Pinto T, Goncalves C, Leite F, Silva R, Correia P\*  
Faculty of Dental Medicine, Universidade Catolica Portuguesa, Portugal

- O 73 Oculodentaldigital Syndrome – need for an evolving treatment plan**  
Dale C\*, Dixon C, Srinivasan V, Hunter K  
University of Manchester Foundation Trust, United Kingdom
- O 74 Periodontal conditions in children with neutrophil-associated primary immunodeficiencies**  
Bayliss-Chapman J, Davies J\*, Somani C, Nibali L, Donos N  
Queen Mary University of London, Royal London Hospital, United Kingdom
- O 75 Dental management of three siblings with Ectrodactyly Ectodermal Dysplasia: A case report**  
Osborne R\*, D'Souza E, Balmer R  
Harrogate and District Foundation Trust, United Kingdom

## EAPD Awards – Titles of Oral Abstracts

- AWO 1 Behaviour and gagging interaction in 4-12 year old children throughout dental treatment.**  
Katsouda M\*, Coolidge T, Kotsanos N, Arapostathis K  
Department of Paediatric Dentistry, Dental School, Aristotle University of Thessaloniki, Greece
- AWO 2 Happy teeth and healthy mouths: Optimising oral health knowledge for families of paediatric patients.**  
Gupta A\*  
East Surrey Hospital, United Kingdom
- AWO 3 Efficacy of two minimally invasive methods of caries removal: a randomized split-mouth clinical trial preliminary findings**  
Duman C\*, Capan B, Egil E, Kalaoglu E  
Marmara University, School of Dentistry, Department of Paediatric Dentistry, Turkey
- AWO 4 Antibacterial properties of novel dental composites containing polylysine.**  
Lygidakis NN\*, Allan E, Ashley P, Young A  
Eastman Dental Institute, United Kingdom
- AWO 5 Calcium dynamics and molecular signalling of dental pulp stem cells in the regeneration potential of calcium silicate cements**  
Rathinam E\*  
Department of Paediatric Dentistry and Special Care, Ghent University, Ghent, Belgium
- AWO 6 Calcium hydroxide + iodoform paste as a canal dressing in poor prognosis avulsed permanent teeth**  
Sumner O\*, Hind V  
Newcastle Dental Hospital, United Kingdom
- AWO 7 Direct pulp capping in carious primary molars using three different direct pulp capping materials. Twelve-month clinical trial.**  
Chatzidimitriou K\*, Koletsi D, Lygidakis NA, Gizani S, Vadiakas G  
Department of Paediatric Dentistry, Dental School of National and Kapodistrian University of Athens, Greece
- AWO 8 Stainless steel crown versus bulkfill composites post primary molars pulpectomy: 1-year survival and acceptance results of a RCT**  
Olegario IC\*, Bresolin CR, De Araujo MP, Hesse D, Raggio DP  
Dublin Dental University Hospital, Trinity College Dublin, Ireland

- AWO 9 Decellularised bovine dental pulp as a biological scaffold for regenerative endodontic therapy**  
Alghutaimel H\*, Yang X, Nazzal H, Duggal M, Raif E  
Department of Paediatric Dentistry, University of Leeds, Leeds, UK, United Kingdom
- AWO 10 Home video-recording as an objective data collection method to assess parent-child tooth brushing**  
Giles E\*, Bhatti A, Gray-Burrows K, Day PF  
University of Leeds, United Kingdom
- AWO 11 Dental fear, caries experience and periodontal health in children and adolescents with hearing impairment.**  
Trimeridou A\*, Boka V, Arapostathis K, Kotsanos N  
Department of Pediatric Dentistry, School of Dentistry, Aristotle University of Thessaloniki, Greece

## EAPD Awards – Titles of Poster Abstracts

- AWP 1 Effectiveness of the “Pain-free Dental Injection” (PaFeIn) teaching model in children: a randomized, controlled study**  
Ozcelik SM\*, Akyuz S, Bekiroglu N, Kucuktepe C, Kuscu OO  
Marmara University, School of Dentistry, Department of Paediatric Dentistry, Turkey
- AWP 2 Clinical and microbiological evaluation of deep carious lesions treated with stepwise technique**  
Vacaru RP\*, Per S, Tanase M, Brand H, Didilescu A  
Carol Davila University of Medicine and Pharmacy, Romania
- AWP 3 Does resin infiltration work in cases of developmental enamel anomalies?**  
Cachia Mintoff J\*, Ahmad A, Monteiro J  
University College London, United Kingdom
- AWP 4 A study of the microstructure of teeth with Molar Incisor Malformation (MIM).**  
Harisi C\*, Arhakis A, Arapostathis K, Kotsanos N  
Department of Paediatric Dentistry, School of Dentistry, Aristotle University of Thessaloniki, Greece
- AWP 5 The burden and impact of Amelogenesis Imperfecta care at Eastman Dental Hospital**  
Al Siyabi H\*, Parekh S, Ashley P, Monteiro J  
Eastman Dental Institute - UCL, United Kingdom
- AWP 6 Hall technique: a treatment option for hypomineralized second primary molars?**  
Mampay E\*, Declerck D  
KU Leuven, Department of Oral Health Sciences and Department of Dentistry Unit of Paediatric Dentistry and Special Dental Care, University Hospitals Leuven, Leuven, Belgium
- AWP 7 Detection of organic and inorganic components released from five restorative materials using GC-MS and ICP-OES.**  
Roussou K\*, Arhakis A, Nikolaidis A, Kotsanos N, Koulaouzidou E  
Department of Paediatric Dentistry, School of Dentistry, Faculty of Health Sciences, Aristotle University of Thessaloniki, Greece

- AWP 8 Bioceramic Endodontic Cements (BEC) for the treatment of Inflammatory External Root Resorption (IERR)**  
Papadaki S\*, Gardener C  
Paediatric Dentistry Department, Leeds Dental Institute, United Kingdom
- AWP 9 Which tooth is best to estimate age using the London Atlas?**  
Tan W\*, Davies JA, Liversidge HM  
Queen Mary University of London, United Kingdom
- AWP 10 Children and parent's views on a brief pre-operative communication aid**  
Noble F\*, Graham A, Tajmehr N, Campbell F, Marshman Z  
Charles Clifford Dental School/University of Sheffield, United Kingdom
- AWP 11 Comparison of efficacy, acceptance and preference between needless and conventional infiltration technique in adult volunteers.**  
Theocharidou A\*, Dermata A, Arapostathis K, Kotsanos N  
Department of Paediatric Dentistry, School of Dentistry, Aristotle University of Thessaloniki, Greece
- AWP 12 Medication history and care-seeking behaviour of children attending a children's dental emergency clinic at a UK teaching hospital**  
Okwesa A\*, Davies J, Whatling R, Muirhead V  
Barts Health NHS Trust/ Queen Mary's University of London, United Kingdom
- AWP 13 Implementing a course and clinic for cleft and craniofacial conditions in NYU's Advanced Education Program in Pediatric Dentistry.**  
Kreps BL\*, Kassam S, Rosenberg L, Moursi A  
Department of Pediatric Dentistry, New York University College of Dentistry, New York, NY, USA
- AWP 14 Occlusal characteristics and dental trauma in preschool children with cerebral palsy**  
Vatsolaki L\*, Agouropoulos A, Gizani S  
Department of Paediatric Dentistry, National and Kapodistrian University of Athens, Dental School, Greece
- AWP 15 Oral health status in patients affected by Wilson's disease: clinical diagnostic study.**  
Caruso S\*, Desiderio F, Cantile T, Gatto R, Ferrazzano G  
MeSVA, University of L'Aquila, L'Aquila, Italy
- AWP 16 Dental treatment of a 4-year-old patient with non-syndromic Pierre Robin sequence. Case presentation.**  
Tagkalaki K\*, Papanakou S, Tsiligianni A, Nasika M, Gizani S  
Paediatric Dentistry Department, National and Kapodistrian University of Athens, Dental School, Greece

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- P 1 A rule of thumb! Setting a standard dental visit at first birthday**  
AlZayer MA\*  
John Hopkins Aramco Healthcare, Kingdom of Saudi Arabia
- P 2 Contact Types and Proximal caries experience in primary molars**  
Cho V\*  
The University of Western Australia, Australia

- P 3**      **Is Silver the New Black? Seeking public and patient involvement in research into Silver Diamine Fluoride (SDF)**  
Timms L\*, Marshman Z, Rodd HD  
The University of Sheffield, United Kingdom
- P 4**      **Is breastfeeding a risk factor for early childhood caries? A systematic review**  
Koleventi A\*, Kostopoulou MP, Zymperdikas V, Lygidakis N  
251 Hellenic Air Force Hospital, Paediatric Dentistry Department, Athens, Greece
- P 5**      **Comparative efficacy of a hydroxyapatite and a fluoride toothpaste for prevention and remineralisation of dental caries in children**  
Amaechi BT, AbdulAzees PA, Alshareif DO, Enax J, Meyer F\*  
Research Department Oral Care, Dr. Kurt Wolff GmbH & Co. KG, Bielefeld, Germany
- P 6**      **Impact of quality of life on oral health preservation of migrants in Serbia**  
Mandinic Z\*, Prokic A, Jovicic O, Mandic J, Ivanovic M  
Clinic for Paediatric and Preventive Dentistry, School of Dental Medicine, University of Belgrade, Serbia
- P 7**      **Parental opinions towards policies targeted at controlling the intake of sugar-sweetened beverages**  
Chan Xin Yi J\*, Hong Hsu Ling C, Mun Loke W, Kee Seng C, Shijia H  
National University of Singapore, Singapore
- P 8**      **PUFA is related to higher impact on quality of life due to caries in 8-year-old children.**  
Reis PP, Jorge RC, Peres AA, Pontes NS, Soviero VM\*  
Faculdade Arthur Sa Earp and Universidade do Estado do Rio de Janeiro, Brazil
- P 9**      **Caries treatment vs. pulp therapy**  
Getsman A\*  
Private practice, Russian Federation
- P 10**     **A large radicular cyst associated with deciduous maxillary molar: A case report**  
Boekitwetan F\*  
Special Care Dentistry Pediatric Department in St. Anna Hospital, The Netherlands
- P 11**     **ECC prevalence according a new protocol among children in Belarus**  
Shakavets N\*, Tserakhava T, Antonenka A, Zhylevich A, Svirskaya A  
Belarusian State Medical University, Belarus
- P 12**     **Pediatricians' knowledge and awareness about children's oral health in Kuwait**  
Alanzi AN\*, Hajiah S, Fraidoon A, Alterkait A  
Kuwait University, Kuwait
- P 13**     **Association between caries experience restorative care in deciduous teeth and the socioeconomic status of 7- to 8-year-olds**  
Winter J\*, Schmidt P, Heinzl-Gutenbrunner M, Pieper K  
Department of Operative Dentistry and Endodontics, Philipps University, Marburg, Germany
- P 14**     **The effect of education and motivation on the oral health of young children: Longitudinal study**  
Kalnina J\*, Brinkmane A, Ribalkina E  
Riga Stradins University, Institute of Stomatology, Latvia
- P 15**     **The effect of monthly professional tooth brushing (PTB) on dental caries among schoolchildren: 2 years randomised controlled trial**  
De Melo Avila W\*, Mendes Soviero V, Hesse D, Calil Bonifacio C  
Academisch Centrum Tandheelkunde Amsterdam (ACTA), The Netherlands
- P 16**     **Is early childhood caries associated with a negative impact on oral health-related quality of life in children?**  
Solanke C\*, Stamm T, Bekes K  
Department of Paediatric Dentistry, Medical University of Vienna, Austria

- P 17 Dental treatment in children under general anaesthesia in Latvia, 2008-2019**  
Slepčova O\*, Juhno D, Caplijeva A, Maldupa I, Viduskalne I  
Riga Stradins University, Latvia
- P 18 Dental treatment and salivary antimicrobial peptide LL-37 in children with caries: A pilot study**  
Almusailleekh FR\*, Meade D, Devine P  
University of Leeds, United Kingdom
- P 19 E-SMART: A novel method of combined atraumatic techniques in treating dental caries in young children: Clinical care report**  
Igha A, Ogodescu E, Corneschi L\*, Ogodescu A  
University of Medicine and Pharmacy Victor Babes Timisoara, Romania
- P 20 Implementation of the new German fluoride recommendations by dentists in Northern Germany - a survey**  
Geiken A\*, Takriti A, Conrad J, Mourad M, Splieth C  
University Schleswig-Holstein, Clinic for Conservative Dentistry and Periodontology, Kiel, Germany
- P 21 Adolescent rampant caries related to soft and energy drinks: a case report**  
Lunackova J\*, Kaiferova J, Navarova L  
Paediatric Dentistry Department, School of Dental Medicine, Charles University and General University Hospital in Prague, Czech Republic
- P 22 Recurrence of ECC after treatment under general anaesthesia: A 24-month record-based follow-up study**  
Bernidaki S\*, Schiffner U  
University of Greifswald, Germany
- P 23 Parental knowledge and attitude towards oral prophylaxis of infants and toddlers**  
Silova N\*, Grisakova J, Matveja K, Viduskalne I, Kronina L  
Riga Stradins University, Latvia
- P 24 Parents' knowledge regarding the risk factors of early childhood caries**  
Sirghe A\*, Balan GG, Pintiliciuc-Serban V, Adumitroaie A, Savin C  
Faculty of Dental Medicine, U.M.F. Grigore T. Popa Iasi, Romania
- P 25 Caries in 1- and 2-year-old children in Hamburg**  
Wolter I\*, Schulz B, Schiffner U  
Department of Dental and Oral Medicine (ZMK), University Medical Center Hamburg-Eppendorf (UKE), Germany
- P 26 Multi-disciplinary management of a child with hypodontia complicated by bilateral canine/first premolar transposition and crowding**  
Shah A\*, Sharma G  
Oral and Maxillofacial Surgery Department, Wexham Park Hospital, United Kingdom
- P 27 Molar incisor hypomineralisation and oral health related quality of life: a systematic review**  
Kooter-Nugteren M\*, Bonifacio CC, Hesse D, Slot DE  
Department of Pediatric Dentistry, Academic Centre for Dentistry Amsterdam (ACTA), University of Amsterdam and Vrije Universiteit Amsterdam, The Netherlands
- P 28 A Micro-Invasive Approach To Improve Esthetics In Young Patients: 12 Months Follow-Up**  
Bacaksiz A\*, Bacaksiz I  
Private Practice, Turkey
- P 29 Extraction of first permanent molars severely affected by MIH - a follow-up study**  
Brusevold IJ\*, Kleivene K, Grimsoen B, Skaare AB  
Department of Pediatric Dentistry and Behavioural Science, University of Oslo, Norway



- P 30 Oral rehabilitation of a 5-year-old patient with hypoplastic Amelogenesis Imperfecta under general anaesthetic**  
Cooper J\*, Barry S  
University Dental Hospital of Manchester, United Kingdom
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Reynolds L\*, Kandiah P  
University Dental Hospital of Manchester, United Kingdom
- P 32 Getting to the roots of the problem: Managing the implications of radiation therapy in the paediatric patient**  
Loy F\*, Kandiah P  
Children Dental Health Department, University Dental Hospital of Manchester, United Kingdom
- P 33 Transitional implants: An asset to paediatric dentistry- A case report**  
Deulkar PV\*  
Datta Meghe Institute of Medical Sciences, India
- P 34 Use of silver diamine fluoride for treatment of sensitive severely broken down hypomineralized primary and permanent molars**  
Jasulaityte L\*  
Jeugd tandzorg West, The Netherlands
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Istanbul University, Faculty of Dentistry, Istanbul, Turkey
- P 36 Gold onlays for the restoration of hypoplastic first permanent molars.**  
Brown L, O'Sullivan E\*  
City Health Care Partnership, Hull, United Kingdom
- P 37 'Can you fix my crumbly brown teeth?' - A service evaluation of children referred with Molar-Incisor-Hypomineralisation (MIH)**  
Humphreys SJ\*, Jarad F, Albadri S  
University of Liverpool, United Kingdom
- P 38 Potential aetiological factors of molar-incisor hypomineralisation in children.**  
Rubene I\*, Viduskalne I, Rivare A, Rakecka S, Cerane L  
Institute of Stomatology, Riga Stradins University, Latvia
- P 39 Impact of Molar Incisor Hypomineralization children's oral health-related quality of life**  
Elhennawy K, Doueiri M, Rajjoub Eldik O\*, Hamad R, Reissmann D  
Department of Orthodontics, Dentofacial Orthopedics and Pedodontics, Charite - Universitaetsmedizin, Germany
- P 40 Aetiology of MIH – A case-control study**  
Stanciu I\*, Luca R, Munteanu A, Farcasiu C, Farcasiu T  
Carol Davila University, Bucharest, Romania
- P 41 Deciduous molar hypomineralisation and molar-incisor hypomineralisation - an exploratory study in Northern Germany**  
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Dental Joint Practice Dr. Warner & Dr. Hallberg, Gettorf, Germany
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Bolaca A\*  
Pamukkale University, Faculty of Dentistry, Turkey

- P 43 Multidisciplinary management of a boy with severe oligodontia, 17 years of follow-up**  
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KU Leuven, Department of Oral Health Sciences and Department of Dentistry, Unit of Pediatric Dentistry and Special Dental Care, University Hospitals Leuven, Belgium
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Lafferty F\*, Balmer RC, Mighell AJ  
Health Education England Yorkshire and Humber Future Leaders Programme, United Kingdom
- P 45 Management of impacted and dilacerated maxillary central incisor: A case report**  
Ilisulu C, Ozkurt S\*, Cankaya B, Seymen F  
Department of Pediatric Dentistry, Faculty of Dentistry, University of Istanbul, Turkey
- P 46 Children's views: six-months following micro-invasive treatment of their hypomineralised permanent incisors**  
Lawson JA\*, Hasmun N, Yesudian G, Zaitoun H, Rodd HD  
Sheffield Teaching Hospitals NHS Foundation Trust, United Kingdom
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Department of Paediatric Dentistry, Charles Clifford Dental Hospital, Sheffield, United Kingdom
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Cosma LL\*, Muntean A, Lupse I, Badea ME  
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- P 50 Regenerative endodontic treatment of a dens invaginatus causing a canine fossa abscess**  
Wal-Adamczak A\*  
Private practice, Poland
- P 51 The utilisation of indirect composite restorations in the management of amelogenesis imperfecta.**  
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Alshahrani SM\*  
Leeds, United Kingdom
- P 53 Prevalence, severity and clinical consequences of molar incisor hypomineralisation in Ukrainian children**  
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Department of paediatric and preventive dentistry of Bogomolets National Medical University, Kiev, Ukraine
- P 54 Congenital Bilateral Perisylvian syndrome: A rare neurological condition associated with dental anomalies – A case report**  
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University Medical Center Hamburg-Eppendorf (UKE), Germany
- P 57 A Case Report: Turner Tooth Restoration**  
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Istanbul University, Dentistry Faculty, Department of Paediatric Dentistry, Turkey
- P 58 Evaluation of aloe vera as an obturating material in primary teeth.**  
Baliga S\*  
Sharad Pawar Dental College, Sawangi (meghe), Wardha, Maharashtra, India
- P 59 Saliva contamination effects on two different adhesive systems bonding to enamel and dentin**  
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Grigore T. Popa University of Medicine and Pharmacy, Iasi, Romania
- P 60 A minimally invasive restorative approach for severe Molar Incisor Hypomineralization: a case report with 6 years follow-up**  
Zaffarano L\*, Campus G, Grazia Cagetti M  
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Sabbarini J\*  
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- P 63 Inhibition of Matrix Metalloproteinase (MMP) activity via a Novel SMART Composite versus commercial filling materials**  
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Ezzeldin M\*, Bhatia S  
University Dental Hospital, Cardiff, United Kingdom
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Department of Paediatric Dentistry, School of Dentistry, Aristotle University of Thessaloniki, Greece
- P 67 Biofilm growth inhibition on novel polylysine and monocalcium phosphate-containing dental composites**  
Alostad M\*, Ashley P, Young P, Allan E  
Department of Paediatric Dentistry, UCL Eastman Dental Institute, London, United Kingdom
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Department of Paediatric Dentistry, Giessen, Germany

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Pediatric Dentistry resident at King Abdulaziz Medical City, Kingdom of Saudi Arabia
- P 70 Margin Quality of Tooth-coloured Primary Molar Crowns**  
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Department of Paediatric Dentistry, Medical Center for Dentistry, University Medical Center Giessen and Marburg (Campus Giessen), Justus-Liebig-University Giessen, Germany
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Vasakova J\*  
Department of Paediatric Dentistry, Dental School of Medicine, General Teaching Hospital, 1st Faculty of Medicine, Charles University, Czech Republic
- P 72 Delayed presentation of dental trauma - Give it a Go**  
Keogh A\*, Breen M  
St Georges Hospital, London, United Kingdom
- P 73 Emergency dental care among children and adolescents at Public Dental Service, Norway**  
Saelen F\*, Virtanen J, Graue A, Bletsa A, Skeie M  
Department of Clinical Dentistry, University of Bergen. Oral HealthCentra of Expertise in Western Norway- Hordaland, Norway
- P 74 Prevalence and outcomes of untreated dental fractures in children with intellectual disability living in orphan institution**  
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Central Research Institute of Dentistry and Maxillofacial Surgery, Russian Federation
- P 75 A three-year retrospective study on the pattern and treatment outcome of dental trauma in immature teeth**  
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Department of Paediatric Dentistry, Medical University Vienna, Austria
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Ege University Department of Pediatric Dentistry, Turkey
- P 77 Suboptimal management of an avulsed permanent central incisor – the tooth, the whole tooth and nothing but the tooth!**  
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Division of Public and Child Dental Health, Dublin Dental University Hospital, Ireland
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Khorramabad University of Medical Sciences, Khorramabad, Iran
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Institute of Stomatology, Riga Stradins University, Latvia

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Crumlin Children's Hospital, Dublin, Ireland
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Department for Special Care Dentistry, Dental School, Witten/Herdecke University, Witten, Germany
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Dumfries Dental Centre/Dumfries and Galloway Royal Infirmary Hospital Public Dental Service, Orthodontic and Maxillofacial Dept. NHS Dumfries and Galloway, Ireland
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Department of Pediatric Dentistry, Tel Aviv University, Faculty of Medicine, School of Dental Medicine, Israel

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KU Leuven, Department of Oral Health Sciences and Department of Dentistry, Unit of Paediatric Dentistry and Special Dental Care, University Hospitals Leuven, Leuven, Belgium
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KU Leuven, Department of Oral Health Sciences and Department of Dentistry, Unit of Pediatric Dentistry and Special Dental Care, University Hospitals Leuven, Leuven, Belgium
- P 228 Dental management of a paediatric patient with X-Fragile Syndrome.**  
Ninivaggi R\*, Defabianis P  
Specializing doctor in Paediatric Dentistry, CIR-Dental School, University of Turin, Italy



## Oral Abstracts

### O 1 Parent perspectives on a simple intervention to reduce child dental anxiety at their first hospital visit

Tajmehr N\*, Zaitoun H, Timms L, Knap R, Marshman Z

Charles Clifford Dental Hospital, Sheffield Teaching Hospital NHS Foundation Trust, United Kingdom

**AIM** `To gain feedback from parents/carers about the value of a pre-operative letter and communication aid, Message to Dentist (MTD), in alleviating their child's dental anxiety.` **METHODS** `All new patients referred for assessment, within the paediatric dentistry clinic, were sent a hard copy MTD and introductory letter six weeks before their appointment (January, 2020). The MTD provided 'tips' for parents to help their child feel less worried about their dental visit. It also incorporated sections for children to: self-report their level of anxiety and anticipatory pain (scale 1-10); write down what they would/would not like to happen at their visit; provide children with ideas for improving the visit and prompt discussion about a reward. On arrival, parents and children completed a questionnaire seeking their views on this intervention.` **RESULTS** `Responses were received from the parents/carers of 154 children aged 3-16 years (mean age=8.3), 41% were from a minority ethnic group and 67% were from areas of high deprivation. In terms of perceived value; 66% felt the MTD had reduced their child's anxiety; 26% felt it had no effect (mainly because their child was not actually anxious), and 3% felt it had made their child more worried (by referring to 'pain'). Overall, parents were very positive about the intervention, and felt it had stimulated conversations prior to the visit, allowing them to provide better support for their child.` **CONCLUSIONS** `Sending a pre-visit communication aid, designed to reduce dental anxiety, was found to be effective and well received by children and their parents.

### O 2 Dental treatment with inhalation sedation 'PROMs and PREMs' in improving oral-health-related quality of life (OHRQoL)

Gillway DJ\*, Ondhia A, Kandiah T

Surrey and Sussex Healthcare NHS, United Kingdom

**AIM** `Inhalation sedation is commonly used to aid paediatric dental treatment and is an important pharmacological behavioural management tool. The use of patient related outcome and experience measures (PROMs/PREMs) allows us to understand the changes in oral-health-related quality of life (OHRQoL) and therefore the effectiveness of this treatment modality.` **METHODS** `Questionnaire developed focussed on OHRQoL including dental anxiety, time off school and waking at night. Pre-sedation questionnaire (PROMS) completed by parent or guardian of patient (age under 16) undergoing dental treatment with inhalation sedation. One month following completion of treatment, post-sedation telephone questionnaire was undertaken (PROMS and PREMs). Exclusions were children with severe learning /physical impairments, use of interpreters and patients who failed to complete treatment under inhalation sedation.` **RESULTS** `37 questionnaires analysed (response rate 82%, n=45). 92% reduction in dental pain noted (n=24). Improvements in eating habits (76%), smiling (75%), sleep (60%) and tooth brushing (40%). 55% reported dental anxiety prior to treatment, this reduced to 10% post treatment. Experience (dignity, respect, advice, pain relief) received 100% satisfaction rate, 95% satisfied with sedation itself and treatment exceed expectations in 78% of patients.` **CONCLUSIONS** `Inhalation sedation is a safe and effective treatment modality with good patient experience and outcomes. Although significant benefits are reported, reduction in pain and dental anxiety can be further improved. Better prevention in the community as well as preparation of the child prior to their dental sedation treatment will aid in reduction of dental anxiety and improve OHRQoL.

### O 3 The effect of monthly professional toothbrushing on caries incidence and increment among Brazilian schoolchildren: a 2-year RCT.

Hesse D\*, Soviero VM, Dos Reis PP, Jorge RC, Bonifacio CC

Department of Pediatric Dentistry, Academic Centre for Dentistry Amsterdam (ACTA), The Netherlands

**AIM** `To investigate the caries incidence and caries increment among Brazilian schoolchildren who received professional toothbrushing (PTB) monthly or once every six months, after two years of the implementation of these strategies.` **METHODS** `A randomized controlled trial was performed in Petrópolis (Brazil) and the included schoolchildren were randomly allocated into two groups, monthly PTB and PTB once every six months. Dental caries was scored using the Nyvad criteria at baseline and every six months for a period of two years. Caries incidence was calculated on a patient level by identifying the children presenting at least one new caries lesion. Caries increment was calculated on a surface level by identifying transitions from sound and initial lesions (Nyvad scores=0,1,4) to decay or filling (Nyvad scores=2,3,5,6,7,8,9). Multiple logistic regression analysis was used to determine the intervention group's odds of having a positive caries increment while controlling for patient's related characteristics ( $\alpha=5\%$ ).` **RESULTS** `A total of 215 children aged 4-10 years (mean=5.9  $\pm$ 1.5) were included. From those, 168 children were evaluated after two years (drop-out=22%), totalizing 32,929 surfaces. The overall caries incidence was 61% with no difference among groups ( $p=0.52$ ). The mean caries increment was 1.8 surfaces ( $\pm$ 2.16) with no differences between groups ( $p=0.48$ ). Previous caries experience (OR=4.3 95% CI=2.22-8.32), posterior teeth (OR=12.63 95% CI=5.78-27.59) and presence of pulp inflammation (OR=17.79 95% CI=6.49-48.74) were associated with the development of new caries lesions.` **CONCLUSIONS** `The monthly PTB does not influence the caries incidence and caries increment among schoolchildren.

### O 4 Dentists' decisions for deep carious lesions management in permanent teeth in children and adolescents

Aiem E\*, Garcia A, Domejean S, Muller Bolla M

Department of Paediatric Dentistry, Faculty of Dentistry, Cote Azur University, CHU Nice, Nice, France

**AIM** `A cross-sectional questionnaire survey was undertaken to describe the management strategies for deep carious lesion (DCL) of vital permanent teeth (immature (IPT) or not (NIPT)) among dentists practicing pediatric dentistry (DPPDs) in France. Their behavior was compared to members' one registered to European Academy of Pediatric Dentistry (EAPD).` **METHODS** `A questionnaire was electronically administrated (2018-2019) to members of: the Collège des Enseignants en Odontologie Pédiatrique (CEOP), the Société Française d'Odontologie Pédiatrique (SFOP) and the EADP. Descriptive and statistical analyses were performed.` **RESULTS** `Response rate were respectively for CEOP, SFOP and EAPD about 74% (n=68), 29% (n=53) and 15% (n=149). Selective excavation (SE) was more likely to be performed in IPT (36%) than in NIPT (31%) ( $p0.001$ ); the results were unchanged considering only the DPPDs practicing in France (SE-IPT: 35%; SE-NIPT: 28%) ( $p0.001$ ) or EAPD members (SE-IPT: 36%; SE-PT: 32%) ( $p0.001$ ). A one step complete caries removal was more likely chosen in NIPT (44%) than in IPT (24%) whereas stepwise technique was more likely to be preferred in IPT (41%) than in NIPT (27%) ( $p0.001$ ).` **CONCLUSIONS** `Further post-graduate education about DCL in children and adolescents seems to be needed in Europe in order to align knowledge and practices of DPPDs with current evidence-based recommendations.

### O 5 Treatment of hypersensitive carious primary teeth using silver diammine fluoride and potassium iodide: an observational cohort study

Abudrya MH\*, Splieth C, Mourad MS, Santamaria R

Department of Preventive and Pediatric Dentistry, University of Greifswald, Germany

**AIM** `To evaluate the clinical outcomes in light of caries arrest and hypersensitivity relief following application of silver diammine fluoride and potassium iodide SDF+KI (Riva Star®, SDI Limited) on hypersensitive carious lesions (ICDAS 5) after a 3-month follow-up` **METHODS** `15 children aged 2-5 years (3.58 $\pm$ 0.95) requiring a desensitizing treatment of hypersensitive carious lesions were consecutively recruited at the Preventive and Pediatric Dentistry Department of Greifswald University/Germany. After hypersensitivity was confirmed, teeth were isolated, caries activity was clinically assessed (Bjorndal Criteria;



0-9), then SDF+KI was applied following manufacturer's instructions. Clinical variables assessment took place at baseline and at 3 months mark after treatment. Parents assessed their children's hypersensitivity using a Visual Analogue Scale (0-10= no - severe pain). Variables were compared between baseline and follow-up using paired t-test, Wilcoxon signed rank test and McNemar test. Only one tooth per child was analyzed.`

**RESULTS`** `Assorting the 15 participants (dmft=8.07±2.79), 9 (60%) were boys and 6 (40%) girls. From 15 (100%) active carious lesions at baseline, following 3-months, 13 (86.7%) were inactive and 2 (13.3%) remained active (p= 0.001). Regarding hypersensitivity, pain scores varied between moderate pain (scores 4 and 5) at baseline in 8 (53.3%) and 7 children (46.7%), respectively. 3-months later, 13 (86.7%) patients' parents reported no pain, 1 (6.7%) mild pain, and 1 (6.7%) no change in pain (score 4; p=0.001).`

**CONCLUSIONS`** `SDF+KI in Riva Star® capsules had a leading effect in desensitizing and arresting caries in hypersensitive active carious primary teeth. This study was partially funded by SDI Limited

## **O 6 Comparison of remineralization induced by calcium silicate-based cement and glass ionomer cement on demineralised dentine in-vitro**

Kuru E\*, Eronat N, Ilktac R

Ege University, Faculty of Dentistry, Department of Pediatric Dentistry, Turkey

**AIM`** `To evaluate the remineralization capacity of calcium silicate-based cement compared to glass ionomer cement (GIC) on the artificially demineralised dentine in-vitro.`

**METHODS`** `One hundred-thirty-six dentine cavities were prepared in thirty-four sound human third molars (four in each tooth) after ethical approval. One of the cavities was covered by acid-resistant varnish before demineralization (Gr S). Specimens were soaked in the chemical demineralization solution at 37°C for 96 hours to induce the artificial caries lesions. Two of the cavities were filled with either calcium silicate-based cement (Biodentine™)(Gr Bd) or GIC (Fuji IX) (Gr GIC) while one carious cavity had no filling (Gr C). Then the specimens were immersed in the simulated body fluid (SBF) at 37°C for 21 days. The specimens were cross-sectioned perpendicular the cavities. In each specimen, the elemental composition (Ca, P) of the cavity was quantified and Ca/P ratio was calculated using SEM-EDX. SEM images of the cement-dentin interface were also evaluated. Data were analysed using the two-way ANOVA and Bonferroni tests.`

**RESULTS`** `Both types of cement induced dentin remineralization. The difference of the Ca/P ratio values was statistically significant and higher in Gr Bd compared to Gr GIC and Gr C (p0.001). SEM examination showed a newly formed mineral layer at the cement-dentin interface.`

**CONCLUSIONS`** `Within the limitations of this study, higher ability of remineralization was found for Biodentine compared to GIC on artificial dentine carious lesions and may be beneficial for deep dentin caries management.

## **O 7 Effects of varying intra-oral attachment sites of fluoride slow-release glass devices.**

Toumba KJ\*

Department of Developmental and Preventive Sciences, Faculty of Dentistry, University of Kuwait, Kuwait

**AIM`** `To compare different sites of intra-oral attachment of fluoride glass slow-release devices (FGSRD's) on participant comfort and salivary fluoride (F) release.`

**METHODS`** `FGSRD's containing 13.3% F were attached to five healthy adult volunteers using an acid etch composite to the following teeth: 1) 16 buccally, 2) 16 26 buccally, 3) 36 buccally, 4) 36 46 buccally, 5) 33 lingually and 6) 33 43 lingually for a period of 2 weeks each time. The participants used a F-free toothpaste prior to and for the duration of the study. Saliva samples were obtained at baseline and after two weeks. All saliva samples were measured for F levels in duplicate using an ion-specific F electrode (Orion). Each participant rated the comfort of attachment of the devices to the first permanent molars (FPM) and the gingival mucosa was assessed for plaque accumulation, inflammation and irritation.`

**RESULTS`** `No subject could tolerate the devices attached lingually to lower canine teeth with 3 days being the longest duration. Teeth 16 26 were the most comfortable with no difference in unilateral or bilateral attachments. Teeth 36 46 were the next most comfortable and the canine attachment was least comfortable. There was minimal plaque retention, mild inflammation but no irritation of gingival mucosa around all devices. The mean salivary F levels for all four FPM sites were similar 0.17 mg/L (range 0.16-0.18 mg/L).`

**CONCLUSIONS`** `The maxillary FPM sites were the most comfortable and the salivary levels were similar for unilateral and bilateral FGSRD's.

## O 8 National Oral Health Survey on Refugee Children and Adolescents in Germany from 2016-2017

Al-Ani A\*, Takriti M, Schmoeckel J, Alkilzy M, Splieth C  
University of Greifswald, Germany

**AIM** `AIM: Due to the significant increase in refugees and the lack of health data, a multicentre survey on oral health status was launched in Germany.` **METHODS** `METHODS: 256 refugees from age 3 to 17 were examined in 2016/17 at 10 registration institutions distributed over Germany by two calibrated dentists. The examination included the dmft/DMFT index according to WHO criteria [2013] and the pufa/PUFA index [Monse et al. 2009].` **RESULTS** `RESULTS: Refugees came mostly from Syria (30.8%) and Iraq (14.4%). Caries experience increased continuously in the primary dentition from 3-year-olds ( $2.54 \pm 3.6$  dt;  $2.62 \pm 3.6$  dmft) to 6–7-year-olds ( $4.21 \pm 3.4$  dt  $4.21 \pm 3.4$ ;  $5.22 \pm 3.4$  dmft). Almost 50% of the 3-year-olds and 7% of the 6–7-year-olds had never exhibited caries on a defect level in the primary dentition (dmft = 0). Mean DMFT values in 12-year-olds were  $2.00 (\pm 1.9; DT 1.12 \pm 1.3; 12\% dmft/DMFT = 0)$  and increased for 13–17-year-olds to  $2.87 (\pm 2.7; DT 1.93 \pm 2.01; 23\% DMFT = 0; mean age 14.9 \pm 1.33)$ . The pufa index was especially high in the primary dentition (6–7-year-olds;  $0.86 \pm 1.38$ ) and less pronounced in the permanent dentition of adolescents (13–17-year-olds; PUFA  $0.18 \pm 0.55$ ).` **CONCLUSIONS** `CONCLUSION: Children and adolescents who came to Germany recently as refugees exhibit higher numbers of carious defects, total caries experience and more fistulas, abscesses etc. than the resident German population, especially the primary dentition. For a successful integration, it would be of importance to close this prevention gap.

## O 9 Does the access to paediatric general anesthesia in France meet the dental treatment needs?

Maniere M\*, Vital S, Muller-Bolla M

Paediatric Dentistry Department, Faculty of Dentistry, University Hospital, Strasbourg, France

**AIM** `In France, the prevalence of untreated caries in primary teeth is nearly 30%. One third of general dentists never treat children less than 6 years. The number of children affected by Early Childhood Caries (ECC) continues to rise. Thus, a great proportion of children requires dental treatment under general anesthesia (GA). The objective was to evaluate the dental general anesthesia (DGA) access for children from French departments of paediatric dentistry.` **METHODS** `We performed a cross sectional survey. The study population was the paediatric dentists from the 16 French dental faculties. They completed a questionnaire assessing the DGA access and the corresponding medicine department, the type of dental treatment provided (extraction only, comprehensive care, or both), the timeout for DGA, the used criteria for prioritizing the case. Descriptive analyses were performed.` **RESULTS** `The answer rate was 100%. Eleven percent of the French paediatric dentistry departments did not have access to DGA. We observed discrepancies in services providing GA, with many uncovered areas. The timeout for DGA was 9 months. Comprehensive care lists have increased in all the paediatric dentistry departments since the last 10 years. Medical conditions and disability are the main criteria to access more rapidly to DGA.` **CONCLUSIONS** `There is a need to evaluate at a national level the DGA services, to ensure that all children have access to the same level care based on treatment need.

## O 10 Caries in preschool children in Hamburg

Schulz B\*, Imke W, Schiffner U

University Medical Center Hamburg-Eppendorf (UKE), Germany

**AIM** `To evaluate the caries prevalence and experience in 3- to 6-year-old preschool children in Hamburg, to relate the data to sociodemographic variables and to update existing data.` **METHODS** `933 children were examined in 21 randomly selected kindergartens in Hamburg in 2016. Caries was scored following WHO criteria but initial caries was also recorded. Information about socioeconomic status (SES, based on parents' education) and immigration background was collected. Caries prevalence and dmft-values were calculated with and without including initial caries. Statistical comparisons with respect to gender, SES and migration background were performed by Chi-square test, Mann-Whitney-test and Kruskal-Wallis-test.` **RESULTS** `Based on WHO criteria, 77.3 % of the children were caries free, from 88.0 % in 3-year-olds to 64.7% in 6-year-olds. There was no significant difference with respect to gender, but significantly differing percentages with respect to SES ( $p < 0.001$ , low SES related with higher prevalence) and migration background ( $p < 0.001$ ,

higher prevalence with migration background). The mean dmft value was  $0.8 \pm 1.9$ . Including initial caries lesions, 55.6 % of the children were caries free, and the dmft was  $1.8 \pm 2.7$ . Statistical evaluation of the dmft-values revealed significant differences with respect to SES and migration background. Compared with a previous similar survey conducted 2006 (caries prevalence 27.3 %, dmft 1.1) some improvements of oral health in preschool children could be demonstrated. **CONCLUSIONS** Caries prevalence and experience in preschool children are high, in particular considering initial caries. The relation to SES and migration background requires specific caries preventive concepts.

### O 11 Esthetic paediatric dentistry in a changing society: A case report

Belfer M\*, Kosyreva T

Peoples' Friendship University of Russia, Russian Federation

**INTRODUCTION** Early childhood caries (ECC) is a widespread disease in children from birth to six years old. Due to the challenges of modern society, it is important for most parents that their kids from the earliest age of life have beautiful teeth, which can both be proud of. **BACKGROUND** This paper presents a case report of a three-year-old boy with ECC, which describes the aesthetic approach to the oral rehabilitation of the young patient. **CASE REPORT(S)** A three-year-old boy presented with ECC for the treatment in the private dental practice in Moscow, Russia. His history included prolonged bottle-feeding, lack of oral hygiene, several visits to dentists. The toddler had provoked pain from eating and brushing. The patient drank sweet liquids from a bottle during the day and night time. The examination revealed extensive carious destruction in all upper teeth and decayed four lower molars. X-Ray matched with the clinical diagnosis. The treatment was performed under the GA. After caries removal and restorations in six molars, the crowns were placed on the upper first molars, strip crowns on upper canines and zirconia crowns on the four upper incisors. The detailed instruction on diet and oral hygiene was given. The patient was followed-up every 3 months. **FOLLOW UP** During the following three years the restorations and crowns remained intact, no new carious lesions were detected. The parents, the child are satisfied with the longitudinal functional and aesthetic results. **CONCLUSIONS** The aesthetic functional pediatric dentistry in changing modern society should be an important goal.

### O 12 Association between early childhood asthma, MIH and Hypomineralization of second primary molar

Salem K\*, Lotfi G, Raeesi A

Department of Pediatric Dentistry, Faculty of Dentistry, Tehran Medical Sciences, Islamic AZAD University, Tehran, Iran

**AIM** To investigate the association between asthma; MIH and HSPM in 6-12 years old children **METHODS** Seventy- three Iranian children aged 6-12 years with asthma and their age, gender, and socioeconomically matched controls, were enrolled in the study. The diagnosis of asthma was performed by an asthma specialist using standard asthma guidelines. The onset of asthma in all asthma patients had been before the age of 3. Medical records were collected using structured questionnaires. Dental examinations were conducted at school and pediatric asthma and allergy clinic on wet teeth using the EAPD guidelines. Statistical analysis was performed using the SPSS21. Chi-square test, Fisher's exact test, independent t-test, Mann-Whitney Test, Multivariate Logistic Regression were used for statistical analysis. The kappa value for inter-examiner reliability and intra-examiner reliability were 0.99 and 0.91 respectively. **RESULTS** 29.3% of asthmatic patients had MIH defects, whereas 17.1% of the control group had these defects. Compared with control group, MIH was more prevalent in asthmatic children [OR=2.7 (95% CI: 1.97- 3.68); P0.0001]. Hypomineralized second primary molar(HSPM) was significantly more prevalent in patients with asthma (27.6% vs 8.3%, P0.001) and was a risk factor of developing MIH (OR=1.35). The Odds Ratio for MIH based on yellow/brown color HSPM was 0.42[(95% CI: 0.26- 0.74); P0.01] and on white/creamy color HSPM was 0.74[(95% CI: 0.52- 1.05); P=0.05]. **CONCLUSIONS** Pediatric patients with asthma are at increased risk of both MIH and HSPM, therefore require early dental care. The presence of hypomineralized second primary molar could be an early predictor of MIH.

### O 13 Prevalence of Hypomineralised Second Primary Molars (HSPM) in Syrian Preschool Children

Halal FA\*, Raslan N

Department of Paediatric Dentistry, Tishreen University, Latakia, Syrian Arab Republic

**AIM** `The aim of this research was to determine the incidence and severity of HSPM and its association with caries in (4-5) years old children in Latakia, Syria. This research contributes to the identification of the most important risk factors for HSPM.` **METHODS** `A cross-sectional study was carried out with 600 children in the kindergartens. The European Academy of Pediatric Dentistry (EAPD) criteria were used for scoring HSPM. The decayed missing and filled teeth (dmft) index was used to evaluate Caries status. Information was collected through questionnaires about the potential risk factors associated with the HSPM.` **RESULTS** `The prevalence of HSPM was 41%. The difference in the prevalence of HSPM between boys and girls was not statistically significant ( $p < 0.05$ ). Children with HSPM have increased odds of having dental caries (OR=6.69; CI: (4.5-10)  $P < 0.001$ ). Caesarian delivery, low birth weight, preterm birth, and hospitalization first week of life ( $P < 0.05$ ) were the most significant risk factors.` **CONCLUSIONS** `The prevalence of HSPM was relatively high in Syrian children. HSPM increases the incidence of caries. The most risk factors for HSPM were observed during the Perinatal phase.

### O 14 Impact of smog on the prevalence of Molar Incisor Hypomineralisation (MIH).

Glodkowska N, Emerich K\*

Department of Paediatric Dentistry, Medical University of Gdansk, Poland

**AIM** `The aim of this study was to determine the prevalence of MIH in children from two Polish regions significantly differing in air quality.` **METHODS** `The study was conducted in randomly selected primary schools in the Pomeranian and Silesian region in 2,354 children aged 6-12 (response rate of 67,3%). Children who met the study criteria were included and diagnosed for MIH according to EAPD 2003 criteria. The air quality assessment was carried out on the basis of average annual results from measuring stations located in both provinces. The research task was financed from the Ministry of Science and Higher Education resources, granted to maintain the research potential from funds for statutory activities.` **RESULTS** `The smog alarm in the Silesian region is announced more than 50 times a year. In the Pomeranian region, constantly low levels of air pollution are observed. MIH was diagnosed more often in children in the Silesian region - 13.7% than in the Pomeranian region - 6.4% ( $p < 0,001$ ). In the Pomeranian region MIH was diagnosed more often in children aged 6 - 14,53% ( $p < 0,010$ ). The levels of air pollution components over the years were definitely higher in the Silesian region, especially the differences related to SO<sub>2</sub>, PM<sub>10</sub> and PAHs levels.` **CONCLUSIONS** `Higher levels of air pollution may increase the incidence of MIH. Further research is necessary to determine the specific air pollution factor.

### O 15 Knowledge, perception, and attitudes regarding molar incisor hypomineralisation (MIH) amongst German dental students

Elhennawy K\*, Splieth CH, Manton DJ, Jost-Brinkmann P, Schwendicke F

Department of Orthodontics, Dentofacial Orthopedics and Pedodontics, Charite - Universitaetsmedizin Berlin, Germany

**AIM** `This study aimed to determine German last-year dental students' knowledge, perception and attitudes regarding molar incisor hypomineralisation (MIH).` **METHODS** `A previously validated questionnaire was posted to 877 final year dental students, 59% in their 9th semester and 41% in their 10th semester. Information regarding demographic variables, clinical experience, knowledge of prevalence, aetiology, training demands and management strategies for MIH was collected.` **RESULTS** `Twenty-two of 31 invited dental schools (71% response rate) joined the study. 823/877 (97%) respondents were familiar with MIH and acknowledged it as a clinical problem. 88% were aware of the diagnostic criteria for MIH; however, only 42% knew how to implement them. One-third of all students were able to identify MIH, moreover, only 16% reported diagnostic confidence. One quarter of the students were aware of the prevalence of MIH in Germany, from which 90% assumed the MIH prevalence to be below 10%. Two-thirds of the respondents implicated genetic components as the main aetiological factor of MIH. Resin composite (60%) and preformed metal crowns (46%) were the dental materials most often suggested for treatment. Almost all (98%) respondents were interested in investigating MIH prevalence and receiving more clinical training in their



courses. **CONCLUSIONS** German students were familiar with MIH and knew its clinical features; however, they reported low levels of knowledge and confidence regarding its prevalence and diagnosis. It is necessary to revisit and update the current curricula. It is also important to do this nationwide, to provide high-quality dental education to future dentists in Germany.

#### O 16 Molar Incisor Hypomineralisation (MIH) in southern Poland.

Glodkowska N\*, Emerich K

Department of Paediatric Dentistry, Medical University of Gdansk, Poland

**AIM** The aim of this study was to evaluate the prevalence of MIH in southern Poland. **METHODS** A sample of 917 children aged 6-12 years old were examined and diagnosed. The MIH were recorded using the EAPD MIH judgment criteria according to Weerheijm et al. The examination were performed at the school with head-lamp, dental probe and mirror. The data were analyzed using Chi-square Test. The level of significance was set at  $p < 0,05$ . **RESULTS** MIH was present in 13,7% children ( $n=124$ ). 64,5% of them had also affected permanent incisors (PIs). MIH was more often diagnosed in boys than girls (14.7% vs 12.6%), but it was not statistically significant. 30,8% of children had all four first permanent molars (FPMs) affected. In the group of children with all 12 index teeth erupted, the average number of MIH teeth was 3,30. Statistically more often MIH occurred in children up to 8 years of age, compared with children over 8 years of age (16.9% and 11.1%, respectively). Disorders were more often diagnosed in the upper FPMs, while severe lesions were more often observed in the lower FPMs. In the case of three or four FPMs affected, about 41% of children had also lesion on PIs. **CONCLUSIONS** The prevalence of MIH in southern Poland is comparable to the average prevalence in the world. The risk of occurrence MIH on the PIs increases with the number of affected FPMs.

#### O 17 Oral health among 7- to 9-year-old preterm children

Klatt HL\*, Heinrich-Weltzien P

Section of Preventive and Paediatric Dentistry, Jena University Hospital, Germany

**AIM** Assessing developmental enamel defects (DDE), dental caries, and periodontal health in 7- to 9-year-old preterm children (PTC) compared to full-term children (FTC). **METHODS** The case-control study included 38 PTC born in Jena University hospital. 38 FTC of the same age and gender served as control group. All children underwent oral examination under standard clinical conditions. DDE were scored by using the modified DDE-Index and dental caries was classified by ICDAS II. Plaque index (PI) and Periodontal Screening Index (PSI) were used to assess plaque and periodontal health. Statistical data analysis was based on mean, standard deviation and 95-% confidence interval. Differences between the groups were tested with Wilcoxon ranksum-test and McNemar's test. Significance level was set  $p \leq 0.05$ . **RESULTS** DDE prevalence in deciduous teeth was higher in PTC (55.3%) than in FTC (28.9%;  $p=0,008$ ). DDE severity increased with decreasing birthweight (deciduous tooth surfaces with DDE in extremely PTC: 324 vs. FTC: 281;  $p0.001$ ). Prevalence of dental caries differed insignificantly in both dentitions of PTC (47.4%) and FTC (57.9%). DMFT did not differ in both groups, but dmft was lower in PTC (1.6) than in FTC (2.7;  $p=0,035$ ). ft-component was higher in FTC (1.8 ft) than in PTC (0.7 ft;  $p=0.009$ ). Higher PI scores were scored in PTC (0.9) than in FTC (0.6;  $p=0.027$ ), but PSI showed no difference. **CONCLUSIONS** PTC had higher risk for DDE in deciduous teeth and poorer oral hygiene than FTC. Although dental caries and periodontal health was similar in both groups, PTC should be considered as risk group.

#### O 18 Do GIC sealants prevent caries and post-eruptive breakdown in first permanent molars affected by MIH?

Bonifacio CC\*, Olegario IC, Schavereus M, Pedroza IM, Hesse D

Department of Pediatric Dentistry, Academic Centre for Dentistry Amsterdam (ACTA), Amsterdam, The Netherlands

**AIM** The aim of this randomized clinical trial is to evaluate the efficacy of glass ionomer cement (GIC) sealants versus non-sealant in preventing dentinal caries lesions and post-eruptive breakdown (PEB), in molar-incisor-hypomineralization (MIH) first permanent molars. **METHODS** A total of 77 children (mean age  $6.73 \pm 0.85$ ) from three primary schools in Tepatitlán de Morelos (Mexico) with at least one MIH-molar ( $n=228$ ) were included and randomly allocated into two groups: 1) MIH-molars remained non-sealed; 2) MIH-molars received GIC-sealants (Fuji TRIAGE – GC Corp) under field conditions. Trained and calibrated

examiners evaluated dental caries according to ICDAS criteria and PEB after 6 and 12 months. Logistic regression analysis was used to compare the association between dental caries and PEB with the independent variables ( $\alpha=5\%$ ).` **RESULTS`** `After 12 months, caries progression into dentin and PEB were observed in 8% and 9% of the sample, respectively. Children in the sealed group were less likely to develop dental caries compared to children in the non-sealed group (OR=0.22, CI=0.05-0.92). Conversely, the application of a GIC-sealant was not associated with the prevention of PEB ( $p=0.4$ ). MIH-molars that developed a PEB were more likely to also to develop a caries lesion ( $p=0.001$ ). Furthermore, MIH-molars presenting yellow-brown opacities were 5-times-more-likely to have PEB compared to those presenting white-creamy opacities ( $p = 0.01$ ).` **CONCLUSIONS`** `GIC-sealants presented a preventive effect regarding dental caries lesions development in MIH-molars; however, the same protective effect was not perceived for PEB after 12-months follow-up.

### **O 19 Validation of molar incisor hypomineralisation treatment need index by dental students**

Stratigaki E\*, Pflugi N, Steffen R, Verna C

Dept of Pediatric Oral Health & Orthodontics, University Center of Dental Medicine, Basel, Switzerland

**AIM`** `To validate the reliability of the molar incisor hypomineralisation treatment need index (MIH TNI) as a screening and monitoring tool, that has been introduced by an international group in order to standardise the screening and monitoring of the condition as well as the treatment need of each case.` **METHODS`** `Forty 4th and 5th year dental students, with no previous knowledge and clinical experience of the condition were recruited and allocated in 3 groups, in which they received different amount of information on MIH. A week later they were asked to participate in the two-section validation test. In the first section, the participants were asked to identify in a slide presentation with clinical photos whether the teeth presented were affected or not and in the second part, they were asked to use the TNI and rate the severity of the condition.` **RESULTS`** `The more information the students received prior to the test the more correct positive answers they gave (sensitivity: 71.6%). However, at the same time the specificity dropped as the information received by the participants increased (specificity: 50.3%). Participants from all three groups showed a tendency to overrate the defects.` **CONCLUSIONS`** `MIH TNI is a tool that can be easily applied even by less experienced clinicians. A further study focusing on the validation of the index applied by dental professionals with different levels of clinical and academic competence is planned in order to confirm the MIH TNI as a reliable screening and monitoring tool.

### **O 20 Effect of sealing of hypersensitive MIH molars on OHRQoL one and four weeks after treatment**

Priller JM\*, Stamm T, Bekes K

Department of Pediatric Dentistry, Medical University of Vienna, Vienna, Austria

**AIM`** `To analyze the changes in oral health-related quality of life (OHRQoL) before, and after sealing hypersensitive molars affected by molar incisor hypomineralization (MIH).` **METHODS`** `18 children with two MIH affected molars showing hypersensitivity and non-occlusal breakdowns were included. Hypersensitivity was assessed with an evaporative (air) stimulus. Affected teeth were sealed by one calibrated operator using a split-mouth design: Clinpro Sealant in combination with Scotchbond Universal (3M), and Ketac Universal (3M), respectively. OHRQoL was measured using the German version of the CPQ8-10 at baseline, after one week (T1) and after four weeks (T4), respectively.` **RESULTS`** `Mean values (+/-SD) for the CPQ sum as well as the four subdomains before and at both follow-ups were as follows. CPQ sum: Baseline 12.5 (+/-7.2), T1 3.7 (+/-3.3), T4 2.2 (+/-1.6); Oral symptoms: Baseline 7.6 (+/-2.8), T1 1.9 (+/-2.0), T4 1.2 (+/-1.3); Functional limitations: Baseline 2.6 (+/-2.8), T1 0.4 (+/-0.6), T4 0.5 (+/-0.8); Emotional well-being: Baseline 1.2 (+/-1.7), T1 0.6 (+/-1.1), T4 0.2 (+/-0.4); Social well-being: Baseline 1.2 (+/-1.7), T1 0.8 (+/-1.4), T4 0.7 (+/-1.2). One week and four weeks after treatment, a significant decrease ( $p < 0.05$ ; paired, two-sided t-test) was observed in the overall CPQ sums and all subdomains compared to the baseline except for the social well-being domain (T1, T4) and the emotional well-being domain (T1). Based on the exploratory nature of the study, we did not correct for multiple testing.` **CONCLUSIONS`** `Sealing of hypersensitive MIH-affected molars revealed a significant improvement of OHRQoL after one and four weeks.



**O 21 Demarcated opacities and enamel defects in primary molars in 3- to 6-year-old preschool children in Hamburg**

Tzortzini V\*, Schiffner U

University Medical Center Hamburg- Eppendorf, Department of Periodontics, Preventive and Restorative Dentistry, Hamburg, Germany

**AIM** `The objective of this cross-sectional observational study was to determine the prevalence of demarcated opacities and enamel defects in primary molars (Deciduous Molar Hypomineralisation, DMH) in 3- to 6-year old preschool children in Hamburg.` **METHODS** `A sample of 397 children, attending randomly chosen public kindergartens and aged 3-6 years, were examined. Information on age, sex, socioeconomic status (SES, based on parents' education) and immigration background was collected using a structured questionnaire. Primary molars were examined in the kindergartens for DMH signs (demarcated opacities, circumscribed or larger enamel breakdown). Descriptive statistical analysis was performed. Comparisons with respect to the sociodemographic variables were made using Pearson's Chi-squared test.` **RESULTS** `114 (28.7%) of the children exhibited demarcated opacities or enamel breakdown at their primary molars. There were no significant associations to gender ( $p=0.157$ ), age ( $p=0.162$ ), SES ( $p=0.063$ ) or immigration background ( $p=0.322$ ). Children from families with low SES tended to show these defects less frequently. In most children the findings were restricted to opacities (17.4%), followed by circumscribed enamel defects (6.0%) and extended enamel breakdown (5.3%). The prevalence of more pronounced defects increased significantly with age ( $p=0.043$ ). Based on affected teeth, second primary molars were more as twice as often affected as first primary molars (12.3% vs. 5.0%).` **CONCLUSIONS** `The percentage of children exhibiting demarcated opacities and enamel defects in their primary molars is high. This has implications for research and dental care.

**O 22 New horizons in paediatric oral surgery - Digital volume tomography in combination with minimally invasive laser-assisted surgery**

Schindler-Hultsch G\*

Aachen Dental Laser Center, RWTH Aachen University, Germany

**INTRODUCTION** `Oral surgery in children often need to be done under general anesthesia dependent on the age, compliance and medical condition of the child, the kind and size of treatment and time needed for the surgical procedure.` **BACKGROUND** `Under this background, an investigation was carried out for an atraumatic approach of an in-office surgical procedure using the technique of 3-D diagnostic in combination with minimally invasive surgical laser treatment.` **CASE REPORT(S)** `Different surgical indications of 12 paediatric patients were diagnosed and planned with the help of digital volume tomography (Orthophos SL 3D, Dentsply Sirona). The indications ranged from mesiodens, multiple odontoms, tooth anomaly, supernumerary incisors, supernumerary premolar and retained teeth. Children aged between 5,5 and 12 years were treated under local anesthesia and Er,Cr:YSGG laser (2780 nm) with 2.25 - 2.75W, 60  $\mu$ s, 50 Hz, 20% air, 40% water.` **FOLLOW UP** `All paediatric patient could be treated properly, fast, without pain and good behavioral outcome. Patients described no or only slight postoperative pain. Follow-up after one day, one week, two weeks showed fast wound healing and follow up after three months, six months and one year good long-term results.` **CONCLUSIONS** `Considering the impact of surgical procedures and general anesthesia on paediatric patients and parents, the new combination of high-resolution 3D-diagnostic, digital planning followed by minimally invasive laser-assisted surgery opens a predictable, safe treatment option in paediatric dentistry in the future where cases seemed untreatable under conventional conditions before. More studies have to underline the implication of this procedure.

**O 23 Extensive wear of stainless steel crowns; an evaluation of 2500 crowns**

Krikken JB\*, Elfrink ME, Heijdra JS, Weerheijm KL, Veerkamp JS

PREP/ Kindermondzorgcentrum Snoet, Badhoevedorp, The Netherlands

**AIM** `In paediatric dentistry, the placement of stainless steel crowns (SSC) is considered to be the most sustainable restoration. Through the possibility to treat children using the Hall method, the SSC is a very cost effective and child friendly treatment option. In contrast to earlier experiences, over the last 1 to 2 years, increased numbers of SSC show extensive occlusal wear to the extent that they need replacement. The aim of this study was to evaluate all stainless steel crowns that were placed between January 2019 and January

2020 in this practice. **METHODS** All crowns placed in the research period were analysed for the following parameters: placement method (Hall/ conventional); placement (during regular dental treatment in the dental chair or during full anaesthesia) and the reason for placement (first placement for caries or HSPM/ replacement). **RESULTS** In 2019, 2500 crowns were placed. Of these, 125 crowns were placed as a replacement of an old crown, most of them because of extensive occlusal wear. Most of them were replaced after only 3 to 18 months. Most failures were placed in full anaesthesia and had both SSC and dental enamel as antagonists. The placement method (technique/ material) was not changed during the last three to four years. **CONCLUSIONS** Although a SSC is considered to be a very cost effective treatment method, in this explorative study we found a lot of failures. Further evaluation of material characteristics and treatment variables would be recommended as the stainless steel crowns are indispensable in the treatment of high risk children.

#### O 24 Analyses of heavy metals in RetroMTA, ProRoot and NeoMTA

Ozcan H\*, Seymen F

Istanbul University, Faculty of Dentistry, Department of Pediatric Dentistry, Istanbul, Turkey

**AIM** The inclusion of heavy metals in MTA is of concern because they contact directly with hard and soft tissues. The aim of this study was to investigate and compare the levels of lead (Pb), arsenic (As), cadmium (Cd), nickel (Ni) and chromium (Cr) in RetroMTA, ProRoot MTA and NeoMTA. **METHODS** Five samples were prepared for each material. One gram of each MTA was transferred into teflon tubes, then hydrochloric acid and nitric acid was added. Five heavy metals in the samples were analyzed by inductively coupled plasma-mass spectrometry (ICP-MS) (n=5). The results were statistically analyzed using the IBM SPSS V23. One-way variance analysis was used to compare Pb, As, Cd, Ni and Cr average values by groups. Multiple comparisons were made with the Tukey HSD test to determine which group the differences originated from. Differences with a P value 0,05 were considered significant. **RESULTS** Significant differences were found between all groups in terms of As and Ni concentrations, and the highest value was obtained in the NeoMTA group and the lowest value was obtained in the RetroMTA group (p 0,001). There is statistically difference between RetroMTA and ProRoot MTA groups in terms of Pb concentrations (p=0,021). There was no statistically significant difference between the groups in terms of Cr concentrations. Cd was not detected in any group. **CONCLUSIONS** Mineral trioxide aggregates can be safely used as biomaterials in clinical practice, given the safety limits of heavy metals. Further studies are needed to understand the effects of the compositions of MTA cements.

#### O 25 Properties and potentialities of silicone in orthodontic applications: an in vitro study

Pellegrino GS\*, Pellegrino M, Fioretti L, Pellegrino G

Department of Medical Physics and Biomedical Engineering, University College London, United Kingdom

**AIM** The present study aims to show the clinical potential of silicone in functional orthodontic applications, analysing the capability to retain its performance over time. **METHODS** First a quasi-static compression test was performed to mechanically characterize the material (Silasto 50). Then, a mechanical fatigue test was conducted to assess the application performance. Each test was performed on 3 cubic specimens (~10mm x 10mm x 10mm) (n=6) with the loading machine Instron E3000 with a 3KN loading cell. The fatigue test simulated a constant cyclic loading (300N-500N) on a surface of 1.9cm<sup>2</sup> (molar surface), for a maximum applied stress of 2.6MPa. The loading frequency of the force was 3Hz over 30h, to simulate the use of an orthodontic Eruption Guidance Appliance (EGA) (10h/day) during 1 year. **RESULTS** The silicone subject to simple compression test has an initial Young modulus of 8(±2) MPa for the applied load. It was impossible to find the Yield point, as it went over the limit of the loading cell. The fatigue test revealed that the reduction in stress within the first 6-7 weeks of use is of ~9%, after 6 months of ~13% and after 12 months of ~15%. **CONCLUSIONS** Hence, the stability over time and the elastic deformation properties, together with an high biocompatibility, make silicone an ideal material to realize Eruption Guidance Appliances.

**O 26 The effect of different curing intensity and time on the mechanical properties of restorative materials**

Bayrak GD\*, Yaman-Dosdogru E, Selvi-Kuvvetli S

Department of Paediatric Dentistry, Faculty of Dentistry, Yeditepe University, Istanbul, Turkey

**AIM** `To evaluate the effect of two curing units and curing times on the surface microhardness (SMH) and compressive strength (CS) of four different restorative materials.` **METHODS** `A total of 272 samples were prepared from four different restorative materials (Filtek<sup>TM</sup> Z250, Filtek<sup>TM</sup> Bulk Fill Posterior, Beautiful Bulk Restorative, ACTIVA Bioactive). 112 specimens (n=7) for the SMH test and 160 samples (n=10) for the CS test were divided into two groups depending upon the curing units [low-intensity light (Woodpecker LED-E); high-intensity light (CarboLED) and each curing unit group was further divided into two subgroups according to light curing times (10 s and 20 s). The SMH was evaluated using a Vickers hardness tester and the CS was carried out by a universal testing machine. Results were evaluated using one-way analysis of variance and independent t-tests.` **RESULTS** `In all the restorative materials cured with low-intensity light, the specimens cured for 20 s demonstrated statistically significant higher SMH values than those cured for 10 s (p<0.05). In both 10 s and 20 s subgroups, the high-intensity light group showed statistically significant higher CS values compared to the low-intensity light group for all restorative materials except Filtek Bulk Fill Posterior cured for 20 s (p<0.05).` **CONCLUSIONS** `A higher curing light intensity and longer curing time had a positive effect on the SMH and CS of the restorative materials tested in this study compared to lower curing light intensity and shorter curing time.

**O 27 Radiopacifiers in tricalcium silicate based biomaterials contribute to more than radiopacity**

Rajasekharan S\*

Department of Paediatric Dentistry and Special Care, Ghent University, Ghent, Belgium

**AIM** `To determine the effect of radiopacifiers on the physical and biological properties of tricalcium silicate based cements (TCSBC).` **METHODS** `The powder component (P) of the TCSBC consisted of sol-gel synthesised tricalcium silicate and 20% radiopacifier. Bismuth oxide (BO), zirconium oxide (ZO), calcium tungstate (CT), barium sulphate (BS), tantalum pentoxide (TP), strontium fluoride (SF), strontium titanate (ST) and barium titanate (BT) were tested. A TCSBC without radiopacifier was used as control group and calcium chloride (L) with L/P ratio of 0.30 was used as the liquid. Setting time, radiopacity, discoloration, compressive strength, solubility, porosity, water uptake, bioactivity and cytotoxicity (n=6) were evaluated. Analysis of variance (ANOVA) and Tukey post-hoc comparison at a significance level of p < 0.05 was performed.` **RESULTS** `Setting time of TCSBC was significantly extended by the addition of ZO, TP, SF, ST and BT. Compressive strength was significantly lowered by the addition of BO, ZO, TP, SF and ST. The addition of BO to TCSBC in contact with sodium hypochlorite caused significant discoloration (p<0.0001). Addition of any radiopacifier increased the porosity and reduced the solubility in water (p<0.0001). The addition of BO, SF and BT significantly increased the cytotoxicity of TCSBC (p<0.05). Based on the results of the above tests, the order for the best performing radiopacifier was as follows: No radiopacifier BT CT BS ZO SF ST TP BO.` **CONCLUSIONS** `Addition of any radiopacifier significantly diminishes the physical and biological properties of TCSBC.

**O 28 The effect of different toothpastes on surface roughness of two restorative materials: An in vitro study**

Yaman-Dosdogru E\*, Bayrak GD, Tonguc-Altin K, Selvi-Kuvvetli S

Yeditepe University, Faculty of Dentistry, Department of Pediatric Dentistry, Turkey

**AIM** `The aim of the study was to evaluate the effect of different toothpastes on the surface roughness of two restorative materials.` **METHODS** `Twenty eight disc-shaped specimens (8 mm diameter x 2 mm thickness) were prepared from each of two different restorative materials including glass ionomer cement (Equia Forte<sup>®</sup>, GC, Tokyo, Japan-GIC) and composite resin (Filtek Z250, 3M ESPE, St. Paul, MN, USA-RC). After baseline measurements, the specimens of each restorative material were randomly divided into four groups (n=7) according to the toothpastes used (Oral-B Pro-Expert Stages Kids Toothpaste, Emoform Actiflour Kids Toothpaste, JackN'Jill Natural Toothpaste Flavour Free, distilled water-control group). Brushing was carried out with an electric toothbrush (Oral-B kids) twice a day for 2 minutes during consecutive days. The surface

roughness of all specimens was measured with a profilometer (Perthometer M1, Mahr GmbH, Göttingen, Germany) on the 7th and 14th days. The data were analyzed by repeated-measures one-way ANOVA, post-hoc Bonferroni test and independent-samples t-test. **RESULTS** For all the toothpaste groups of restorative materials tested, there were statistically significant increase in surface roughness from the baseline to the 14th day measurement (p0.01). On the 14th day, the surface roughness of GIC brushed with Emoform Actiflour Kids Toothpaste was significantly higher than those brushed with JackN'Jill Natural Toothpaste and distilled water (p0.01). Regarding the RC, Emoform Actiflour Kids Toothpaste showed significantly higher surface roughness values compared to the control group on the 14th day (p0.05). **CONCLUSIONS** Emoform Actiflour Kids Toothpaste produced the rougher surface on restorative materials than the other toothpastes.

### **O 29 Clinical and radiographic evaluation of pulpotomies in primary molars using tricalcium silicate cements**

Turk A\*, Vilella S, Veloso A, Guinot F, Viroles M  
International University of Catalonia (UIC), Spain

**AIM** AIM: To evaluate the success rate of pulpotomies using different tricalcium-silicate-based materials in patients at the Dental Clinic of the International University of Catalonia (UIC). **METHODS** MATERIALS AND METHODS Temporary molars with deep caries lesions and pulp involvement were using in this study, in which the materials (ProRoot MTA, HP Repair MTA and Biodentine) were randomly assigned into groups. The pulp chambers of the molars were sealed with a zinc oxide-eugenol-based material. The molars were restored with stainless steel crowns. Clinical and radiographic evaluations were carried out at 3, 6 and 12 months post-treatment. Significant differences between the groups were determined using Fischer statistical analysis test. **RESULTS** RESULTS Clinical and radiographic evaluation at 3,6 9 and 12 months showed 100% success in all groups of materials (Biodentine, HP Repair MTA and ProRoot MTA). **CONCLUSIONS** CONCLUSIONS MTA and Biodentine appear to be promising materials for use in primary molar pulpotomy treatments, showing similar results at 3, 6 and 12 months follow-up, regardless of the hemostatic agent used in the treatment.

### **O 30 Digital design for accurate orienting and dimensioning of artificial dental socket for tooth autotransplantation**

Ashkenazi M\*, Dafna S, Shuster A  
Pediatric Dentistry Clinic, The Oral and Dental Health Center, Sheba Medical Center, Tel Hashomer, Israel

**AIM** To suggest an accurate and efficient method for planning and preparing an artificial socket for autotransplantation by using one to three surgical guides and a replica of the transplanted donor tooth. **METHODS** Cone beam computed tomography (CBCT) and computerized 3D simulations[registration as STereoLithography (STL)] were used for planning the optimal artificial socket position and dimensions, within the limitations of the alveolar bone borders and the adjacent teeth roots, and for producing a metal replica of the transplanted tooth. The replica was used to assure the correct socket preparation and orientation before extraction and replantation of the donor premolar. Four cases treated with this approach are presented. **RESULTS** The entire procedure time for autotransplantations of a permanent second premolar to the incisor site ranged between 30-45 minutes. At 6 to 24 months follow up, clinical examination of the transplanted tooth demonstrated both normal mobility and cold sensitivity. A radiographic examination revealed continuous root development and pulp obliteration. The adjacent teeth maintained their vitality with no pathological sign. **CONCLUSIONS** We present a novel technique new method for autotransplantation based on computerized 3D simulations and guidance for accurate dimensioning and optimal locating of the artificial socket relative to the alveolar bone borders and the adjacent teeth roots. This technique may simplify significantly the autotransplantation procedure and will probably also increase its success rates and use in young patients, even in cases with severe loss of a alveolar bone



**O 31 Improving confidence of medical paediatric staff in managing acute dental problems within the Emergency Department.**

Sudarshan S\*, Patel T, Fong F, Whatling R

Paediatric Dentistry Department, Royal London Hospital, Barts Health NHS Trust, United Kingdom

**AIM** `To assess and improve the knowledge and confidence of medical Paediatric and Emergency Department (ED) doctors at the Royal London Hospital in assessing and managing acute paediatric dental infections and trauma, in accordance with the Faculty of General Dental Practice UK and International Association of Dental Traumatology Guidelines.` **METHODS** `A single best answer quiz on dental knowledge and a Likert scale confidence assessment (1=very unconfident to 5=very confident) focused on dental infection and trauma was completed by Paediatric and ED doctors. A subsequent teaching session based on these topics, which included practical elements of re-implanting and splinting teeth, was constructed and delivered to participants. This was followed by a post-teaching quiz and reflection to assess for improvement in knowledge and confidence levels.` **RESULTS** `Mean score on the quiz pre-teaching was 58%, which increased by 62% to 94% post-teaching. Mode confidence on managing dental emergencies attending ED and in re-implanting teeth increased from 1=very unconfident to 4=confident. After the teaching, 100% of participants correctly knew the management for extruded and avulsed permanent teeth, including best storage medium.` **CONCLUSIONS** `This service improvement project has exhibited that via effective teaching sessions, the knowledge and confidence of doctors in managing acute dental infection and trauma can be significantly elevated. Due to the success of this programme, it will be expanded to triage nurses and wider staff at this hospital, as well as implemented across other hospitals in south of England. This will directly improve outcomes of paediatric patients presenting to the Emergency Department with acute dental problems.

**O 32 Web-based dental trauma database using Eden Baysal dental trauma index: A Turkish multicenter study**

Eden E\*, Buldur B, Duruk G, Ezberci S

Ege University, School of Dentistry, Department of Pedodontics, Turkey

**AIM** `This study aimed to describe the prevalence and pattern of traumatic dental injuries (TDIs) among Turkish children in a web-based and multicenter design using Eden Baysal Dental Trauma Index (EBDTI).` **METHODS** `The study sample consisted dental trauma patients aging 1-15 years, attending to four University's Pediatric Dentistry Clinics between February 2018 and August 2018 in four cities of Turkey. A web-based form was developed and used to record the information of the patients' clinical and radiographic findings including EBDTI. The obtained data also included patient gender, age at the initial date of trauma, date of trauma, cause of injury and emergency treatment. Data were analyzed using Pearson Chi-square and Fisher's exact tests.` **RESULTS** `A total of 280 traumatized teeth in 252 patients were evaluated. Dental trauma was seen more in boys and 7-10 years age group (p0.05). There were significant differences between permanent and deciduous teeth with regard to uncomplicated and complicated crown fracture (p0.05). The root fractures were mostly located at the apical third of the root in both dentitions. Eleven teeth had both crown fracture and luxation injury whereas 2 teeth had a crown fracture and apical root fracture. Most of the traumatized teeth had mature apex. Nineteen avulsed teeth were recorded. The most applied treatment type was crown restoration for permanent teeth and review only for deciduous teeth.` **CONCLUSIONS** `EBDTI was found to be a very useful tool to facilitate online recordings of dental injuries. The multicenter data collection provided a larger study population.

**O 33 Pulp is involved in pathophysiology of external root resorption**

Vital S\*, Lagorsse M, Grosborne M, Kedhir S, Bardet C

Pediatric Dentistry, Universite de Paris, Hopital Louis Mourier, APHP, EA2496 Orofacial Pathologies, Imaging and Biotherapies, France

**AIM** `External root resorption is a major complication of dental trauma. This progressive loss of cementum and dentine is due to the action of osteoclasts. The dental pulp appears to be involved in the regulation of their recruitment. The aim of our study is to develop a root resorption murine model, associating pulp and periodontal injuries in order to clarify the role of the pulp inflammation in this pathological process.` **METHODS** `We performed 3 surgery conditions on the first maxillary molar (M1) using 3 months old mice

(n=18 per group): Group 1) pulp injury covered by zinc oxide/eugenol cement (IRMR); Group 2) periodontal trauma through tooth luxation; Group 3) both injuries were combined. Longitudinal follow-up was performed using in vivo Micro-CT (Quantum fx Perkin Elmer). Animals were sacrificed at days (D) 7, 21 and 42 after surgery for histological analysis. Inflammation and resorption markers were studied by immunochemistry. **RESULTS** Histological analysis, supplemented by microCT study, showed that pulpal trauma was necessary to induce root resorption. On teeth with pulpal trauma or a combination of the two traumas, resorptions were visible at D21 and D42. Combined surgeries in group 3 resulted in more severe resorptions of M1 roots, characterized by a higher number of resorbed areas per tooth increasing with time. IL1 $\beta$  and TNF $\alpha$  immunostaining, characterizing pulpal inflammation, were increased parallel to the resorption process. **CONCLUSIONS** Our study presents an original murine model of root resorption by associating periodontal trauma to pulp injury. Our results highlight the involvement of the pulp in pathological resorption process.

**O 34 Outcome of vital pulp therapy (VPT) in deeply carious molars affected with MIH defects: a randomized clinical study**

Al-Batayneh OB\*, Abdelghani IM

Preventive Dentistry Dept, Jordan University of Science and Technology, Jordan

**AIM** to evaluate clinical and radiographic outcomes of VPT in young permanent first molars with MIH and deep caries demonstrating variable pulpal conditions/ symptoms of reversible or irreversible pulpitis over a 12 months period. **METHODS** Children 6-16 years old with MIH teeth affected by deep caries were randomized into 2 groups: IPT with RMGIC liner and MTA-pulpotomy. In cases of pulpotomy, partial pulpotomy (PP) was attempted first; otherwise, cervical pulpotomy (CP) was done in cases where hemorrhage could not be arrested. All teeth were built up with GIC and finally restored by a preformed SSC. Clinical and radiographic evaluation was done at baseline, 3, 6 and 12 months. **RESULTS** there were (n=48) children/teeth with average age (11 $\pm$  3.16). Success rate for IPT, PP and CP was 96%, 100% and 100% at 12 months. None of the variables (age, gender, root maturation, type of treatment, preoperative pulpal diagnosis) had a statistically significant influence on the treatment outcome. **CONCLUSIONS** we found a high success rate for VPT procedures after 12 months in teeth affected with MIH with deep caries.

**O 35 Does aqueous ozone promotes proliferation on dental pulp cells? A comparative study with NaOCl and EDTA**

Kucuk F\*, Cetiner S

Department of Paediatric Dentistry, Faculty of Dentistry, Near East University, Cyprus

**AIM** The purpose of the study is to evaluate the biological effect of aqueous ozone on dental pulp cells in comparison with NaOCl and EDTA. **METHODS** Dental pulp cells were isolated from exfoliated primary canines of a 11-year old patient with good systematic and oral health. The cells were passed through 3 passages and were used for the experiment. 2 mg/L aqueous ozone was freshly prepared. Cells were divided into 3 experimental groups( Group 1: 2 mg/L aqueous ozone, Group 2: 1,5 % NaOCl, Group 3: 17% EDTA) in addition to positive( cells with only culture medium) and negative control(culture medium without cells) groups. Cells were kept in contact with solutions for 5 minutes then cytotoxicity was assessed by using MTT assay at 0h and 48h time points. Data were statistically analyzed using repeated measuring ANOVA followed by Benferroni corrections. **RESULTS** Cell viability of aqueous ozone were 154.43 % and 145.61% at 0h and 48h time points respectively. The proliferation at 0h time point was statistically significant(p<0.05). 1,5% NaOCl and 17% EDTA were highly cytotoxic to dental pulp in cells in both time points. **CONCLUSIONS** In the light of our findings, due to the proliferative effect of aqueous ozone, it can be preferred to be used in regenerative endodontics which cell viability plays a crucial role in success of the treatment.

**O 36 Technical Outcomes of Orthograde Endodontic Treatment Conducted on Children; A Three Cycle Audit**

Rovira-Wilde A\*, Longridge N, Gallichan N, Al-Badri S

Charles Clifford Dental Hospital Sheffield, United Kingdom

**AIM** To assess technical quality of orthograde endodontic treatments conducted in permanent teeth in children at a UK Dental Hospital. Secondary aims included identifying variables that influenced technical quality and highlighting areas for improvement. **METHODS** Retrospective evaluation of 100 cases in each of the three cycles over a three year period. Technical outcomes were compared to the European Society of



Endodontology Quality Guidelines Consensus. Technical outcome of endodontic treatment was classified as satisfactory if: endodontic filling material extended 2 mm from the radiographic apex; no canal space was seen beyond the end of the obturation and the obturation was free from voids. **RESULTS** Satisfactory technical outcomes were positively correlated with increasing staff experience ( $p=0.047$ ). Cold lateral condensation obturation was associated with greater unsatisfactory technical outcome compared to root end closure and warm vertical compaction, predominantly due to void presence. Technical outcome of endodontic treatment in this study was comparable to that provided by general dental practitioners on the adult patient. Overall technical quality of endodontic treatment increased to 63% over the three audit cycles. **CONCLUSIONS** Technical outcomes are correlated with treatment success. Improved provision of thermal obturation equipment and introduction of postgraduate students to the clinic has run along-side improved technical outcomes over the course of three audit cycles. Continual teaching of junior trainees, especially in thermoplastic obturation techniques, is required to further improve technical outcomes. These improvements in care quality, in a cohort of patients where a history of dental trauma predominates, may delay or negate future invasive restorative treatment.

**O 37 Evaluation of facial appearance in patients with repaired cleft lip and palate**

Alotaibi Y\*, Alhayek S, Alsalem M, Omair A

Saudi Board Resident in Pediatric Dentistry, King Abdulaziz Medical City, Pediatric Dentistry Department, Riyadh, Kingdom of Saudi Arabia

**AIM** The present study aimed to determine whether laypeople and professionals rate the facial appearance of individuals with repaired complete unilateral or bilateral cleft lip and palate (UCLP, BCLP) similarly based on viewing full facial images. **METHODS** The study followed a cross-sectional analytical design where five young patients aged 10 to 14 years, who had completed all stages of their unilateral or bilateral cleft lip and palate treatment (bilateral: three, unilateral: two), were evaluated by two groups. The assessment was done by laypeople and 97 qualified professionals (33 orthodontists, 32 plastic surgeons, and 32 oral and maxillofacial surgeons). Professionals were not involved in any stage of the patients' treatment. **RESULTS** The facial appearance assessment of the professional groups on different facial aesthetics was significantly lower than that of laypeople, and they had higher perceived need for further treatment. On the other hand, laypeople had higher aesthetic ratings and lower perceived need for further treatment. Differences were also observed between the assessments of the professional groups. Participants who had lower aesthetic assessments of the repair tended to report a higher influence of cleft lip and palate on social activities and professional life. **CONCLUSIONS** Differences in perception exist between healthcare professionals and laypeople. The discrepancies between the professional groups could be attributed to different treatment modalities and protocols.

**O 38 Multiple supernumerous teeth, transposed and ankylosed primary and permanent teeth and further vertical growth problems**

Rienhoff J\*, Rienhoff S, Schilke R, Eulzer C

Kinderzahnarztpraxis Magic Dental Hannover, Germany

**INTRODUCTION** A 6-year-old patient presented with late eruption of permanent molars and incisors. X-ray diagnosis revealed multiple supernumerous teeth, lower E's apparently located underneath the permanent 5s. After this, 8 years of treatment were needed until all the patient's teeth erupted, could be aligned and occlusion was regular. **BACKGROUND** The patient (Turkish migratory background) was examined for a number of possible reasons for late eruption, no diagnosis was detected. **CASE REPORT(S)** The supernumerous teeth, many of them in primary dentition, were removed by a surgeon in two sessions. Despite longer waiting times after every intervention, regular eruption of permanent teeth could not be obtained, but comprehensive orthodontic measures- two treatments, one interceptive in early mixed (2011/2012) and one in permanent dentition (2014-17)- were required to finally have all the teeth erupt, obtain aligned teeth and regular occlusion. **FOLLOW UP** The case has now been followed up for more than two years, alignment of teeth and occlusion have been stable in this time, the patient (now being 17.6 years old) still wearing a removable retainer twice a week. **CONCLUSIONS** In this patient's case, treatment was organized by a paediatric dentist, but mainly carried out by a surgeon and an orthodontist. The leading

role of the paedodontist has led to a successful treatment. This case underlines the importance of early interceptive orthodontic treatment in eruption of seemingly ankylosed teeth.

**O 39 Development of a multi-disciplinary evidence-based consensus to guide the diagnosis and management of Ankyloglossia and oral frenula**

Chinotti M, Silva MJ\*

The University of Melbourne/Murdoch Children's Research Institute, Australia

**AIM** `To establish a multidisciplinary, evidence-based consensus statement and guideline regarding the diagnosis and management of ankyloglossia and other oral frenula.` **METHODS** `A group of fifteen experts in general, paediatric and special needs-dentistry, oral-maxillofacial and ear, nose, throat surgery, neonatology, midwifery, speech therapy, and lactation met in 2019 in Sydney, Australia to develop the consensus statement. The quality of evidence was based predominantly on a systematic Cochrane Review, but supplemented with an updated broader literature search that involved a strategic search of electronic databases as well as grey literature.` **RESULTS** `Although breastfeeding can be associated with ankyloglossia, there is little evidence to consistently support other adverse health outcomes that could be generalised to the broader population. The diagnosis of ankyloglossia refers to a functional impairment together with visual abnormality and therefore diagnosis requires the use of functional tools by experienced health professionals and cannot be based on visual inspection alone. Non-surgical intervention, such as breastfeeding support, has been shown to be effective in treating ankyloglossia. Failure of non-surgical intervention may necessitate surgical correction. Although frenectomy is usually a relatively simple surgical procedure, there are additional risks when performed on neonates and infants, including bleeding and hypovolaemic shock. Therefore, surgical intervention should be performed with careful consideration of possible complications and the capacity of the treating practitioner and setting to manage these potentially fatal complications.` **CONCLUSIONS** `The development of this multidisciplinary, evidence-based guideline for the diagnosis and management of ankyloglossia and oral frenula will support best practice and optimal patient outcomes.

**O 40 Prevalence of non-JP2 and JP2 genotypes of *Aggregatibacter actinomycetemcomitans* and oral hygiene practice in Kenyan adolescents**

Haubek D\*, Mulli T, Kemoli A, Noerregaard MM, Lindholm M

Aarhus University, Denmark

**AIM** `Aggregatibacter actinomycetemcomitans is implicated in the etiology of periodontitis among adolescents. Monitoring and mapping of the dissemination pattern of non-JP2 and JP2 genotypes of A. actinomycetemcomitans worldwide are of interest, and the highly leukotoxic JP2 genotype is known to be prevalent in North West Africa and to be strongly associated with periodontitis in adolescents. The aims of the present study were to determine the prevalence of non-JP2 and JP2 genotypes and to elucidate the oral hygiene practice among adolescents from Maasai Mara, Kenya.` **METHODS** `284 adolescents (mean age: 15.0; SD 1.1) were interviewed concerning age, gender, medical history and oral hygiene practice. One subgingival plaque sample (pooled from four sites) was analyzed by PCR.` **RESULTS** `The overall mean number of permanent teeth present among participants was 27.9 [SD: 2.0; range: 22-32; 95% CI: 27.7-28.1]. Sixteen (5.6%) adolescents were positive for non-JP2 genotype, and only two (0.7%) were positive for JP2 genotype. For the vast majority of the adolescents, the use of toothbrush (99.3%) and toothpaste (80.1%) as well as some kind of toothpick (60.2%) was part of the oral hygiene practice, whereas dental floss (0.4%) and/or mouth rinse (0.4%) were rarely used.` **CONCLUSIONS** `We have for the first time identified a few Kenyan adolescents colonized with the highly leukotoxic JP2 genotype of A. actinomycetemcomitans. The majority of the participants used toothbrush and toothpaste, and chewing stick to maintain their oral hygiene.

**O 41 The effect of anti-inflammatory therapy on periodontal treatment in children**

Pikilidi T\*, Kiselnikova L, Romanovskaya V, Danilova I

Department of Pediatric Dentistry Moscow State University of Medicine and Dentistry named after A.I. Evdokimov, Russian Federation

**AIM** `According to morphological studies to assess the effect of 0,15% Benzylamine hydrochloride on periodontal treatment in children.` **METHODS** `The children (aged 12-15 years) suffering from chronic

gingivitis were divided into 2 groups to study the activity of microflora of the gingival fluid. Besides professional hygiene, the group under study (24 children) used benzydamine locally as a rinse during a week. The control group (26 children) didn't use benzydamine. The gingival fluid smears, taken at the first examination and then a month after the treatment, were cytologically studied. Through cytomorphometry the number of polymorphonuclear leukocytes was counted in 10 visual fields. The calculation of the cells contaminated with bacteria was also made. **RESULTS** The contamination index of the gingival fluid showed reliable differences in the groups. In the control group, in which the children weren't treated with benzydamine, the contamination index was 70,07% before treatment and 61,70% after it. In the main group the patients showed a reduce from 71,07% to 44,4%. The cytomorphometry of leukocytes calculation showed a reliable reduce of the antiinflammatory-destructive index in the main group. The average number of leukocytes in the gingival fluid of the children in the main group was 24.17% lower than in the control one. **CONCLUSIONS** The use of 0,15% Benzydamine hydrochloride in periodontal treatment in children leads to lower inflammation and contamination of microbial flora with epitheliocytes of gingival mucosa.

#### O 42 A rare presentation of a solitary bone cyst in an 11 year old girl

Patrick A\*

Royal National ENT and Eastman Dental Hospital, UCLH, United Kingdom

**INTRODUCTION** A solitary bone cyst is an uncommon benign 'pseudocyst' identified by lack of an epithelial lining. They are often asymptomatic incidental findings, and on average span approximately 2cm. They can spontaneously resolve, however most treatment involves surgical curettage of the cyst walls to encourage bleeding, and thus bony healing. **BACKGROUND** An 11 year old female was referred to Oral Surgery for an incidental finding of a cystic lesion in the left mandible extending from LL3 to the ramus. **CASE REPORT(S)** Initial imaging of the lesion included radiographs, followed by CBCT scan. The 'moth-eaten' cortical appearance on the CBCT indicated possible arteriovenous malformation (AVM). MRI was recommended in view of the possible presence of an AVM. The MRI indicated the lesion was either a solitary or aneurysmal bone cyst with significant expansion and superior displacement of the ID nerve. Exploration of the lesion under general anaesthesia found a fluid filled cavity with no cystic lining. The roots of teeth were visible with the ID nerve running between the apices. Histopathology suggested rare presentation of a solitary bone cyst. **FOLLOW UP** Review at 1 month showed reduction in expansion. Radiographic review at 3 and 6 months showed bony infill indicating healing. The prominence of the area involved will be monitored throughout adolescence. **CONCLUSIONS** This is a rare presentation of an extremely large solitary bone cyst exhibiting bony expansion and displacement of the ID nerve. With surgical curettage the lesion has shown good healing. This case was a diagnostic challenge due to the unusual characteristics of the differential diagnoses.

#### O 43 Prevalence of *Aggregatibacter actinomycetemcomitans* and periodontal status of Danish adolescents: a cross-sectional study

Jensen AB\*, Noerskov-Lauritsen N, Johansson A, Haubek D

Section for Pediatric Dentistry Department of Dentistry and Oral Health Aarhus University, Denmark

**AIM** To determine the prevalence of *Aggregatibacter actinomycetemcomitans* (*A. actinomycetemcomitans*) and the periodontal status among 15-yr old Danish adolescents in a cross-sectional study. **METHODS** A full-mouth periodontal examination was carried out on 523 randomly selected 15-year-old Danish adolescents from the Municipality Dental Service of Aarhus, Denmark. Clinical attachment loss (CAL), bleeding on probing (BOP), and periodontal pockets were recorded. Subgingival plaque samples were collected with sterile paper points in 0.9 % saline as pooled samples from the mesial site of the first permanent molars. Saliva samples were collected as stimulated saliva using paraffin and stored in preservation buffer. The presence of *A. actinomycetemcomitans* was determined by real-time PCR. Furthermore, all individuals answered a questionnaire concerning health and oral habits. **RESULTS** Ninety-one percentage of participants showed BOP 10 % of the sites measured. Sixty-one individuals (11.6 %) had at least 1 mm CAL on at least one site, but only seven individuals (1.3 %) showed interdental CAL on  $\geq 2$  teeth. Presence of *A. actinomycetemcomitans* was found in 10 % and 10.2 % in subgingival and saliva samples, respectively. No individuals were found to be positive for the JP2 genotype of *A.*

actinomycetemcomitans, serotype b.` **CONCLUSIONS`** `A. actinomycetemcomitans is a common oral microorganism among Danish adolescents, but CAL related to periodontal inflammation in Danish adolescents is rare. However, the majority of the participants showed BOP at above ten percentage of the measured sites emphasizing the need for focused and early prophylaxis and treatment of periodontal disease in pediatric dentistry.

#### **O 44 The Role of Pediatric Dentists in the Diagnosis of a Rare Case of Langerhans Cell Histiocytosis with Oral Manifestations**

Hammouri EH\*

Jordanian Royal Medical Services, Jordan

**INTRODUCTION`** `We report a case of Langerhans Cell Histiocytosis due to mobility and premature exfoliation of primary teeth. Early recognition of Langerhans Cell Histiocytosis along with a collaborative medical-dental approach is important to treat and minimize its complications.` **BACKGROUND`** `Langerhans Cell Histiocytosis (LCH) is a rare hematological disease that frequently affects children and is characterized by abnormal proliferation of bone marrow-derived histiocytes.` **CASE REPORT(S)`** `A two-year-old male patient was referred to the pediatric dental clinic for treatment of oral ulcerations, bleeding gingiva, and difficulty in eating. Oral examination showed gingival necrosis, ulcerations, gingival oozing, as well as floating teeth. Head and neck CT scan displayed irregular destructive radiolucent lesions in the maxillary and mandibular bones with soft tissue component. Tc99m-MDP Bone Isotope scan showed elevated radiotracer uptake within the mandible and maxilla. An incisional biopsy from the superficial alveolar bone lesion and surgical curettage was done for other bone lesions. Histopathological examination revealed gingival infiltration by sheets of large histiocytosis with coffee bean-like nuclei and typical and atypical mitoses in a background rich with eosinophils, some lymphocytes foam cells, and plasma cells. The tumor cells are immune-reactive for S- 100 and CD1a.` **FOLLOW UP`** `The patient underwent chemotherapy as a means of treatment by the pediatric oncology department. The child is disease-free after 18 months follow up.` **CONCLUSIONS`** `Langerhans Cell Histiocytosis is a rare disease and oral manifestations might well be the key for diagnosis, which reflects the role of dentists in bridging the gap between other medical specialties in the diagnosis and management of systemic illnesses such as LCH.

#### **O 45 Characteristics of facial cellulitis of odontogenic origin presenting to the emergency department of a children's hospital**

Mohan A\*, Chan E, Sidhu N, Casas MJ

The Hospital For Sick Children, Canada

**AIM`** `To identify patient characteristics and categorize treatment choices for children attending the emergency department of a children's hospital for treatment of facial cellulitis of odontogenic origin` **METHODS`** `The health records of children aged 0 to 18 years with facial cellulitis of odontogenic origin who presented to The Hospital for Sick Children, between 2011 and 2018 were retrieved. Patient demographics, history, teeth involved, treatment protocol and antibiotic used were collected. Descriptive statistics and a generalized linear model were used to identify patient characteristics associated with facial cellulitis.` **RESULTS`** `A total of 453 patient records were included. There were no comorbid conditions for 76% of patients with facial cellulitis. The source of the cellulitis was the primary dentition in 86% of cases. The right (17%) and left (19%) maxillary first primary molars were commonly the offending tooth. Among the causative teeth, 36% had restorations and 8% had pulp treatment at presentation. Treatment pathways included immediate treatment in the emergency department, an ambulatory protocol with intravenous antibiotics or admission to an inpatient ward. The antibiotic most commonly prescribed was clindamycin (84%). Nitrous oxide was used for 52% of cases treated in dental clinic. General anesthesia was used to treat 73 cases (19%) and intravenous/nasal sedation was used for 93 cases (24%). The final treatment was extraction (81%) in most cases.` **CONCLUSIONS`** `Most children with facial cellulitis of odontogenic origin were healthy. Restorations and pulp therapy increased the risk for facial cellulitis. An ambulatory protocol was commonly followed for treatment of facial cellulitis.



**O 46 Assessment of an ambulatory protocol for treatment of children with facial cellulitis of odontogenic origin**

Chan EK\*, Mohan A, Sidhu N, Casas MJ  
Montreal Children's Hospital, Canada

**AIM** `To evaluate compliance with an ambulatory protocol that included intravenous antibiotics for treatment of children with facial cellulitis of odontogenic origin.` **METHODS** `The health records of children aged 0 to 18 years with facial cellulitis of odontogenic origin who presented to The Hospital for Sick Children between 2011 and 2018 were retrieved. Patient demographics, history, wait time in emergency, treatment pathway, antibiotic used, time to final treatment and other relevant data were collected.` **RESULTS** `A total of 453 patient records with a mean age of 6 years were included. The ambulatory protocol was followed in 247 (55%) cases, immediate treatment in the emergency department was provided for 46 (10%) patients and 158 (35%) patients were admitted to inpatient wards. Patients spent a mean time of 5.7 hours in the emergency department. Among those admitted, 81% were admitted for less than 48 hours. The median time from presentation in the emergency department to definitive treatment was 52 hours and this time increased between 2011 and 2018 (P0.0001). There was an increase in the number of patients treated using the ambulatory protocol since 2015. Patients treated under the ambulatory protocol that included intravenous antibiotics, experienced 24 hours longer time to discharge than patients who were admitted.` **CONCLUSIONS** `An ambulatory protocol for the management of facial cellulitis of odontogenic origin was implemented to reduce the need for hospital admissions. Implementation of this protocol may reduce pressures on inpatient hospital resources, but may not shorten treatment time for patients.

**O 47 Influence of a programme for prevention of early childhood caries on early orthodontic treatment needs**

Wagner Y\*, Knaup I, Knaup T, Jacobs C, Wolf M  
Department of Orthodontics, Section Preventive Dentistry and Pediatric Dentistry, Jena University Hospital, Germany, Deutschland

**AIM** `Aim of this prospective birth cohort study was to evaluate the effect of the programme for prevention (PP) of early childhood caries and the resulting need for orthodontic treatment in 8-year-old German children.` **METHODS** `Children, who had been enrolled in a caries-risk-related recall system with continuous dental care starting at the time of birth (prevention group PG) were compared with children of the same birth cohort, whose parents decided not to participate in the programme (control group CG). All children (n=289) participating in the last PP evaluation at the age of 5 years were invited again and examined by blinded clinicians. Dental caries was scored using WHO diagnostic criteria expanded to d1-level without radiography. Impressions were taken of children with premature tooth loss to analyse space conditions.` **RESULTS** `227 children (mean age 8.4 ± 0.6 years; 46.7% female) were examined. Children in the PG (n=127) showed significantly lower caries prevalence and experience (3.1%, 0.4 ± 1.0 d3-4mft) than children in the CG (37.3%, 3.9 ± 3.5 d3-4mft). Orthodontic analysis found a higher prevalence of premature tooth extraction, followed by a greater extent of space loss in the CG (41.0%; 3.3 ± 4.4 mm) vs. PG (7.9%; 0.4 ± 2.1 mm) and an increase in early orthodontic treatment need (KIG P3, IOTN 5).` **CONCLUSIONS** `The PP was an effective approach for preventing caries related premature tooth loss in children and conserving relevant arch length with lower need for orthodontic treatment at the age of 8 years.

**O 48 Removable orthodontic appliances and alterations in oral microbiota: A perspective longitudinal study**

Pellegrino M\*, Pellegrino GS, Fioretti L, Pellegrino G  
Private practitioner, Italy

**AIM** `The present study was performed to evaluate whether the use of silicone made removable orthodontic devices alter the oral microbiota, the oral health indexes and the salivary pH.` **METHODS** `To pursue this aim, 52 patients were selected (age: 6-12y). The case group (n=26) was treated with LM Activator™ devices; the control group (n=26) involved patients who did not require orthodontic treatment. No differences in distribution of gender were observed between the groups. Two salivary swabs were taken from each individual to evaluate the oral microbiota: the first during the appliance delivery (T0), the second 15 days after the beginning of therapy (T1). The 7 bacterial species, mostly associated with caries and

periodontal problems, were selected and analyzed with the real-time polymerase chain reaction. Salivary pH and the following oral health indices were monitored for all patients at both time points (T0 and T1): Plaque Index (PI), Gingival Index (GI), Probing Pocket Depth (PPD), Bleeding On Probing (BOP), White Spot Lesions (WSL) and Decayed Missing Filled Teeth (DMFT).` **RESULTS`** `The bacterial load and the oral health indices showed no statistically significant changes between T0 and T1 (p0.05). Furthermore, the salivary pH average values did not show significant variations during the first 15 days of orthodontic treatment (p0.05). Student's t-test and Mann-Whitney U test were performed for statistical analysis.` **CONCLUSIONS`** `This analysed silicone-made appliance has minimal influences on oral microbiota and this is supported by oral health indices and salivary pH values. All these features make the silicone made device highly biocompatible.

#### **O 49 Cranio-facial skeletal pattern: correlation with oral breath in growing children**

Muntean A\*, Simu M, Suhani R, Lupse I, Cosma L

Paediatric Dentistry Department, Faculty of Dental Medicine, University of Medicine and Pharmacy, Romania

**AIM`** `The aim of this study was to assess, using cephalometric analysis, the consequence of oral breathing on the cranio-facial skeletal pattern, for patients in mixed dentition.` **METHODS`** `The sample comprised 80 patients (40 patients with nasal breathing and 40 patients with oral breathing) subjected to lateral cephalometric examination prior to orthodontic treatment. Cephalometric tracings were performed using a computerized software. Selected items (age, gender, SNA, SNB, ANB, FMA, IMPA, Z-angle and mandibular growth pattern) were descriptively analyzed and the results were considered significant for p0.05.` **RESULTS`** `We notice significant statistical differences (p 0.05) for the horizontal position of the mandible (SNB and ANB), the facial profile (Z-angle) and the axial inclination of the mandibular incisors (IMPA). No significant differences were detected between the two groups regarding the SNA and FMA angles. In our study, oral breathing patients have more retruded mandible in sagittal sense (associated with occlusal class 2 division 1 Angle) and tendency to develop a long-face pattern. The lower incisors were in a protruding position, and the harmony of the facial profile proved to be visibly altered. The cranio-facial complex, regardless of the genetic information, remodeled to the needs of the functional matrix. Oral breathing superimposed on the growth curve of the child cause morphological alterations of the dento-facial complex.` **CONCLUSIONS`** `Oral breath in children need a prompt attention and a multidisciplinary approach to have an early diagnosis and appropriate therapy. Managing growth processes requires correction of dysfunctions, balancing the musculo-skeletal elements in order to ensures orthodontic treatment stability and prevents relapse.

#### **O 50 Dental Screening for Paediatric patients prior to Bone Marrow Transplant at the Bristol Royal Children's Hospital**

Hardwick C\*, Power R

University Hospitals Bristol NHS Foundation Trust, United Kingdom

**AIM`** `To assess the completeness and quality of Bone Marrow Transplant dental screens completed at the Bristol Dental Hospital` **METHODS`** `A retrospective case-note review, third cycle audit, of patients requiring a Bone Marrow Transplant (BMT) between June 2017 and March 2019. Patients were identified using departmental records and checked against records held by the BMT coordinator. For each patient a data collection sheet was completed looking at 21 domains such as patient details, oncology diagnosis and treatment, dental prevention and treatment, charting, radiographs and a consultant approved treatment plan.` **RESULTS`** `A sample of 48 patients was collected. All BMT patients received a dental assessment excluding 2 who did not subsequently receive a BMT. Ages ranged from 2 to 17. The most common diagnoses were acute lymphoblastic and acute myeloid leukaemia. Treatment was required for 20 cases, 7 of which required a General Anaesthetic, 3 of these could not occur immediately due to medical reasons. 100% of patients received preventative advice and patient details were recorded correctly. 98% were discussed with a Consultant in Paediatric Dentistry, 100% had appropriate radiographs and 97% of the proforma was completed. Patients attended from a wide geographic area` **CONCLUSIONS`** `8 patients had never seen a dentist before, despite these children being of high dental disease risk. A large proportion of patients required dental intervention showing the importance of dental screens prior to BMTs.



**O 51 A study of parental presence/absence technique for child dental behaviour management**

Boka V\*, Arapostathis K, Van Loveren C, Veerkamp J, Kotsanos N

Department of Paediatric Dentistry, Aristotle University of Thessaloniki, Greece

**AIM** `To examine the effectiveness of parental presence/absence (PPA) technique on the dental behaviour management of children.` **METHODS** `This randomised control study recruited 61 child dental patients with uncooperative behavior (Frankl 1 or 2) managed with AAPD-endorsed non-pharmacological techniques at a post-graduate university clinic. PPA was only used in the test group (31 children). Using a mini video-tape device, recording commenced at the onset of uncooperative behaviour and this was later rated, minute by minute, by a blinded experienced paediatric dentist.` **RESULTS** `The mean point in time, after behavioural problems commenced, that PPA or alternative techniques were applied was  $1.82 \pm 1.04$  min. Behaviour improvement (technique success) was shown in 65.6% of all children. There was no statistically significant difference between the study and control groups in age, gender, mean Frankl score, in Frankl score 2 min before/after the technique application or regarding the time point at which the technique was first applied. Behaviour improvement was seen in 17 patients (54.8%) in the PPA group and in 23 patients (76.7%) in the control group. Data were analysed with SPSS v.13.0. The Kolmogorov–Smirnov test was used for normality analysis. The Mann–Whitney U-test and Log Rank analysis were also performed.` **CONCLUSIONS** `PPA applied to various dental sessions as a behaviour management technique showed no advantage over other basic, non-pharmacological techniques.

**O 52 Quality assessment of intraoral radiographs in the primary and mixed dentition taken at the Dental School of Western Australia**

Aps JK\*, Ng P, Lee K

University of Western Australia, Dental School, Division of Oral Diagnostic & Surgical Sciences, Australia

**AIM** `This quality assessment of the intraoral radiographs taken in the primary and mixed dentition, at the dental school of Western Australia, will be used to adjust the teaching methods and practical training with regard to radiography in paediatric dentistry.` **METHODS** `Ethics approval was obtained (excluding patient identifiers). Therefore, paediatric was considered primary (PD) and mixed dentition (MD) only. From the Dental School's radiography database, 17 weeks of year 2017 were randomly selected and submitted to a reject analysis (excellent, acceptable, reject). Strict criteria were used and investigators were calibrated. Descriptive and regression analysis statistics were performed (MedCalc®).` **RESULTS** `A total of 4,329 intraoral radiographs contained 141 PD and 228 MD. Approximately 17% and 20% of radiographs were rejected in PD and MD respectively. In PD 31.4% were considered excellent, whereas only 23.8% in MD. Regression analysis showed that type of radiograph was significantly related to the outcome of the reject analysis, whereas dentition and size of the phosphor plates weren't. Bitewing radiographs (PD: 61.0% and MD: 77.2%) were the most common exposures, followed by maxillary occlusal radiographs (PD: 32.6% and MD: 15.4%). In MD 21% of bitewings were rejected, whereas only 14% in PD were. For maxillary occlusal radiographs, the rejection rate was approximately 20% for both dentitions.` **CONCLUSIONS** `In order to decrease the number of rejected radiographs in children in our Dental School, we have emphasised on bitewing and maxillary occlusal radiography technique. Unfortunately patients ages were not recorded, which would have refined our results.

**O 53 Evaluating dental radiography compliance for paediatric patient assessment in secondary care: a United Kingdom multi-centre survey**

Dave M\*, Barry S, Davies J

The University of Manchester, United Kingdom

**AIM** `The aim of this survey was to determine compliance towards dental radiography selection criteria guidelines for paediatric patients undergoing new patient examinations in specialised secondary care centres in the United Kingdom.` **METHODS** `Five hospitals were included in this study. Retrospective data was collected reviewing all paediatric patients on the new patient assessment clinics where dental imaging was requested or the patient had relevant previous imaging. Data was collected from 28th June 2018, continuing retrospectively for a maximum of six months or until 150 patients were reached. Patients referred solely for

orthodontic assessment were excluded. **RESULTS** 750 patients were included from five institutions with an average age of eight years. 95.5% of patients had a radiograph justification provided. These were grouped into 56 disease categories and a total range of one cross-sectional and nine planar radiographs were prescribed in this cohort. Each radiograph was assessed for compliance to the FGDP, EAPD and national Italian guidelines for dental diagnostic imaging. Full panoramic radiographs were most commonly prescribed to 34.8% (n=261) of patients however demonstrated the lowest compliance rate at 75.9%. This was due to referrers providing insufficient information to justify radiation exposure, primarily for assessing dental development (18.8%; n=49) and caries assessment (2.7%; n=7). Other radiograph formats demonstrated varying levels of guideline compliance ranging from 93.5-100%. **CONCLUSIONS** This study identifies common radiograph request errors across a range of hospitals and can inform paediatric clinicians to improve compliance to guidelines and reduce radiation exposure to young patients.

#### **O 54 The impact of robotic distraction technique in children**

Kasimoglu Y\*, Kocaaydin S, Batu S, Ince G, Tuna EB

Department of Pedodontics, Faculty of Dentistry, University of Istanbul, Turkey

**AIM** Dental anxiety is a common problem in dentistry and leads to undesirable distresses, affecting especially children. We introduced a humanoid robot for the use of techno-psychological distraction techniques in children aged 4-10 to reduce their anxiety during dental treatment. **METHODS** 102 children (50 boys, 52 girls; mean age: 6.71±1.43 years) appointed for first time were included and divided into two groups (n=50 for RG: Robot Group; accompanied by the robot, n=52 for CG: Control Group; without robotic distraction.) Children were treated under local anesthesia. Saliva samples were collected on 3 times: before treatment, after treatment and 10 min after treatment. Analysis of amylase in the saliva samples was performed using an enzyme immunoassay kit. A multimodal system supporting expressions and gestures based on head, face, arm movements, and audio-based dialogues have been developed for the robot (Nao, SoftBank Robotics, Japan). The success rate of treatment was evaluated by using Facial Image Scale (FIS), physiological pulse rate, salivary amylase levels and Frankl Behaviour Rating Scale (FBRs). Statistical tests were used with p value fixed at 0.05. **RESULTS** Dental anxiety was decreased significantly in the RG compared to CG according to FIS, pulse rate and FBRs results (p<0.05). There was no statistically significant difference between the RG and CG in terms of salivary amylase levels before and after treatment (p>0.05). **CONCLUSIONS** This study is the first to investigate the effectiveness of child-robot interaction in reducing the anxiety of children during dental treatment. Robotic technology can successfully help in coping with dental anxiety and stress.

#### **O 55 Content analysis of smartphone apps promoting toothbrushing for children**

Hotwani K\*

VSPM Dental College and Research Centre, Nagpur, Maharashtra, India

**AIM** The present study aimed to analyse apps developed for smartphones that promote tooth brushing amongst children using the Coventry, Aberdeen, and London-Refined (CALO-RE) taxonomy for behaviour change. **METHODS** Tooth brushing apps available in English and free to download that purported to assist with brushing were searched on the Apple app store using search terms based on Boolean logic and included AND combinations for keywords tooth brushing, children, toothbrush and motivation in the health and fitness category; six apps met the inclusion criteria and were downloaded. The behaviour change taxonomies were assessed individually for each app and scored as per coding and analysed for presence or absence. **RESULTS** Only three of the behaviour change taxonomies were present in all apps, i.e. information provision (general), goal setting (behaviour) and prompt practice. Setting graded tasks, self-monitoring of behavioural outcome, demonstration of behaviour, prompt use of imagery and time management were included in four out of six apps. **CONCLUSIONS** The present study explores a new arena for oral healthcare motivation and prevention in children through the use of mobile phone apps.

#### **O 56 The influence of testosterone on clinical bruxism in children and adolescents**

Buchhardt J\*, Kiess W, Koerner A, Kratzsch J, Hirsch C

Department of Pediatric Dentistry, University Hospital Leipzig, Germany

**AIM** Already appearing in youth, a higher amount of males are affected by bruxism than females. This suggests that the male sexual hormone (testosterone) has an effect on the etiology of bruxism. The aim of

the present study was to analyze the prevalence of clinical dental abrasions depending on the testosterone levels in adolescents. **METHODS** In the framework of the Research Center for Civilization Diseases in Leipzig (LIFE- Child\*) 989 test persons between the ages of 10 and 18 (491 male) were medically and dentally examined. Furthermore, blood samples of 493 (247 male) subjects were taken to determine the testosterone level in the serum. Through multivariable methods the incidence of clinical bruxism (measured according to Pullinger and Seligman 1996) was analyzed depending on the testosterone level under control of potential confounders like age, gender, social status, and orthodontic treatment. **RESULTS** Boys showed significantly more clinical bruxism than girls (17.5% vs. 13.2%). Independent of gender, participants who belonged to the group of bruxism exhibited noticeable higher testosterone levels. The risk of dental abrasions increased approximately 25% per year of life (Odds Ratio [OR]Boys=1.27, 95%-confidence interval [CI]: 1.03-1.56; ORGirls=1.25; 95%-CI: 1.05-1.50). After controlling for confounding variables, the risk of bruxism was additionally heightened by 6% of each scale value concerning the testosterone measurement for boys (OR=1.06; 95%-CI: 1.01-1.12). **CONCLUSIONS** Bruxism is found frequently in children and adolescents and increases continuously with age. The higher prevalence among male adolescents can be explained by an additional effect of enhanced testosterone levels.

### O 57 Student perceptions of traditional and novel scenario-based digital paediatric dentistry tutorials

Graham AV\*, Rodd H, Hughes J, Yesudian G, Gilchrist F  
Charles Clifford Dental Hospital, Sheffield Teaching Hospitals NHS Foundation Trust, United Kingdom

**AIM** To gain feedback from final-year dental students on their current traditional small group tutorials and a novel scenario-based digital tutorial. **METHODS** As part of their curriculum in paediatric dentistry, our final-year dental students participate in traditional small group case-based tutorials. Students completed a questionnaire with open and closed questions, following their tutorials to assess their utility. In response to previous feedback, an interactive, digital dental trauma scenario was developed with the local Digital Learning Team using Xerte (University of Nottingham, UK). Students completed the online scenario in pairs and then completed a questionnaire to give feedback on its difficulty level, usability and suggestions for improvements. **RESULTS** Sixty students completed questionnaires regarding the traditional format. Feedback was generally positive with 100% (n=60) of students agreeing that tutorials were relevant to their clinical practice and 92% (n=55) stating that they improved their knowledge of the condition. However, 32% (n=19) did not think that the teaching method was beneficial. Students commented that they would like more interactive tutorials with links to relevant guidelines. Feedback for the new online scenario was positive with 94% (17 pairs) feeling it was easy to navigate, 100% stating that they found it a useful study aid and the majority of comments suggesting the difficulty level was appropriate. **CONCLUSIONS** Although feedback for traditional small group tutorials was positive, students value the use of more innovative digital learning formats. The novel digital scenario was well received and could be integrated with existing tutorials to employ a flipped learning approach.

### O 58 Correspondence between the paediatric dental team and referring practitioners – How well are we communicating?

Ondhia A\*, Marshall S, Kandiah T  
Barts Health NHS Healthcare Trust, United Kingdom

**AIM** Efficient communication with referrers is essential to ensure a high quality of patient care. The primary aim is to audit the quality of written communication with referrers from assessment to discharge; a secondary aim is to produce a local protocol to be used within our department. **METHODS** Local standards were produced following discussion with members of the Paediatric dental team. A retrospective case note review was completed for patients discharged from the department between January-March 2019. Notes were reviewed for evidence of audit standards and data was analysed using Microsoft Excel. Standards were not met, a local protocol was produced and a second cycle was completed for children discharged between June-July 2019. **RESULTS** In cycle one, 47 sets of notes were reviewed: • 45(96%) had a letter written to the referrer following their consultation appointment; 33(70%) of letters were copied to the parents; and 38(81%) had a discharge letter sent to the referrer. In cycle two, following implementation of change and a protocol being produced; 47 notes were reviewed: • 45 (96%) had a letter written to

the referrer following their consultation appointment; 38 (81%) of letters were copied to the parents; and 45 (96%) had a discharge letter sent to the referrer. **CONCLUSIONS** Following implementation of change, an improvement was seen. However, the authors are aware of the need to improve the quality and consistency of correspondence with referrers. A protocol has been produced and disseminated within the team. A future data collection cycle is planned in Spring 2020.

**O 59 Children's perception of pain in conjunction with tooth extraction – a Grounded Theory study**

Berlin H\*, Hallberg U, Ridell K, Toft D, Klingberg G

Department of Pediatric Dentistry, Faculty of Odontology, Malmö University, Malmö, Sweden

**AIM** Children frequently experience pain and discomfort during dental treatment. At the same time there seems to be an uncertainty among dentists regarding pain management. This calls for guidelines on pain management. However, pain management in pediatric dentistry is a knowledge gap. A lot of pain research in dentistry has been performed in adults with quantitative methods, while qualitative methods as well as the child's perspective are scarce. The aim of this study was therefore to explore and describe children's experiences and thoughts regarding pain in conjunction with tooth extraction (orthodontic indications) and the following postoperative period, using grounded theory. **METHODS** In-depth interviews focusing on children's thoughts and experiences before, during, and after tooth extraction were carried out with 11 individuals, aged 11-15 years. Interviews were transcribed verbatim and analysed in open, and focused (selective) coding processes according to grounded theory. **RESULTS** A core category was identified and named 'handling the unavoidable unknown'. Instead of focusing on pain, the informants described an urge for more information about the procedure and what to expect in terms of pain. The children stated that the levels of pain/discomfort was manageable, but the lack of information affected their coping abilities negatively. This led to raised anxiety levels. **CONCLUSIONS** To improve patients' ability to deal with pain in conjunction with dental extraction, the dental team should ensure better information about the treatment. This shows that the use of psychological techniques is a corner stone in pain management and must be reflected in guidelines.

**O 60 Oral health and orofacial aesthetics related outcomes of the ICHOM cleft set: evaluation and recommendations.**

Kind L\*, Versnel S, Koudstaal M, Wolvius E, Kragt L

Department of Oral and Maxillofacial Surgery, Special Dental Care and Orthodontics, Erasmus University Medical Center, Rotterdam, The Netherlands

**AIM** Patient reported outcome measures (PROM's) have been introduced to measure self-perceived oral health and dental aesthetics in cleft patients. However, it is not clear how different measures complement each other and how they relate to clinical examinations. Aim of the present study is to evaluate the combination of PROM's suggested by the International Consortium of Health Outcome Measurements (ICHOM), that are used during the cleft treatment trajectory. **METHODS** This retrospective study used data collected at the Erasmus University Medical Center, the Netherlands. Data were collected in 622 cleft-patients at the ages 8, 12 and 22 years. We evaluated three PROMs (the CLEFT-Q jaw, CLEFT-Q dental and Child Oral Health Impact Profile-Oral Symptoms Subscale (COHIP-OSS)) by looking at Pearson correlations among them and with two clinical examinations: the decayed, missing, filled teeth (DMFT) index and occlusion overjet assessment (OCC). **RESULTS** At 8 years the CLEFT-Q dental and COHIP-OSS correlated significantly ( $r=.468$ ,  $p\leq 0.001$ ), this correlation was weaker for cleft lip and palate (CLAP) patients ( $r=.357$ ,  $p0.001$ ). At 12 and 22 years the Cleft-Q Jaw and Cleft-Q dental correlated significantly only for the cleft lip (CL) patients ( $r=.627$ ,  $p\leq 0.001$  and  $r=.727$ ,  $p\leq 0.001$ ). None of the PROM's correlated with the clinical examinations. **CONCLUSIONS** Missing correlations between PROM's and clinical observations indicate an added value of using PROM's during the treatment of cleft patients. However, due to strong correlations with other PROM's we would encourage to use the COHIP-OSS at age 8 only for CLAP patients. Furthermore, the use of CLEFT-Q jaw is discouraged for CL patients.



### O 61 Alveolar Rhabdomyosarcoma of Parameningeal origin – A rare entity

Rosenthal D\*, Mumtaz S

Royal Free London NHS Foundation Trust, United Kingdom

**INTRODUCTION** `Soft tissue sarcomas in children are rare, but well documented. They usually present late and do not show overt symptomatology.` **BACKGROUND** `A 5 year old boy was seen by the Oral and Maxillofacial Team in the Emergency Department due to a three week history of a persistent firm swelling on the right side of his jaw that was unresponsive to antibiotics.` **CASE REPORT(S)** `An urgent ultrasound scan revealed bilateral jugulo-digastric lymphadenopathy with acutely thrombosed ipsilateral external jugular vein. Panoramic radiograph revealed an opacified right maxillary sinus with a developing malpositioned upperright second molar tooth. Magnetic Resonance Imaging demonstrated a large, heterogenous, lobulated softtissue mass centred within the right pterygoid fossa measuring 5 x 4.8 x 6.2 cm invading the adjacent skullbase medially abutting the temporal lobe within the middle cranial fossa and extending on to the basal aspectof the cavernous sinus. It showed extension into the right maxillary sinus and intimacy with the adjacentmandible. Biopsy revealed that the features were diagnostic of a rhabdomyosarcoma of alveolar subtype ofparameningeal origin.` **FOLLOW UP** `Although non metastatic, in the first year the patient has been treated aggressively with chemotherapy (intravenous ifosfamide, vincristine, actinomycin and doxorubicin) and six weeks of radiotherapy. He remains on maintenance vinorelbine.` **CONCLUSIONS** `The site and location of this tumour is unusual for a patient of this age. The difficulties encountered to achieve diagnosis and the importance of multidisciplinary management is presented to increase our understanding of this destructive and debilitating disease, which may present in a dental setting.

### O 62 Nitrous oxide impairs spatial working memory in mice

Emmanouil D\*, Klein E, Chen K, Zhang Y, Quock R

Department of Paediatric Dentistry, School of Dentistry, NKUA, Greece

**AIM** `to explore potential mechanisms of N2O in reducing spatial working memory in mice.` **METHODS** `we monitored spontaneous alternation behavior (SAB) in male NIH Swiss mice exposed to N2O during a T-maze spontaneous alternation task (T-SAT).` **RESULTS** `mice that were exposed to 70% N2O (in O2) exhibited severely and significantly reduced spontaneous alternation behavior in the T-SAT. Mice in this environment alternated their route only 33% of the time, in comparison to the control (room air) rate of alternation at approximately 70%. Mice pretreated with the benzodiazepine antagonist, flumazenil exhibited a dose-dependent restoration of spatial working memory under 70% N2O in the T-SAT. Alternatively, pretreatment with neither the GABAA antagonist gabazine nor the opioid antagonist naloxone had any appreciable effect on the N2O-reduced SAB.` **CONCLUSIONS** `this study verified that 70% N2O can reduce spatial working memory in mice, which appears to involve benzodiazepine mechanisms in the brain

### O 63 Changes in oral health-related quality of life among Austrian preschool children after dental treatment under general anesthesia

Boukhobza S\*, Meissner N, Glatthor J, Bekes K

Department of Paediatric Dentistry, Medical University of Vienna, Austria

**AIM** `To analyze the changes in oral health-related quality of life (OHRQoL) before and after dental treatment under dental general anesthesia (DGA) among Austrian preschool children.` **METHODS** `A consecutive sample of 60 parents of children aged 2 to 5 years, suffering from early childhood caries (ECC) and scheduled for DGA were recruited from two locations in Austria, Vienna and Salzburg. Parents self-completed the German version of the ECOHIS before (baseline) and 4 weeks (T4) after their child's dental treatment. The ECOHIS consists of 13 questions and is divided into two main parts, namely the child impact section (9 items) and the family impact section (4 items).` **RESULTS** `Mean values ( $\pm$  SD) for the ECOHIS sum as well as the two subdomains before and after 4 weeks were as follows. ECOHIS sum: Baseline 11.3 ( $\pm$ 7.5), T4 7.8 ( $\pm$ 4.1); Child section: Baseline 7.3 ( $\pm$ 5.9), T4 4.6 ( $\pm$ 3.0); Family section: Baseline 4.0 ( $\pm$ 3.2), T4 3.2 ( $\pm$ 2.0). Four weeks after treatment, a significant decrease ( $p$  0.05; paired, two-sided t-test) was observed in the overall ECOHIS sum and both subdomains compared to the baseline, indicating an improvement in the children's OHRQoL after the DGA treatment. Furthermore, parents rated their child's overall and oral health

higher after the DGA treatment ( $p < 0.001$ ).` `CONCLUSIONS` `Improvements in oral health-related quality of life were observed four weeks after DGA in children suffering from ECC.

**O 64 Sociodemographic and behavioral determinants of infant oral health knowledge among expectant mothers**

Al-Sane MA\*

Faculty of Dentistry, Kuwait University, Kuwait

**AIM`** `To assess the level of Infant Oral Health (IOH) knowledge in a sample of expectant mothers from Kuwait, and to identify the sociodemographic and behavioral determinants of that knowledge.` `METHODS` `Questionnaires with 15 questions on IOH and multiple choice answers were distributed to 650 expectant mothers at a maternity clinic in Kuwait. Answers were structured so that some were consistent with the American Academy of Pediatric Dentistry recommendations on IOH. The questionnaire also collected demographic data on age, educational level, income, and self-reported oral health behavior. We planned to rate knowledge as very high, adequate or inadequate, if the percentage of correct answers was 95%, 75-95%, 75% respectively. A multiple linear regression model was developed to analyze the significance of all variables as predictors of infant oral health knowledge scores.` `RESULTS` `The return rate was 93% ( $n=605$ ). The majority of participants were Kuwaiti mothers, 20-29 years of age, with 0-2 children and an income of 59,000 \$/year. Percentages of correct answers ranged from 5-60%, indicating inadequate IOH knowledge. Additionally being a mother of one or more children, being of 35 years of age or older, having higher educational attainment, and having had a dental visit within the last 6 months, were factors, significantly ( $p < 0.05$ ) associated with having better IOH knowledge.` `CONCLUSIONS` `IOH knowledge in the studied cohort of expectant mothers was inadequate. Educational interventions are needed to raise expectant mothers IOH level. Age, education, number of children, and the regularity of dental visits were predictors of IOH knowledge level.

**O 65 Dental health needs of migrant children**

Berat P\*, Elmerich C, Folliguet M, Vital S

University of Paris - Paediatric Dentistry, Department of Oral Medicine, Louis Mourier Hospital, HUPNVS AP-HP Colombes (92), France

**AIM`** `The aim of this study was to describe the epidemiology and dental health needs of minors in hospital-based unit providing care services to patients without health insurance coverage.` `METHODS` `A retrospective analysis was performed using electronic records of patients under 18 years of age, treated between May 2018 May and December 2019.` `RESULTS` `We identified 124 patients with a median age of 13.6 (IQR 3.2- 17.9) years. The large majority were male (87%). The children came mostly from sub-Saharan Africa (67%), Maghreb (14%) and Europe (11%). Pain was the main reason for consultation (68%), followed by tooth caries (26%). 94% of the children showed one or more untreated tooth decay. No specific medical conditions were recorded in the sample. Among the studied population, a particular group of 96 unaccompanied foreign minors (UFM) was identified, with a mean age of 15,8 years. Unlike younger children of the samples, who consulted with parents, the UFM were in effect treated without parental consent. A majority of the children (68%) received dental care at following appointments.` `CONCLUSIONS` `Pediatric refugees and asylum seekers attending this care unit display well-known dental pathologies, prevalent also in the local population. However in this unique child-dedicated dental unit in Paris and the surrounding area, the specific social context of this vulnerable population is taken into account, allowing them access to primary care.

**O 66 Effective method to teach oral education in pupils aged 6 to 12 at the Pureza de María School in Catalonia (Spain)**

Fernandez Sencion JN\*, Veloso A, Viroles M, Guinot F

International University of Catalonia, Spain

**AIM`** `To determine the effectiveness of an informative session promoting improvement of children's dental plaque index.` `METHODS` `A study of 144 children and pre-adolescents was conducted. As inclusion criteria: pupils aged 6 to 12 years attending the Pureza de María School in Catalonia (Spain) and signed informed consent from each parent. The study was carried out in three phases: Dental exploration to evaluate the dental plaque index using the O'Leary Index and a survey to evaluate their dental knowledge previously.



Informative session, in which the following topics were presented: balanced diet, hygiene techniques and dental decay in early years. The third phase consisted of an evaluation of the dental plaque index to determine whether the sessions were effective` **RESULTS`** `The dental index plaque at 1st visit had a media of 34% and for the 2nd visit it lowered to 11,58% with a standard deviation + 5.5 and P value 0.001. Comparing the groups, group II 7 to 8 (56%) had a P value 0,001 lower index plaque, however between sexes are not statistical differences P value 0,001. There is an improvement in knowledge after the educational oral health (85%) had statistical differences P value 0,001.` **CONCLUSIONS`** `Educational oral health talks encourage the youngest population to reeducate their habits according to their diet, hygiene techniques and knowledge about decay, furthermore deliver the information to their parents. <sup>[1]</sup> <sub>[SEP]</sub>

**O 67 Unique Needs of Immigrant Children and patients with Special Needs: Lessons Learned from a California model providing dental treatment under general anesthesia**

Rydell-Anderson VA\*

Attorney/Healthcare Consultant, S.Fitch Consulting LLC, Healdsburg, CA, USA

**INTRODUCTION`** `PDI Surgery Center is located just north of San Francisco. It's a 2 Operatory Room Surgery Center, having provided dental treatment under general anesthesia to 22,100+ since 2008, coming from half of California. PDI began as public-private partnership, government grants/private donations.`

**BACKGROUND`** `A pediatrician, dentist and health/children advocate in Northern California in 2006 hired current CEO to raise the funds and build out the surgery center, recruit and hire staff. Dentist and medical anesthesiologists work receive a per diem fee and see 5 patients/day/Operatory (10/day total). [www.pressdemocrat.com/specialsections/sonomagives/10586503-181/pediatric-dental-initiative-becomes-key?sba=AAS`](http://www.pressdemocrat.com/specialsections/sonomagives/10586503-181/pediatric-dental-initiative-becomes-key?sba=AAS)

**CASE REPORT(S)`** `A typical patient is a 3.5 year old with 12-14 cavities, referred to PDI from dentists and/or dental clinics for the underserved, when the dentist has attempted treatment twice under lesser modalities (other sedation) unsuccessfully, and deemed the patient needs General Anesthesia. Patient is seen only once at PDI (1.5 hours). PDI treats Special Needs Patients up to age 25, with eye surgery chairs/gurney.` **FOLLOW UP`** `PDI nurses/community health workers provide follow-up with the families, with phone calls day/week after. Dental director follows up with the referring dental offices/dental clinics quarterly. At PDI, parents receive one-on-one dental hygiene/nutrition education, along with toothbrush, toothpaste, floss, and healthy foods. PDI also goes to schools, faith-based sites, high-need/immigrant communities providing outreach/education.` **CONCLUSIONS`** `When PDI opened, 450 patients were the wait list. By dedicating Operatory to dental cases, we can be more efficient than in a hospital setting. Patients are seen at PDI within 3-5 weeks. PDI has reduced the incidence of same patient/sibling to PDI. <https://www.pdisurgerycenter.org/media/videos.aspx>

**O 68 The Analysis of Dental Treatment under General Anaesthesia in Medically Compromised and Healthy Children**

Koberova R\*, Merglova V, Kovacsova F, Suchanek J, Cermakova E

Dept. of Paediatric Dentistry, Faculty of Medicine Charles University and University Hospital, Hradec Kralove, Czech Republic

**AIM`** `The purpose of this retrospective cohort study was to analyse the dental treatment under GA in medically compromised and healthy children.` **METHODS`** `The data were collected from the medical records of children who received their dental treatment under GA. The data regarding patient age, sex, general health, and type of treatment were analysed. Counts and relative counts were used for description of qualitative data. The association between the variables was analysed using contingency tables. The significance of the findings was tested by the chi-square test.` **RESULTS`** `This clinical trial included 229 study subjects (138 males, 91 females) with an average age of 8.34 (SD 3.78), most of children were older pre-school 63 (27.51%) and young school children 102 (44.54%). Medical disability was diagnosed in 142 children (62.01%); the remaining 87 (37.99%) were healthy children. Dental treatment of primary teeth was more commonly performed in healthy children (65.52%) compared to medically compromised children (58.45%) (p = 0.287). The total number of medically compromised children and the total number of healthy children were both considered to be 100% for the purpose of the following calculations. Medically compromised children required more extractions and fillings in permanent dentition (38.03%, 57.04%) compared to healthy children (14.94%, 17.24%).` **CONCLUSIONS`** `The results have revealed that dental

treatment under GA was more commonly performed in medically compromised children in permanent teeth only in comparison to healthy children. Both health professionals and state authorities should focus more on preventive care of medically compromised children in order to improve their oral health.

**O 69 A novel use of Virtual Reality (VR) in Dentistry**

Cunningham A\*, Evans C, McGrath C, Coyle C  
Belfast Trust, United Kingdom

**AIM** `To introduce and assess parental satisfaction with a VR smartphone app provided in advance a dental general anaesthetic (GA), to decrease anxiety for their child with ASD/ADHD. Research shows that graded exposure or desensitisation for autistic children should be practical, visual and as realistic as possible. 'Little Journey' provides a framework to guide children through their upcoming GA.` **METHODS** `An audit revealed 68.89% of patients on the waiting list for basic dental care under general anaesthetic has ASD, ADHD or profound dental anxiety. The app comprises 360 degree photographs and animated clinicians that talk through the GA process in child-friendly language. It provides an immersive, three dimensional visual experience when used with a headset. The accompanying storybook complements the app, but is suitable for use alone if preferred. All children (with or without ASD/ADHD) attending a specialist children's hospital for dental treatment under GA in January 2020 were provided with a parent information leaflet and an accompanying storybook. A feedback questionnaire was completed on the day of GA treatment.` **RESULTS** `Initial feedback (N=20) showed parent-perceived anxiety levels fell from an average of 7.5/10 to 4.3 after using the app and/or storybook. Feedback has indicated that the app and storybook were also useful in decreasing perceived levels of anxiety for children without an ASD as well.` **CONCLUSIONS** `VR is a largely untapped field within dentistry with great potential. Little Journey, as a form of home-based preparation has proven to be highly successful and parental feedback has been extremely positive.

**O 70 Office based Propofol sedation for pediatric dental treatment in ASA I and II children: Mortality and incidents in 25.000 patients**

De Jong CJ\*  
Kindertand, The Netherlands

**AIM** `To evaluate safety of our sedation method: propofol sedation with laryngeal mask, supplemented with local anesthesia by dentist, for extensive dental treatments (restorations, pulpotomies, stainless steel crowns and extractions) in a group of pediatric dental care clinics.` **METHODS** `Retrospective descriptive study of 25.000 patient records (1998–2019). Children were screened prior to treatment by the anesthesiologist. ASA I and II patients were accepted. Records were kept of variables (HR, RR, Breathing Rate, SaO2, ETCO2, amount of propofol used). Severe (lasting damage to patient) and minor (no lasting damage to patient) incidents due to sedation were recorded and analyzed.` **RESULTS** `25.000 patients received sedation, age average 4,9year (range 2-18years), treatment time average 59 minutes (range 5-221min). Severe incidents: deaths=0, resuscitations=0, aspiration pneumonia=0, anaphylactic reactions=0, hospital admissions=0, hospital visits after treatment=4, Minor incidents: 2 attempts IV access=687(2,62%), IV access not possible=48, laryngeal mask (change size/cleaning)=458(1,77%), desaturation(90%, 20sec)=213(0,82%), subcutaneous propofol=90(0,35%), rash=10(0,04%), intubation=10(0,04%), assisted ventilation (few minutes)=64, vomiting=20, object lost and found in oropharynx=24, epileptic insult/myoclonic movements at induction=3, cardiac dysrhythmia=6,` **CONCLUSIONS** `This review indicates that office based ambulatory propofol sedation with laryngeal mask and spontaneous ventilation for dental treatment in children is a safe method, effective and with a very low risk of complications.

**O 71 Development of an integrated dental care pathway for young people with cleft lip/palate**

FitzGerald K\*, McGovern E, Tuohy M  
Children's Health Ireland at Crumlin, Ireland

**INTRODUCTION** `This case report describes not the typical situation of a dental problem in a single child or series of children, but rather a case report of a system problem, with solutions for service delivery aiming to improve the lives of many children.` **BACKGROUND** `Despite centralisation of services and published recommendations on dental care, children with cleft lip and/or palate (CLP) are at higher risk for and from dental caries. Our cleft centre had disappointing dmft and DMFT rates both in comparison to our national

average and to cleft centres within our network. Although primary dental care and specialised tertiary care paediatric dental services exist in our country, lack of integration across the system had led to a disjointed service with poor outcomes for many children. **CASE REPORT(S)** A decision was taken to establish a) an integrated shared care pathway and b) training for clinicians providing primary dental care for children and young people with CLP. The proposed presentation describes: i) the process of development of a care pathway; ii) the associated clinical protocols and iii) the training provided for primary care dentists. **FOLLOW UP** While we await long-term dmft/DMFT data to measure the success of the pathway in terms of caries outcomes, we are enthusiastic to share the journey we have embarked upon as a positive partnership between primary and tertiary care. **CONCLUSIONS** The process has been a valuable means of aligning the services, bringing people together and opens the way for development of similar pathways for other patient groups.

## O 72 Parents' perceptions of oral care in a paediatric cancer unit

Pinto T, Goncalves C, Leite F, Silva R, Correia P\*

Faculty of Dental Medicine, Universidade Catolica Portuguesa, Portugal

**AIM** Assess parental perception of the impact of cancer treatment in their child's oral health, oral care support at the cancer unit and their oral care routine. **METHODS** A questionnaire containing 26 questions was developed from relevant papers in the literature. It included questions on oral-hygiene and diet, knowledge of prevention and management of oral complications, especially of oral mucositis, and oral care best practice. A convenience sample was obtained from March to April 2019. A database was created and results were analysed in SPSS. Ethics approval was obtained prior to the study. **RESULTS** 104 parents/carers participated in the study. Nearly 40% of the children did not have a dental assessment prior to starting cancer treatment; about 15% did not receive oral-hygiene instructions. Over 70% did not know the amount of fluoride in their children's toothpaste. Almost 90% of the children complained of oral pain, 80% of oral ulcers and almost 40% of dysgeusia. 97% of the parents valued the role of the dentist in the healthcare team. Over 50% were not satisfied with the standard of oral care received at the cancer unit. **CONCLUSIONS** Follow-up of the patients by the dentist was below expectations. Parents' education about their children's oral care and potential oral complications need to improve. Clinical protocols at the paediatric cancer unit require updating, according to most relevant guidelines. Considering the prevalence of oral discomfort, in particular of oral mucositis-related symptoms, this study will be extended to assess genetic polymorphisms that may render these patients more susceptible to oral mucositis.

## O 73 Oculodentodigital Syndrome – need for an evolving treatment plan

Dale C\*, Dixon C, Srinivasan V, Hunter K

University of Manchester Foundation Trust, United Kingdom

**INTRODUCTION** Oculodentodigital syndrome (ODD) is a rare congenital multi-system disorder, predominantly affecting the eyes, teeth and limbs. Patients present with syndactyly of the fingers, ophthalmic anomalies, distinctive facial appearances and dry sparse hair. Oral features commonly seen are hypodontia, microdontia, generalised enamel hypoplasia, and occasional cleft lip and/or palate. Typically an autosomal dominant condition, ODD in rare instances, including that described in this case report, follows an autosomal recessive pattern of inheritance. **BACKGROUND** A 2-year old girl- previously diagnosed with ODD- was referred to Manchester Dental Hospital by her consultant paediatrician who suspected the presence of gross caries. **CASE REPORT(S)** On presentation clinical examination was characteristic of ODD with generalised enamel hypoplasia affecting the primary and permanent dentitions, evident radiographically with low-density dentine and large pulp chambers. Management plan involved intense prevention, resin restorations and placement of preformed metal crowns to retain teeth for as long as possible, alongside removal of unrestorable teeth by both general anaesthetic and local anaesthetic modalities. In the later stages of treatment, at age 10, it was accepted that several permanent teeth of poor prognosis required removal, with placement of a maxillary removable partial denture. **FOLLOW UP** Given the comprehensive and specialist nature of care required to monitor a compromised developing dentition, treatment has spanned over 9 years with on-going regular reviews. **CONCLUSIONS** This case illustrates the developing oral issues ODD can present. It highlights the importance of an evolving treatment plan and consideration of the emotional impact of the condition on the patient.

## O 74 Periodontal conditions in children with neutrophil-associated primary immunodeficiencies

Bayliss-Chapman J, Davies J\*, Somani C, Nibali L, Donos N  
Queen Mary University of London, Royal London Hospital, United Kingdom

**AIM** `To investigate presence of periodontal disease in children affected by neutrophil defects` **METHODS** `A case-control study was undertaken. Twenty-four children affected by neutrophil defects were identified from subjects attending the Immunology and Haematology clinics at Great Ormond Street Hospital (GOSH) or at The Royal London Dental Hospital (RLH), following a medical examination. The children underwent a full dental examination including a six-point pocket chart and plaque scores and provided samples of gingival crevicular fluid (GCF), saliva and subgingival plaque. A control group of age-matched patients (n=24) were recruited separately at RLH.` **RESULTS** `The prevalence periodontal diseases in children with neutropenia was as follows: 33% (n=8) of patients had gingivitis, 29% (n=7) had periodontitis and 38% (n=9) patients were periodontally healthy. Of the control patients, 83% (n=20) were periodontally healthy, and the remaining 17% had gingivitis (n=4). The mean periodontal pocket depth (PPD) for the neutropenic children was 2.35mm, whereas the mean PPD for controls was 1.87mm. Mean bleeding on probing (BOP) in test patients was 24%, in control children 5%.` **CONCLUSIONS** `The prevalence of periodontal diseases was higher in children with neutrophil defects compared with healthy control children. Percentage of BOP sites was also higher in children with neutrophil defects than in healthy children even with similar levels of plaque.

## O 75 Dental management of three siblings with Ectrodactyly Ectodermal Dysplasia: A case report

Osborne R\*, D'Souza E, Balmer R  
Harrogate and District Foundation Trust , United Kingdom

**INTRODUCTION** `Ectrodactyly ectodermal dysplasia is a rare genetic condition resulting from a TP63 gene mutation inherited in an autosomal dominant pattern or as a de novo transfiguration. In this family there was several family members affected by the condition with diagnosis in at least 3 generations.` **BACKGROUND** `The condition can affect a number of body systems including kidneys, eyes, ears, skin, digits hair, nails, glands and teeth. Dental implications can include cleft palate, hypodontia, microdontia and hypoplastic teeth. This case report focuses on 3 affected paediatric family members aged between 2-9 years.` **CASE REPORT(S)** `Associated with the condition, the children had varying combinations of cleft ears, adactyly and ectrodactyly (with resultant dexterity issues), conductive hearing loss, cleft palate and dental anomalies. The siblings had multiple carious teeth, compliance issues and dental anxiety. After history taking and clinical examination, treatment was provided under local and general anaesthesia which was necessary due to lack of cooperation and the extent of treatment needed. A focus was placed on prevention, education and behaviour management to prevent repeated issues in the future or with the younger siblings and improve acceptance of future treatment.` **FOLLOW UP** `The children will remain in our service on a shared care basis to ensure their needs are met as they continue improve cooperation and oral hygiene.` **CONCLUSIONS** `This report highlights the value of specialist service input to children with orofacial syndromes to maintain dental health and the importance of a good understanding of the condition and its dental implications.

## EAPD Awards – Oral Abstracts



### **AWO 1 Behaviour and gagging interaction in 4-12 year old children throughout dental treatment.**

Katsouda M\*, Coolidge T, Kotsanos N, Arapostathis K

Department of Paediatric Dentistry, Dental School, Aristotle University of Thessaloniki, Greece

**AIM** `The aims were to evaluate if gagging can affect child's cooperation, investigate possible changes in gagging and study factors that can predict child's behaviour over dental treatment.` **METHODS** `255 children aged 4-12 years, needing at least 3 dental visits, completed the Children's Fear Survey Schedule-Dental Subscale (CFSS-DS) before entering the examination room. The objective assessment of gagging (Gagging Problem Assessment modified for children, GPA-de-c/SF) was performed before examination (GPAinitial) and after the third-final visit (GPAfinal). Frankl's Behaviour Scale (Franklinitial, Frankl2nd, Franklfinal) was used to rate child's behaviour at 3 consecutive dental sessions. Multivariate Logistic Regression Analysis (MLRA) was used.` **RESULTS** `At the initial visit (clinical examination), children with better cooperation had significantly lower GPAinitial ( $\chi^2=12.341$ ,  $p=0.002$ ). Franklinitial can be predicted by child's age ( $p=0.042$ ) and CFSS-DS ( $p=0.002$ ), but not GPAinitial (MLRA). At the second visit (prophylaxis-fluoride application), only CFSS-DS ( $p=0.001$ ) was significantly associated to Frankl2nd (MLRA). At the third-final visit (invasive treatment with local anesthesia or sealants), Franklfinal was significantly associated to the type of treatment ( $\chi^2=9.212$ ,  $p=0.010$ ). According to the MLRA, Franklfinal was significantly associated to age ( $p=0.029$ ), CFSS-DS ( $p=0.010$ ), GPAinitial ( $p=0.041$ ) and Franklinitial ( $p=0.007$ ) for invasive treatment while there was no association for sealants. The percentage of children that gagged after the third visit (27.05%) was significantly lower (McNemar test,  $p=0.004$ ) than before dental examination (32.54%). There was no significant association between GPAfinal and the type of dental treatment at the third visit.` **CONCLUSIONS** `Among variables studied, dental fear was the best predictor of child's behaviour throughout dental treatment.

### **AWO 2 Happy teeth and healthy mouths: Optimising oral health knowledge for families of paediatric patients.**

Gupta A\*

East Surrey Hospital, United Kingdom

**AIM** `The majority of patients seen in our hospital service attend with grossly carious dentition and poor oral hygiene. Many undergo comprehensive care including extractions under General Anaesthesia. These diseases are preventable. This quality improvement project was designed to ensure key oral healthcare messages are internalised by affected families.` **METHODS** `Parents and guardians completed a quiz at their child's consultation which was developed in line with Public Health England (PHE) – delivering better oral health toolkit and BSPD guidance, to gauge their existing knowledge of a healthy diet and good oral hygiene. Results of the quiz, together with findings from clinical examination highlighted gaps in parents/guardians knowledge and tailored advice was then given by the clinician. This was supplemented by e-learning packages. At the patient's following visit, the families are reassessed using the same quiz and their answers compared.` **RESULTS** `Initial results showed 50% paediatric patients required multiple dental extractions due to caries and poor oral hygiene. 80% of the families lacked basic oral health knowledge. This was regardless of social class or parental occupation. Tailored advice and education (in the form of clinical videos and detailed advice leaflets) is being given in an effort to ensure that as practitioners- we are giving parents and guardians the best chance to improve their children's oral health.` **CONCLUSIONS** `The majority of patients and their families lack basic oral health knowledge. This results in children requiring extensive dental treatment. We plan to use this tailor made preventative tool to improve patient care.

### **AWO 3 Efficacy of two minimally invasive methods of caries removal: a randomized split-mouth clinical trial preliminary findings**

Duman C\*, Capan B, Egil E, Kalaoglu E

Marmara University, School of Dentistry, Department of Paediatric Dentistry, Turkey

**AIM** `The aim of current research is to compare a chemomechanical caries removal agent (Brix 3000) and a polymer bur (SmartBur) conforming to patient acceptability and clinical success. The goal of this study ensure apexogenesis by preserving the pulp vitality.` **METHODS** `Systemically healthy 22 children aged 6-10 who had at least two immature asymptomatic permanent molars with deep caries were included in the study.



The teeth were randomly divided into two study groups as chemomechanical gel and polymer bur. The cooperation levels of the children during caries removal evaluated with Frankl Scale. The duration of two methods were recorded. The clinical success was evaluated according to clinical and radiographic findings.

**RESULTS** The duration of the polymer bur procedure was significantly shorter than chemomechanical gel. The difference between cooperation levels of children in two caries removal method was not statistically significant. The total pain rate of groups were similar in one year recalls. Additionally 4.5% of polymer bur group was shown infection and periapical pathology. Periapical pathology rate of chemomechanical gel group was also 4.5%. **CONCLUSIONS** Minimal invasive approaches may be a treatment choice for deep caries lesions especially in children with dental anxiety. Long term follow up appointments are required to evaluate the clinical and radiographic success of these relatively new materials.

#### **AWO 4 Antibacterial properties of novel dental composites containing polylysine.**

Lygidakis NN\*, Allan E, Ashley P, Young A  
Eastman Dental Institute, United Kingdom

**AIM** This study assesses water sorption induced mass and volume changes and polylysine release of novel dental composite formulations and their antibacterial action. **METHODS** Mass and volume change as well as polylysine release versus time of water immersion of composite discs containing 0.5, 1, 2 and 5% polylysine in the filler phase were determined. Antibacterial action was assessed by immersing discs in a suspension of *Streptococcus mutans* at different inoculum densities for 24 hours and determining bacterial counts. Bacteria were visualised on the discs using LIVE/DEAD staining with confocal microscopy. The Z250 composite from 3M was used as control. **RESULTS** Filler polylysine content of 0.5, 1, 2 and 5% resulted in a) mass change of 0.7, 1.2, 1.7 and 3.1% after two months, and b) polylysine release of 48, 69, 158 and 505ppm after three weeks respectively. Volume was not significantly affected and increased similarly for all formulations by 2.1-2.5%. The addition of a minimum 1% and 2% polylysine to the novel formulations inhibited bacterial growth in air at low inoculum density and at all inoculum densities respectively. An increase in dead bacteria on the discs was seen as the polylysine concentration increased. The commercial material did not show any antibacterial properties. Analysis of variance (ANOVA) was used in SPSS to analyse the results. **CONCLUSIONS** Water sorption induced polylysine release of the novel composites can inhibit the growth of *Streptococcus mutans* in vitro making them more suitable for minimally invasive tooth restorations.

#### **AWO 5 Calcium dynamics and molecular signaling of dental pulp stem cells in the regeneration potential of calcium silicate cements**

Rathinam E\*  
Department of Paediatric Dentistry and Special Care, Ghent University, Ghent, Belgium

**AIM** To identify and correlate the extracellular calcium concentration, intracellular calcium oscillations, pH, cytotoxicity, mineralization ability, gene enrichment analysis and regenerative potential induced by two different tricalcium silicate (TCS) based biomaterials. **METHODS** Calcium release, live cell calcium imaging of intracellular calcium oscillations, pH and cytotoxicity (MTT and TUNEL assay) of ProRoot® white MTA (WMTA) and Biodentine™ were assessed using self-extracted human dental pulp stem cells at 1 day. RNA sequencing, gene set enrichment analysis and pathway analyses were performed after 3 and 7 days. Mineralization ability was determined using Alizarin Red and Von Kossa staining from 7 to 28 days. The regeneration potential of these biomaterials were then compared in an animal model on the basis of the histological outcomes of regenerative endodontic therapy (RET) in immature sheep teeth with 6 months follow up. Data were subjected to analysis of variance (ANOVA) and Tukey post-hoc comparison (p 0.05).

**RESULTS** Despite the significantly increased calcium release and higher peak amplitude of intracellular calcium oscillations observed in the Biodentine™ group, no significant difference was found between the groups regarding pH and cytotoxicity. Significantly increased gene expression and faster mineralization were observed in the Biodentine™ group (p0.05). Differential molecular signaling pathways were identified in the two TCS based endodontic cements. Biodentine™ elicited a more favourable histological outcome compared to ProRoot® WMTA after RET in sheep teeth. **CONCLUSIONS** Biodentine™ induced a significantly higher extracellular calcium concentration, enhanced intracellular calcium oscillations, increased gene expression, faster mineralization and more favourable histological outcome than ProRoot® WMTA.

## **AWO 6 Calcium hydroxide + iodoform paste as a canal dressing in poor prognosis avulsed permanent teeth**

Sumner O\*, Hind V

Newcastle Dental Hospital, United Kingdom

**AIM** `To evaluate clinical outcomes of reimplanted avulsed permanent teeth with radiographic signs of inflammatory/replacement root resorption, treated with a calcium hydroxide + iodoform paste (Vitapex) as an intra-canal dressing.` **METHODS** `A retrospective analysis of a patient cohort treated from 2013 – 2017 was performed. Outcome measures including treatment outcome, overall survival, and radiographic presence of inflammatory or replacement root resorption were determined. Cases lost to follow-up before two years and incomplete data sets were excluded.` **RESULTS** `34 avulsed teeth in 28 patients aged 8-16 were analysed. Overall survival rate at 2 years was 97%. 6 teeth (17%) showed signs of periodontal healing and were obturated, after a median length of time dressed of 29 months (range 19 – 58). 9 teeth (27%) were extracted in a planned manner (range of 2-5 years post trauma), 17 (50%) were under long-term review or undergoing orthodontic treatment. Radiographic signs of inflammatory and/or replacement resorption on 15 teeth (44%) appeared to slow or arrest following dressing. 18 teeth (53%) did not have their dressings replaced as they were still radiographically of good quality, at up to 39 months.` **CONCLUSIONS** `This clinical analysis shows that calcium hydroxide + iodoform paste could be used in avulsed teeth of poor prognosis to decelerate or even arrest external root resorption. This can have psychological benefit to the patient as well as maintaining the alveolar process.

## **AWO 7 Direct pulp capping in carious primary molars using three different direct pulp capping materials. Twelve-month clinical trial.**

Chatzidimitriou K\*, Koletsi D, Lygidakis NA, Gizani S, Vadiakas G

Department of Paediatric Dentistry, Dental School of National and Kapodistrian University of Athens, Greece

**AIM** `To estimate the success rate of direct pulp capping in carious primary molars using three different pulp capping materials.` **METHODS** `Primary molars with deep caries lesions resulting to pulp exposure, free of irreversible pulp inflammation signs and symptoms were included in the study. Teeth were divided into 3 groups: A: Ca(OH)<sub>2</sub>, B: Pure Portland cement® and C: Biodentine™. Clinical procedures involved anaesthesia and isolation, caries removal, hemostasis, pulp capping at the exposure site, additional lining in groups A, B and composite resin restoration. Patients were re-examined at 3, 6 and 12 months after treatment and every 6 months, thereafter. Descriptive statistics, Chi-squared and Fisher's exact tests, Kaplan-Meier survival curves, multivariable random effects Cox regression model and Nelson Aalen plot were performed.` **RESULTS** `Sixty-six patients (25 girls, 41 boys) with mean age 7.2 (± 1.7) years participated. The mean follow-up time was 12 months. Seventy-nine primary molars were assessed (39 first, 40 second) and assigned to groups A (n=27), B (29), C (n=23). The overall failure was 16% (13 teeth) and the distribution by group was: A: 5 teeth, B: 5 teeth, C: 3 teeth. No statistically significant difference between failure and type of capping material was found (p=0.93). For more than half of the teeth failed, failure occurred within the first 6 months after treatment.` **CONCLUSIONS** `Direct pulp capping in primary molars revealed 84% success rate, after 12 months of mean follow-up. No significant difference in failure rate among the different pulp capping materials was found.

## **AWO 8 Stainless steel crown versus bulkfill composites post primary molars pulpectomy: 1-year survival and acceptance results of a RCT**

Olegario IC\*, Bresolin CR, De Araujo MP, Hesse D, Raggio DP

Dublin Dental University Hospital, Trinity College Dublin, Ireland

**AIM** `The aim of this randomized clinical trial was to evaluate the 1-year survival rate of stainless steel crowns (SSC) and bulk fill composite resin (BF) as a restorative option for primary molars post pulpectomy. As a secondary outcome, the acceptance of both children and parents were evaluated.` **METHODS** `Ninety 3-to-8-year-old children with at least one primary molar requiring pulpectomy were selected in the University of Sao Paulo, Brazil. After the endodontic treatment, the children were randomized and restored using SSC or BF by a single operator and evaluated by an independent examiner after 2, 6 and 12 months. A questionnaire assessing children and parent's acceptance of the restorations was completed immediately

after the treatment. Restoration survival was evaluated using Kaplan-Meier survival analysis and Log-rank test, while Cox regression analysis and Mann-Whitney test were used for testing the association of the treatment failure and acceptance with clinical factors ( $\alpha = 5\%$ ).` **RESULTS`** `The overall children's and parent's acceptance score were high and showed no difference between the restorative groups (p0.05). There were no restorative failures in the SSC group. The endodontic treatment survival rate after 1 year was BF=75% and SSC=88%. Restoration failure influenced the survival of endodontic treatment (p0.001). Treatment failures were not associated with any of the variables analyzed (gender, age, size of interradicular lesion, presence of fistula, abscess or mobility).` **CONCLUSIONS`** `Unsuccessful BF restorations lead to a failure of the endodontic treatment. In Brazil, the use of SSC was well accepted both by children and their parents.

### **AWO 9 Decellularised bovine dental pulp as a biological scaffold for regenerative endodontic therapy**

Alghutaimel H\*, Yang X, Nazzal H, Duggal M, Raif E

Department of Paediatric Dentistry, University of Leeds, Leeds, UK, United Kingdom

**AIM`** `Regenerative endodontic therapy (RET) is based on using a tissue engineering approach to regenerate the damaged pulps in immature permanent teeth. As the ideal scaffold for this therapy is not yet confirmed, this research aimed to test the potential of a decellularised dental pulp-based scaffold (DPS) of bovine origin in supporting the growth of human dental pulp stem cells (hDPSCs) in vitro and guiding dental pulp regeneration in vivo.` **METHODS`** `Bovine dental pulps were decellularised using detergent-based decellularisation method. The resultant DPSs were seeded with hDPSCs. Cells' attachment, viability, migration and differentiation were assessed using SEM, Live/Dead viability assay, histological analysis, RT-PCR and immunohistochemistry. An in vivo study was conducted in which hDPSCs-seeded and non-seeded DPSs were inserted in human teeth slices and transplanted into immune-deficient mice for 30 days. Samples were then retrieved and histologically analysed.` **RESULTS`** `The in vitro analysis of hDPSCs-seeded DPSs showed apparent cell attachment and growth within the DPSs with excellent cell viability and evidence of odontogenic and angiogenic cell differentiation. The in vivo study revealed the formation of vascularised soft tissues in the slices received DPSs. The tissues showed a histo-morphological organisation pattern closely similar to that of human dental pulp when DPSs were seeded with hDPSCs, and randomly organised host cells when DPSs were non-seeded.` **CONCLUSIONS`** `This research has shown that the DPSs are capable of supporting the growth, maintaining the viability and enhancing the desired differentiation of hDPSCs. The data from this work supports the use of DPSs as highly promising scaffolds for RET.

### **AWO 10 Home video-recording as an objective data collection method to assess parent-child toothbrushing**

Giles E\*, Bhatti A, Gray-Burrows K, Day PF

University of Leeds, United Kingdom

**AIM`** `To explore video-recording as a method of assessing parent-child toothbrushing compliance with national guidance.` **METHODS`** `Public Health England's 'Delivering Better Oral Health' (DBOH) toolkit outlines several items of toothbrushing advice for children aged up to six-years-old. Toothbrushing videos taken within the home setting were collected as part of a larger feasibility study ("Strong Teeth"). DBOH compliance data from each video was coded by two researchers independently. Researchers then met and reviewed their scoring, with any disagreements managed by discussions with a senior researcher. Total compliance to the DBOH toolkit was calculated, as well as compliance to individual items.` **RESULTS`** `Thirty-five toothbrushing videos of children aged 0-5 years old were analysed. Video recordings provided excellent objective data for variables such as parental supervision (n=35) and spitting-no-rinsing (n=35). Other items, such as the amount of toothpaste (n=34) and strength of toothpaste (n=30) were possible to observe, but more dependent on video quality. The frequency of brushing (n=0) and brushing at night (n=0) could not be ascertained from the videos. At baseline data collection, before the intervention, only 17.2% of participants were compliant with DBOH guidelines, despite 44.4% of participants self-reporting compliance.` **CONCLUSIONS`** `Videos are a feasible objective research method to measure some toothbrushing behaviours. A high-quality standard operating protocol is needed to ensure consistency and external validity.

The collection of objective data on oral health behaviours is important as subjective self-reports can be inconsistent.

### **AWO 11 Dental fear, caries experience and periodontal health in children and adolescents with hearing impairment.**

Trimeridou A\*, Boka V, Arapostathis K, Kotsanos N

Department of Pediatric Dentistry, School of Dentistry, Aristotle University of Thessaloniki, Greece

**AIM** `To assess dental fear and oral health and hygiene in children and adolescents with hearing impairment (HI) in Greece.` **METHODS** `After ethical approval, all children (without syndromes or intellectual disabilities) attending Elementary and High Schools for the HI in Greece were invited in the study. All were asked to fill in the Children's Fear Survey Schedule-Dental Subscale (CFSS-DS), while the high school students also answered the Modified Dental Anxiety Scale (MDAS), both translated in sign language by the same licensed interpreter. dmfs/DMFS, plaque score and Bleeding on Probing (BoP) were used to evaluate caries, periodontal health and oral hygiene. Data was treated statistically by SPSS 20.` **RESULTS** `In total, 93 (~77.5%) -38 elementary and 55 high school students (mean age=10.49±2.66 and 16.96±2.53 respectively) - participated in the study. Mean DMFS were 3.0±4.8 and 7.3±9.0 for elementary and high school children respectively, higher than similar age general population in Greece (2.1±3.1 and 3.2±4.1 respectively). Mean plaque and BoP scores were 70.1±29.7 and 19.9±22.4 for elementary students, and 52.4±28.6 and 30.2±27.7 for high school students. Mean CFSS-DS were 23.9±9.7 and 26.2±10.2 for elementary and high school students respectively, compared to 27.1±10.8 and 27.4 ± 9.3, respectively, for similar age general population. Mean MDAS for high school students was 11.3±4.5, significantly correlated to CFSS-DS score (Spearman rho=0.631; p-value0.001). Dental fear was not significantly associated to age and caries experience.` **CONCLUSIONS** `HI children and adolescents had higher caries prevalence and the elementary school children had lower dental fear levels than similar age children of general Greek population.

## **EAPD Awards – Poster Abstracts**

### **AWP 1 Effectiveness of the “Pain-free Dental Injection” (PaFeIn) teaching model in children: a randomized, controlled study**

Ozcelik SM\*, Akyuz S, Bekiroglu N, Kucuktepe C, Kuscu OO

Marmara University, School of Dentistry, Department of Paediatric Dentistry, Turkey

**AIM** `This study explores the effectiveness of the “Pain-free Dental Injection” (PaFeIn) teaching model which is developed by compiling contemporary strategies of dental pain and anxiety management for children.` **METHODS** `Following ethical approval 10 post-graduate paediatric residents (post-grads) and 231 children (aged 5-13) participated in the study. Experimental and control groups were randomized according to the previously measured baselines. The experimental group (5 post-grads) attended 9 hours of the PaFeIn teaching model course. Based on power calculations, all post-grads performed 14 buccal infiltration, 8 mandibular block and 8 palatal/lingual injections in randomly assigned child patients as a part of their actual dental treatment. Demographic data of post-grads/children, and Children’s Fear Survey Schedule-Parental form, Facial Image Scale, Venham Picture Test and Visual Analogue Scale (VAS) scores of children were recorded to evaluate anxiety and pain during injections. Independent group t-test was used to compare the groups.` **RESULTS** `Mean anxiety scores of children treated by the experimental and control groups did not differ significantly, however mean injection pain scores (VAS) were 1.28 and 2.59, respectively (p=0.0001). The reduction in pain scores was superior (49,42%) than the anticipated percentage of difference (30%) which was used in power analysis calculations. VAS pain scores for (a)buccal, (b)mandibular and (c)palatal/lingual injections in the experimental group were lower than the control group: (a) 1.08 and 1.9 (p=0.02); (b) 1.58 and 3.37 (p=0.0002); (c) 1.34 and 3.02 (p0.0001).` **CONCLUSIONS** `The PaFeIn teaching model was observed to be highly effective in providing pain-free dental injections in children.Candidate for SVK EAPD Sedation Award



## **AWP 2 Clinical and microbiological evaluation of deep carious lesions treated with stepwise technique**

Vacaru RP\*, Per S, Tanase M, Brand H, Didilescu A  
Carol Davila University of Medicine and Pharmacy, Romania

**AIM** `To assess the efficiency of the stepwise excavation technique used for treatment of deep carious lesions in immature permanent molars (IPM).` **METHODS** `Study sample consisted of 9 children aged 7 to 11-year-old (mean 8.8, SD 1.5), with a total of 12 IPM treated. During both visits, clinical evaluation of lesions activity was performed based on moisture, color and consistency criteria and a sample of deep dentin layer was removed and inoculated on bacteria tests (CRTbacteria, Ivoclar Vivadent, Liechtenstein). Statistical analyses were performed using Stata/IC 14.` **RESULTS** `The time interval between visits varied from 2 to 7 months (mean 4, SD 1.9). At first treatment appointment, 50% of lesions were active and 50% slowly progressing. At the second visit, 83.33% of lesions had become slowly progressing, the others being arrested. All lesions evolved from moist to dry, got a harder consistency and changed to darker colors. The percentage of IPM with 10.000 CFU cariogenic bacteria decreased from 66.67% at first appointment to 8.33% during the second visit. During the second appointment, final restoration was applied in 41.83% of the IPM, 50% of the IPM required another stepwise visit, and 8.33% of the IPM needed pulpotomy.` **CONCLUSIONS** `Within the limitation of the study, we may conclude that stepwise technique was efficient, leading to the arrest of carious lesions, decreasing the bacterial load, and reducing pulp vitality loss.

## **AWP 3 Does resin infiltration work in cases of developmental enamel anomalies?**

Cachia Mintoff J\*, Ahmad A, Monteiro J  
University College London, United Kingdom

**INTRODUCTION** `Dental anomalies such as hypomineralisation are common. These anomalies can cause marked discolouration of anterior teeth, which may lead to social consequences that negatively affect patients' quality of life. While there are several treatment options, many are invasive or may cause unwanted side effects.` **BACKGROUND** `Resin infiltration is a relatively new technique that involves low viscosity resin entering the discoloured enamel and changing its refractive index to improve aesthetics. It has been successfully used for post-orthodontic demineralisation. This case series illustrates the use of resin infiltration for enamel hypomineralisation in children.` **CASE REPORT(S)** `This case series follows five patients with hypomineralised enamel defects (three with molar-incisor hypomineralisation, one with amelogenesis imperfecta and one with hypomineralisation following trauma to the primary predecessor). Having undergone vital bleaching to improve aesthetics, the patients were unhappy with the final result and therefore underwent resin infiltration. The procedure was performed for three, four or five cycles. All cases showed direct improvement, which was stable at rehydration. However, resin infiltration did not completely mask the lesions.` **FOLLOW UP** `Follow-up ranged from two weeks to one year. On rehydration, patients' enamel colour had improved in all but one case, which reverted to the discolouration observed prior to bleaching. This patient will require further treatment.` **CONCLUSIONS** `Resin infiltration can be helpful to mask hypomineralisation, but its effect may be limited in the case of developmental defects, with some patients requiring additional interventions. Further knowledge on this treatment would be valuable in aiding decision making for children with developmental enamel defects.

## **AWP 4 A study of the microstructure of teeth with Molar Incisor Malformation (MIM).**

Harisi C\*, Arhakis A, Arapostathis K, Kotsanos N  
Department of Paediatric Dentistry, School of Dentistry, Aristotle University of Thessaloniki, Greece

**AIM** `MIM is a recently described abnormality involving first permanent molars and often incisors and second primary molars. Permanent molars have severely dysplastic roots and are usually lost early. The purpose of the study was to evaluate the 3-Dimensional microstructural and histological characteristics of 6 permanent molars with MIM.` **METHODS** `In the Postgraduate Clinic of Pediatric Dentistry of Aristotle University of Thessaloniki we have examined twelve patients with MIM within 4 years. Six first permanent molars, extracted due to pulp inflammatory necrosis and/or for orthodontic reasons from patients 9-13 years old, were photographed, radiographed and examined with micro-CT (computerized tomography). Teeth were broken or sectioned and examined by SEM (Scanning Electron Microscope) and EDS (Energy Dispersive



X-ray Spectroscopy) through enamel and dentin transverses. Hard and decalcified sections were examined histologically. **RESULTS** Anomalous pulpal anatomy of all 6 teeth was verified with the micro-CT scans. A non-previously described common finding was a gross enamel hypomineralization (like in Molar Incisor Hypomineralization) not affecting the outer approx. 200 µm. The EDS showed a statistically significant decrease in Ca and P in the hypomineralized enamel (p0.05), and a non-significant increase of these ions in the 'cervical mineralized diaphragm' (CMD) in the dentin. Histologically, there was general discontinuity of dentinal tubules with near absence in the CMD. **CONCLUSIONS** All dental tissues are affected. There are universal dysmineralization and hypomineralization findings probably related to cytotoxic effects of diseases connected with the etiology of MIM and affecting the whole process of crown and root development.

#### **AWP 5 The burden and impact of Amelogenesis Imperfecta care at Eastman Dental Hospital**

Al Siyabi H\*, Parekh S, Ashley P, Monteiro J  
Eastman Dental Institute - UCL, United Kingdom

**AIM** To assess the burden of care for children with Amelogenesis Imperfecta (AI) attending the Paediatric Dental Department at Eastman Dental Hospital (EDH). **METHODS** Retrospective audit of AI patients being treated in the department from 2002-2019. Data included demographics, treatment provided and an estimate of treatment burden. Descriptive statistics produced using Excel. **RESULTS** 56 patients were identified, with the majority presenting in the mixed dentition. Average duration of care was 3.3 years (range=6 months-12 years). Most were referred by their General Dental Practitioner (n=49, 88%). Hypoplastic and hypomature were the most common AI types (n=22, 39% for both), followed by mixed (n=7, 13%), and hypocalcified (n=4, 7%). Treatment provided included: • Extractions - majority in hypoplastic group (78%, n=10). • Composite restorations - hypoplastic (66%, n=18), mixed (16%, n=4). • Indirect coronal restorations – hypoplastic (67%, n=17), mixed (12%, n=3). • Bleaching and microabrasion - most commonly performed in hypomature group (56%, n= 8 and 67%, n=5 respectively). • More failed composite restorations occurred in hypocalcified (25%, n=1) and mixed type (23%, n=2) with debonding being the most common reason. The average number of appointments per year was 5, (SD=2.5). The average distance travelled to the hospital was 33.7 miles (SD =30 miles). **CONCLUSIONS** This audit provides data on the burden of care for children with AI. The high number of appointments, treatment needs and miles travelled illustrate the scope of complications that can occur, and stress the need for comprehensive management of this condition.

#### **AWP 6 Hall technique: a treatment option for hypomineralized second primary molars?**

Mampay E\*, Declerck D  
KU Leuven, Department of Oral Health Sciences and Department of Dentistry Unit of Paediatric Dentistry and Special Dental Care, University Hospitals Leuven, Leuven, Belgium

**AIM** Hypomineralized Second Primary Molars (HSPM) often need extensive restorative treatment. This is a challenging procedure in a young patient with limited cooperation. The aim of this research is to evaluate the clinical success of preformed metal crowns (PMCs) using the Hall technique (HT) for the management of HSPM. **METHODS** Study subjects were healthy children (age 3-7 years) with HSPM consulting the unit of Paediatric dentistry at the University Hospitals of Leuven (Belgium) between October 2017 and January 2019. Teeth included in the study were free of clinical and radiographic signs of pulp involvement and caries did not exceed an ICDAS-score of 3 (localized enamel breakdown without dentin involvement). All teeth were treated with PMCs using the HT, after separation using elastic bands and without local anaesthesia. Follow-up consisted of clinical and radiographic documentation. Success was determined based on a prefixed set of criteria, rated by calibrated examiners. The present report presents descriptive data. Ethical Board approval was obtained. **RESULTS** In total, 34 PMCs were placed in 11 children. At the 1-year follow-up, 33 out of 34 PMCs (97.1%) were considered successful (clinical acceptable result). Of 7 PMCs with 2 years follow-up, 6 (85.7%) were successful after 1 year and 6 (85.7%) after 2 years. One crown failed due to abscess formation, 9 months after placement. **CONCLUSIONS** PMCs using the HT promise to be an effective and non-invasive treatment option for the management of HSPM. Further data collection will allow more in-depth statistical analyses, including the consideration of clustering.

### **AWP 7 Detection of organic and inorganic components released from five restorative materials using GC-MS and ICP-OES.**

Roussou K\*, Arhakis A, Nikolaidis A, Kotsanos N, Koulaouzidou E

Department of Paediatric Dentistry, School of Dentistry, Faculty of Health Sciences, Aristotle University of Thessaloniki, Greece

**AIM** `To evaluate the organic substances eluted from five restorative materials in artificial saliva and methanol solutions using gas chromatography-mass spectrometry(GC/MS) and to determine ion release of these materials in aqueous solutions using inductively coupled plasma-optical emission spectrometry(ICP-OES).` **METHODS** `Five commercial materials were studied (GC Fuji IX GP Capsule, GC Fuji II LC Capsule, Activa Bioactive Restorative, Pulpdent, Enamel Plus HRI Bio Function, Micerium, Ena HRI, Micerium). Cylindrical specimens(2mm height x 5mm diameter)were light-cured or self-cured according to manufacturer's instructions and stored at 37oC as follows: a)for GC-MS analysis for 1day and 1month in artificial saliva or methanol, b)for ICP-OES analysis for 1 and 2 weeks in distilled water. Identification of organic components was based on the NIST library, retention time and literature data, quantification was conducted using caffeine as internal standard. Specific emission lines were selected to detect ions released and were compared to relative data libraries. Calibration curves were plotted to determine the concentration of the released ions. Statistical analysis was performed with SPSS software and level of significance was set at p=0.05.` **RESULTS** `Different substances were eluted from each material and in each solution. The following substances were detected: Camphorquinone(CQ),(4N,N-dimethylamino)ester (DMABEE), Hydroxyethylmethacrylate(HEMA), Triethyleneglycol dimethacrylate(TEGDMA), Trimethylolpropane trimethacrylate(TMPTMA). After 1 month of storage significantly higher concentrations were detected. Si, Al, Ca and Na were released from all materials, while P was not detected from any of the materials.` **CONCLUSIONS** `Organic substances and inorganic species differed among the materials and were depended on material's composition, storage period and storage solution.

### **AWP 8 Bioceramic Endodontic Cements (BEC) for the treatment of Inflammatory External Root Resorption (IERR)**

Papadaki S\*, Gardener C

Paediatric Dentistry Department, Leeds Dental Institute, United Kingdom

**INTRODUCTION** `The affected by external inflammatory root resorption teeth are invariably non-vital with infected pulp canals. The resorption activity is initiated by damage to the PDL in trauma but propagated by infected root canal contents seeping to the external root surface through patent dentinal tubules. If the infected canal contents are removed, the propagating stimulus is lost and the lesion can be arrested.` **BACKGROUND** `A perforating IERR was diagnosed following a traumatic dental injury involving the UL1 tooth. The affected tooth was treated endodontically and eventually obturated with TotalFill putty (BEC) up to the cervical area, under microscope magnification.` **CASE REPORT(S)** `KB attended on our outpatient clinic in April 2019 complaining about her discoloured UL1. Following appropriate clinical and radiographic examination the UL1 was diagnosed with a perforating external root resorption at the mid third of the distal aspect of the root, as a result of a chronic pulpal necrosis which remained untreated following a traumatic dental injury sustained in 2015. Minimal instrumentation and copious irrigations were followed by the root canal obturation with TotalFill putty (BEC) up to the cervical area. The tooth was eventually restored permanently with resin composite.` **FOLLOW UP** `1 year follow up is due in May 2020. Clinical and radiographic examination will be performed.` **CONCLUSIONS** `The significance of translating correctly the clinical as well as the radiographic findings with regard to the pulp status following a traumatic dental injury is underpinned. Also, the use and possibly the effectiveness of the BECs in treating teeth with IERR is highlighted.

### **AWP 9 Which tooth is best to estimate age using the London Atlas?**

Tan W\*, Davies JA, Liversidge HM

Queen Mary University of London, United Kingdom

**AIM** `To determine which single developing tooth is best to estimate age using the London Atlas.` **METHODS** `The sample was 946 archived panoramic radiographs of 493 male and 453 female dental patients aged 3-16 years. Crown and root stages of 4123 developing permanent mandibular teeth on the left

side were assessed. Dental age was calculated and mean difference and absolute mean difference between estimated and chronological ages for each age category were calculated. Student t-test was used to assess mean difference. For each age category, tooth stages with low inaccuracy, low absolute difference and reliable stages were selected. A linear regression model was conducted to assess predictive strength of individual teeth. **RESULTS** Several difficulties with this method of dental age estimation were highlighted. Age variation of a single tooth stage can be greater than the one-year age category. The second premolar, canine and central incisor showed high collinearity with other teeth and excluding them did not reduce age prediction. Individual tooth stages (crown complete, root half and root complete with open apex) of different teeth could estimate age best for ages 3 to 12. **CONCLUSIONS** The strongest predictors were 37, 36, 34 and 32. No single tooth estimated age best for this sample.

#### **AWP 10 Children and parent's views on a brief pre-operative communication aid**

Noble F\*, Graham A, Tajmehr N, Campbell F, Marshman Z  
Charles Clifford Dental School/University of Sheffield, United Kingdom

**AIM** To explore child and parental views about a communication aid sent prior to their first attendance at a paediatric dentistry clinic. **METHODS** A communication aid, called Message to Dentist (MTD) was sent in the post to all new patients attending a paediatric dentistry service during January 2020. The MTD, which was co-designed by parents and children included two sections, one for parents providing advice on how to support their child. The second section was for children to provide: an assessment of their own dental anxiety and anticipatory pain; to state their preferences for treatment and provide suggestions to reduce their anxiety. A researcher interviewed children and parents to seek their views on this intervention. Thematic analysis was conducted. **RESULTS** Comments were received from 83 children/parents, representing 46% of the new patients seen (n=154). The key themes were: 1) facilitation of communication, 2) appropriateness and 3) the availability of further information. Both children and parents described how the MTD facilitated communication between themselves and between the child/parent dyad and the dentist. Children and parents felt the MTD was most appropriate for school-aged children, with mild/moderate dental anxiety and no need for an interpreter. Some expressed a concern that words like 'pain' may exacerbate dental anxiety. Signposting to a child dental anxiety website for further information was viewed as helpful. **CONCLUSIONS** Overall, the MTD was perceived as a helpful tool in preparing children for their first visit to a new clinic and for re-assuring those with mild/moderate dental anxiety.

#### **AWP 11 Comparison of efficacy, acceptance and preference between needling and conventional infiltration technique in adult volunteers.**

Theocharidou A\*, Dermata A, Arapostathis K, Kotsanos N  
Department of Paediatric Dentistry, School of Dentistry, Aristotle University of Thessaloniki, Greece

**AIM** To compare the efficacy of conventional infiltration technique with an anaesthetic device without a needle, comprising pressure (Comfort-In), and to assess the acceptance and preference of volunteers between the two techniques, before clinical use of the lateral in paediatric patients. **METHODS** Sixty-three non-fearful adult volunteers (22 men), between 19-40 years old (median 25) participated in this split mouth randomized study. One technique was applied on the right side and the other on the left side on the same day, always on the maxillary premolar area. The anaesthetic solution was 0.3ml of articaine 4% (1/200000 epinephrine) for both techniques. Immediately after administration, at 3 and 5 minutes, and every 5 minutes until 30min, pulp vitality and gum sensitivity tests were performed. At the end of the session and by telephone at 24hours and 7 days, all participants were asked to report any post-op complications and preference. **RESULTS** Both techniques presented with similar anaesthetic efficacy at 3, 5, 10, 15min, while the conventional technique was more efficacious at 20min (p0.005). The onset of gingiva anaesthesia was significantly faster for the Comfort-in (p=0.007). Both presented similar acceptance considering annoyance before administration, fear, bad taste, annoyance and stinging after 3min. Comfort-In was significantly more annoying during administration than the conventional (p=0.002). Participants reported significantly higher preference for the conventional than Comfort-In immediately after the session, at 24hours and at 7 days (p0.0005). **CONCLUSIONS** Both techniques showed similar effectiveness. Conventional infiltration was preferred compared to Comfort-In, by non-fearful adult volunteers.

### **AWP 12 Medication history and care-seeking behaviour of children attending a children's dental emergency clinic at a UK teaching hospital**

Okwesa A\*, Davies J, Whatling R, Muirhead V  
Barts Health NHS Trust/ Queen Mary's University of London, United Kingdom

**AIM** `To assess the medication history and the healthcare seeking behaviour of children who visited an emergency clinic in a UK teaching dental hospital.` **METHODS** `This service evaluation used a structured questionnaire completed by the parents of children aged 0-15 years before their emergency dental appointment. It recorded the reason for attendance; the health professionals that children had seen before their visit and any over-the-counter (OTC) or prescribed pain medications or antibiotics that they had taken. Clinicians provided a clinical diagnosis. Data analysis used SPSS software.` **RESULTS** `Parents completed 136 questionnaires (response rate: 39%). The mean age was 7.4 years (S.D=3.6); 58% of the children were boys. Twenty-seven percent of children had untreated dental caries and 38% had irreversible pulpitis. Twenty-seven percent of children had been prescribed antibiotics, 51% had taken OTC pain medication and 16% had taken prescribed pain medication. A third of children with untreated dental caries had been prescribed antibiotics despite only one child having signs of systemic disease that would warrant antibiotics. Thirty-seven percent of children had seen a high street dentist before their appointment. Children who had seen a high street dentist were three times more likely to have been prescribed antibiotics than children who had not seen a high street dentist (OR: 3.28; 95% CI: 1.49, 7.25); p=0.003.` **CONCLUSIONS** `Children who attended a high dentist before their emergency visit were significantly more likely to have been prescribed antibiotics. Children who had untreated dental caries had also been prescribed antibiotics raising concerns about appropriate prescribing.

### **AWP 13 Implementing a course and clinic for cleft and craniofacial conditions in NYU's Advanced Education Program in Pediatric Dentistry.**

Kreps BL\*, Kassam S, Rosenberg L, Moursi A  
Department of Pediatric Dentistry, New York University College of Dentistry, New York, NY, USA

**AIM** `Implementation of a craniofacial curriculum (clinical and didactic component) in the postgraduate (PG) training program in Pediatric Dentistry at NYU College of Dentistry, to improve the skills of future pediatric dentist in treating patients with cleft/craniofacial (CFC) conditions, to learn all aspects of multidisciplinary team care and streamline the care coordination needed for treatment when communicating and working off site from the referring CFC team.` **METHODS** `In 2014 a monthly CFC clinic day at NYU's Dept. of Pediatric Dentistry was established where the PG students see and treat patients with cleft/CFC. Due to its success and growth, a didactic component was added in 2018, consisting of a course seminar series highlighting all aspects of care required for patients with cleft/CFC. The knowledge of the PG students acquired throughout their 2-year training program was tested in the middle and the end of every academic year. Patients/families satisfaction was queried yearly as well.` **RESULTS** `Without the didactic component, PG students were missing knowledge and skills needed to adequately treat and feel comfortable taking care of these patients. Patients/families satisfaction has grown every year.` **CONCLUSIONS** `There is a lack of training about cleft/CFC conditions in the postgraduate training programs in pediatric dentistry leading to poor dental/oral care of patients with cleft/CFC because of lack of knowledge and preparedness about the overall multidisciplinary care. Adding a specific lecture series alongside the clinical experience is crucial to improve the skills of future pediatric dentists and to improve the dental/oral care of patients with cleft/CFC.

### **AWP 14 Occlusal characteristics and dental trauma in preschool children with cerebral palsy**

Vatsolaki L\*, Agouropoulos A, Gizani S  
Department of Paediatric Dentistry, National and Kapodistrian University of Athens, Dental School, Greece

**AIM** `To investigate occlusal characteristics and dental trauma, in preschool children with cerebral palsy (CP) and correlate them with birth characteristics and habits.` **METHODS** `Preschool children (N=83, age 2-6yo) attending the dental office at the ELEPAP rehabilitation center for disabled in Athens Greece, were evaluated clinically while parents were interviewed to collect information on daily habits, after obtaining written consent. Clinical examination included evaluation of primary molar and canine relationship, overbite, overjet and presence of trauma. Data for thumb sucking, pacifier use, nocturnal bruxism and mouth



breathing were obtained by interviewing the parents while data on birth characteristics were obtained from medical records. Descriptive statistics and Spearman rho correlation coefficient were used ( $p \leq 0.05$ )`

**RESULTS`** `Mean age of the children was 3.39 yrs, 45% had class I, 52% class II and 3% class III canine relationship. Increased overjet was found in 54% and overbite in 16% of the children, while 34% had dental trauma. Birth weight was low in 88% and 90% were born before that 37th week of pregnancy, 29% sucked their thumb, 40% used pacifier, 29% have bruxism, 34% were mouth breathers. None of the occlusal variables correlated significantly with other characteristics, except for dental trauma which correlated significantly with increased overjet ( $p=0.006$ ), preterm birth ( $p=0.04$ ) and low birth weight ( $p=0.006$ )`

**CONCLUSIONS`** `Preschool children with CP have frequently increased overjet and dental trauma of the incisors. Proper intervention in relation to increased overjet should be made and parents should be informed about the potential of dental trauma.

**AWP 15 Oral health status in patients affected by Wilson's disease: clinical diagnostic study.**

Caruso S\*, Desiderio F, Cantile T, Gatto R, Ferrazzano G  
MeSVA, University of L'Aquila, L'Aquila, Italy

**AIM`** `Wilson's disease (WD) is an autosomal recessive disorder, causing a deficient excretion of copper, primarily accumulated in the liver. An early and lifelong therapy with chelators or zinc is necessary to prevent the disease evolution. The purpose of this study was to find a possible correlation between oral health status and Wilson's disease and to investigate if this association is direct or motivated by the treatment with drugs.`

**METHODS`** `122 subjects, including 60 WD patients (group I) and 62 healthy patients (group II), were submitted to oral examination and filled in a questionnaire on oral hygiene and eating habits, family background and drugs taken.`

**RESULTS`** `The DMFT mean value was  $3.75 \pm 4.65$  in the group I and  $2.81 \pm 4.65$  in the group II, but this difference was not statistically significant ( $p$ -value 0.05). Periodontal health and malocclusion were similar between two groups. 21.7% of the group I and 9.7% of the group II referred recurrent aphthous stomatitis. Dental enamel defects (DDE) were present in 38.3% of group I and in 21% of group II. This result was statistically significant ( $p$ -value 0.036). Oral health status was not related to the pharmacological therapy administered.`

**CONCLUSIONS`** `Wilson's patients have more risk of developing dental enamel defects. Drug therapy has no influence on oral health status; instead, the disease itself can cause enamel defects, probably due to factors, not yet known, that may influence the process of amelogenesis or lead to a possible accumulation of copper in the enamel layer.

**AWP 16 Dental treatment of a 4-year-old patient with non-syndromic Pierre Robin sequence. Case presentation.**

Tagkalaki K\*, Papanakou S, Tsiligianni A, Nasika M, Gizani S  
Paediatric Dentistry Department, National and Kapodistrian University of Athens, Dental School, Greece

**INTRODUCTION`** `Pierre Robin sequence (PRs) (OMIM 261800) is a rare (1:8500-14000 births), congenital craniofacial disorder. It is characterized by micrognathia of the mandible, glossoptosis and quite often a posterior median velopalatal cleft. It appears as an isolated sequence (20%-40% of cases) or as part of a genetic syndrome. Non-syndromic Pierre Robin sequence (PRs) co-exists with severe orthodontic problems and has been associated with tooth agenesis and taurodontism.`

**BACKGROUND`** `A 4-year-old girl came to the postgraduate clinic of Pediatric Dentistry of Athens University, with multiple caries lesions. Medical history revealed the diagnosis of non-syndromic PRs and surgical interventions for mandible augmentation, while the patient breathed through tracheostomy.`

**CASE REPORT(S)`** `Behavioral management was challenging while clinical examination revealed limited mouth opening, microglossia, glossoptosis, narrow vaulted palate, hypoplasia in all mandibular primary teeth and caries in #54, 55, 64, 65, as well as incipient caries in the maxillary anterior teeth. Radiographic examination confirmed the absence of cleft palate. The treatment plan included preventive program (oral hygiene and nutrition guidelines, cleansing and fluoridation every 3-4 months) and restoration of hypoplastic and carious teeth.`

**FOLLOW UP`** `The patient is attending our clinic for 1 ½ years, and during this time new caries palatally to #51, 61, 52, 62 have been treated with composite resin restorations.`

**CONCLUSIONS`** `Dental care of young patients with non-syndromic PRs constitutes a challenge for the clinical pediatric dentist in managing behavior and implementing a preventive and/or therapeutic plan due to restrictions of their general and dental status.



## Poster Abstracts

### P 1 **A rule of thumb! Setting a standard dental visit at first birthday**

AlZayer MA\*

John Hopkins Aramco Healthcare, Kingdom of Saudi Arabia

**AIM** `Early childhood caries (ECC) considered a major oral health issue in children and had been reported mostly in the literature as the number one disease in children. One of the primary prevention strategy highly recommended by the major dental academies to establish a dental home for children at age one year. This change project aims to enhance access to care for infants and toddlers for initial dental screening by age one year.` **METHODS** `The change included the creation of educational material for Parents, Primary Care Pediatricians (PCP) workshops about Infant Dental Care and general public education campaigns through social media. HSE change model was used to guide the author through the change project, providing a template and learning through the Change Hub.` **RESULTS** `The baseline dental screening rate was 0.5%. Over five months there was a dramatic improvement in infant visitation to 9.6%. The main factor supporting the initiative was the pediatrician's enhanced knowledge. In addition, parent's knowledge enhancement through educational booklets, posters and media announcements such as public radio and newspapers.` **CONCLUSIONS** `Working as a team to build a dental home for infants and children will reduce the potential suffering the children go through due to ECC, reduce the burden in health system financially and logistically, and improve quality of care provided to our unique patient population`

### P 2 **Contact Types and Proximal caries experience in primary molars**

Cho V\*

The University of Western Australia, Australia

**AIM** `This study sought to investigate spacing in the primary dentition, types of contacts and the proximal caries experience in Australian children. Furthermore, the extent of marginal ridge breakdown and the proportion of pulpal involvement was also evaluated.` **METHODS** `Ethics approval was obtained and a total of 347 children, aged 6 years or below with full set of clinical records including photographs and bitewing radiographs were assessed for spacing (including primate, incisive and generalised), caries experience (dmfs and dmft), types of contacts (concave, convex and straight), marginal ridge breakdown and extent of caries.` **RESULTS** `primate space, the mean dmfs increased significantly (p0.01). Eighty percent of the children with a combination of concave and straight contact types exhibited proximal caries experience. Furthermore, 65% of the primary molars with any sign of marginal ridge breakdown exhibited pulpal involvement.` **CONCLUSIONS** `Spacing and type of primary molar contacts are good predictors of proximal caries experience, and marginal ridge breakdown can be used as an indicator for pulpal status in the primary dentition.`

### P 3 **Is Silver the New Black? Seeking public and patient involvement in research into Silver Diamine Fluoride (SDF)**

Timms L\*, Marshman Z, Rodd HD

The University of Sheffield, United Kingdom

**AIM** `To involve representatives of patients and the public in the design of research into SDF for the treatment of caries in the primary dentition.` **METHODS** `Children with caries in the primary dentition and their parents were approached and asked to help inform the design of a research study. Topics discussed were SDF and options for the management of caries, research design ideas and ways to meaningfully involve children. Specific areas included willingness to take part in a trial examining SDF and was of optimising`

recruitment/retention. **RESULTS** Children were aged 5-8 years, of various ethnicities and were having a range of treatments, with ten representatives involved to date. Some had history of missed appointments. Children and their parents/carers felt this was an important area to research, particularly early interventions to avoid invasive treatment. Regarding SDF there was concern about getting teased at school for having black teeth but having missing or decayed teeth was also a concern. They felt practice or hospital were appropriate settings for future research. Reducing time commitment was important in helping participation. Where English was not their first language representatives thought having written information translated, and using pictures or videos would be useful. Children said models and videos were useful ways to understand the treatments. Children and parents felt photographs with a natural smile helped them visualise treatment better than clinical photographs. **CONCLUSIONS** Children and their parents are very interested in research to prevent the need for invasive treatment for dental caries, their involvement is essential in informing study design.

**P 4 Is breastfeeding a risk factor for early childhood caries? A systematic review**

Koleventi A\*, Kostopoulou MP, Zymperdikas V, Lygidakis N

251 Hellenic Air Force Hospital, Paediatric Dentistry Department, Athens, Greece

**AIM** To assess the influence of breastfeeding on the development of early childhood caries and to identify any factor that could affect the respective findings. **METHODS** **SEARCH STRATEGY:** Systematic and unrestricted search of 11 databases was performed up to 17/09/2019, complemented by additional manual searches. **SELECTION CRITERIA:** Only randomized or prospective studies reporting on young infants that were breastfed and providing data regarding the incidence of ECC were considered eligible. The inclusion of a control group was not a prerequisite for eligibility. **RESULTS** 7 trials (1 randomized and 6 prospective cohort studies) were finally included in the present systematic review, performed on various countries and settings, reporting on totally 3984 individuals between 1-5 years of age. According to the latter, the association between breastfeeding and ECC seems to be disputed with findings both in favor and against it. In detail, three of the included trials report on a protective effect of breastfeeding for a period of 6-11 months on ECC, while other studies report on a significant ECC occurrence on breastfed infants. Similarly, the influence of several factors pertinent to the process of breastfeeding (frequency, duration, timing) is controversial as well. **CONCLUSIONS** According to existing evidence, a consensus regarding the association between breastfeeding and the development of ECC as well as any factor that could affect the corresponding outcomes cannot be reached.

**P 5 Comparative efficacy of a hydroxyapatite and a fluoride toothpaste for prevention and remineralization of dental caries in children**

Amaechi BT, AbdulAzees PA, Alshareif DO, Enax J, Meyer F\*

Research Department Oral Care, Dr. Kurt Wolff GmbH & Co. KG, Bielefeld, Germany

**AIM** This in situ study compared the effectiveness of two toothpastes containing hydroxyapatite or 500 ppm fluoride in promoting remineralization and inhibiting caries development. **METHODS** Two enamel blocks (human primary teeth), one sound and one with artificially-produced caries lesion, were exposed to toothpaste containing either 10% hydroxyapatite or 500 ppm F<sup>-</sup> (amine fluoride) via intra-oral appliance worn by 30 adults in two-arm double blind randomized crossover study lasting 14 days per arm (ClinicalTrials.gov: NCT03681340). Baseline and post-test mineral loss and lesion depth (LD) were quantified using microradiography. One-sided t-test of one group mean was used for intragroup comparison (baseline vs. post-test), while two-sided t-test of two independent means was used to compare the two toothpaste groups. **RESULTS** Pairwise comparison (baseline vs. test) indicated significant (p 0.0001) remineralization and LD reduction by either toothpaste; however, when compared against each other, there was no statistically significant difference in remineralization or LD reduction between the two toothpastes. No demineralization could be observed in sound enamel blocks exposed to either toothpaste. While F<sup>-</sup> induced lesion surface lamination, HAP produced a more homogenous lesion remineralization. **CONCLUSIONS** 10% hydroxyapatite achieved comparable efficacy with 500 ppm F<sup>-</sup> in remineralizing initial caries and preventing demineralization. Thus, the HAP toothpaste is confirmed to be equal to the fluoride toothpaste in this study.

**P 6 Impact of quality of life on oral health preservation of migrants in Serbia**

Mandinic Z\*, Prokic A, Jovicic O, Mandic J, Ivanovic M

Clinic for Paediatric and Preventive Dentistry, School of Dental Medicine, University of Belgrade, Serbia

**AIM** `The aim of this research was to evaluate how quality of life impacts oral health preservation of migrants in Belgrade, Serbia.` **METHODS** `Total of 226 migrants participated in the study. Participants were situated in migrant camps Obrenovac and Krnjaca, in Belgrade, Serbia. All participants were given a questionnaire in order to examine the correlation between the quality of life and oral health in migrants. The questionnaire consists of 31 questions. SPSS 24 statistical software was used to analyze answers from the questionnaire. Statistical significance is defined by  $p < 0.05$ .` **RESULTS** `Out of 226 examinees, 39 are woman and 187 are men. Majority were adults (87.6%) and 12.4% were children. The results show that migrants who spend 200-300€ per month consume the most alcohol (33.3%) and tobacco (61.1%). Only 10.8% of men answered they have been to the dentist in Serbia, whereas 35% women had the same answer ( $p = 0.000$ ). The research also showed that most women (67.5%) brush their teeth 2-3 times a day and a noticeably less percentage of men (37.1%) had the same habit. Fluoride supplements are used by 78.7% of examinees. Among most common reasons for the last visit to the dentist were 36.9% pain and 22.5% regular checkups. There was found a statistical significance showing that patients oral health impacts overall health ( $p = 0.000$ ).` **CONCLUSIONS** `Quality of oral health in migrants in Belgrade depends on various factors within their quality of life. Improving the quality of life of migrants can highly impact both oral and overall health.

**P 7 Parental opinions towards policies targeted at controlling the intake of sugar-sweetened beverages**

Chan Xin Yi J\*, Hong Hsu Ling C, Mun Loke W, Kee Seng C, Shijia H

National University of Singapore, Singapore

**AIM** `To understand parental perception of (i) sugar-sweetened beverages (SSBs) and their implications on health, (ii) their role in shaping their children's consumption of SSBs, (iii) influences on the SSB consumption of their children and (iv) potential government policies targeted at controlling SSB consumption.` **METHODS** `A qualitative study, involving purposive and snowball sampling, was conducted among Singaporean parents of pre-schoolers aged 2 to 6 years old. Participants were recruited from dental clinics at a public hospital or pre-schools and interviewed. The semi-structured interview was designed using the constructs of Knowledge, Attitude and Practice as well as the Health Belief Model. Recruitment continued until data saturation was reached. The interviews were transcribed and analysed for themes based on an inductive approach.` **RESULTS** `Twenty parents participated in the study. Themes that emerged were: (1) general knowledge about SSBs and health consequences of sugar consumption, (2) caregivers' role in shaping children's diet, (3) multiple influences on SSB consumption of children and (4) parental views on government policies to control SSB consumption. There was generally good knowledge of SSBs, but misconceptions regarding non-packaged SSBs were present. There were individual, inter-personal and environmental influences on a child's diet, including parenting styles and easy availability of SSBs. Participants had mixed views regarding the proposed government policies (taxation, ban, advertising regulations and mandatory front-of-pack nutrition labelling) aimed at controlling SSB consumption.` **CONCLUSIONS** `There was no single policy that showed overwhelming acceptability. To reduce SSB consumption, there should be a multi-pronged approach involving measures that act synergistically to promote healthier dietary habits.

**P 8 PUFA is related to higher impact on quality of life due to caries in 8-year-old children.**

Reis PP, Jorge RC, Peres AA, Pontes NS, Soviero VM\*

Faculdade Arthur Sa Earp and Universidade do Estado do Rio de Janeiro, Brazil

**AIM** `To evaluate the impact of caries prevalence and severity on the quality of life in school children.` **METHODS** `The sample comprised 471 8-y children. DMFT and PUFA indices were used to assess caries and pulpal involvement, respectively. Impact on quality of life was assessed using a questionnaire about pain, discomfort when eating, brushing, sleeping, and other daily activities, ranging from zero (no impact) to 10 (maximum negative impact). Kruskal-Wallis test and Spearman correlation were used.` **RESULTS** `Caries prevalence in deciduous teeth was 69.0% (def-t = 2.97;  $\pm 2.90$ ) and in permanent teeth was 28.9% (DMF-T = 0.58;  $\pm 1.17$ ). Among children with caries, 32.2% had at least one tooth with pulpal involvement (pufa = 0.44;

$\pm 0.79$  / PUFA = 0.02;  $\pm 0.13$ ). The questionnaire score was: a) 1.36 ( $\pm 1.99$ ) for the whole sample; b) 0.80 ( $\pm 1.56$ ) when def-t/DMF-T = 0; c) 1.33 ( $\pm 2.05$ ) when def-t/DMF-T  $\geq 1$  and pufa/PUFA = 0; and 2.09 ( $\pm 2.10$ ) when def-t/DMF-T  $\geq 1$  and pufa/PUFA  $\geq 1$ . The impact on quality of life was significantly higher when there was pulpal involvement ( $p = 0.000$ ). The main complaints were tooth pain, discomfort when eating, brushing, and sleeping. **CONCLUSIONS** The presence of cavitated caries impacted the quality of life of the 8-y children negatively and the impact increased significantly when there was pulpal involvement. PUFA index is a valuable tool to identify children whose quality of life is significantly more impacted due to caries.

### P 9 Caries treatment vs pulp therapy

Getsman A\*

Private practice, Russian Federation

**INTRODUCTION** Girl, 11 y.o. came just for check-up. Deep caries lesion was founded at the palatal site of the #16 **BACKGROUND** As deeper and wider caries lesion, then more chance to involve a pulp in inflammation process. In young teeth speed of infection extension much faster, but on the other hand because of Hertwig epithelial root sheath in immature teeth we can take a risk and realise minimally invasive treatment. **CASE REPORT(S)** In September 2017 CBCT x-ray diagnostic was done, there was no commisure between pulp chamber and cavity. But focus of the radiolucency lie next to the pulp. After local anaesthesia (application by 20% Benzocaine and infiltration by Articaine type 1:100 000) I used rubber dam isolation. Caries Infected Dentine was removed by carbide bur. On the bottom Caries Affected Dentine was preserve. For control was used sharp excavator #1. The pulp exposure was avoided. «BioDentine» was used for indirect pulp capping, after irrigation with 2% CHX. Temporary restoration was done by GIC. After 7 month tooth was restored by overlay. At the all treatment steps I worked with dental microscope. **FOLLOW UP** Monitoring was after 3, 6, 7, 17 and 28 month. Periapical lesion was not found. There weren't any defects and micro leakage of the restorations at the all steps. Maturogenesis of the tooth was finished. **CONCLUSIONS** Tooth life time much longer with vital pulp. Long-term results without pulp exposure high, risks of the fracture less. Important factors for predictable results: diagnostic (CBCT), precise work (microscope), isolation (rubber dam), micro leakage (quality of restoration).

### P 10 A large radicular cyst associated with deciduous maxillary molar: A case report

Boekitwetan F\*

Special Care Dentistry Pediatric Department in St. Anna Hospital, The Netherlands

**INTRODUCTION** Radicular and residual cysts are known to be the most common cystic lesions of the jaws. The frequency of radicular cysts is less than 1% in the primary dentition. They develop from cystic degeneration of cell rests of Malassez, secondary to inflammatory stimulation arising from the necrotic pulp due to caries. **BACKGROUND** Cyst formation in children may cause bony expansion and resorption, delayed eruption, malposition, enamel defects or damaging of the developing permanent successors. **CASE REPORT(S)** A healthy 8-year-old boy was referred to the Special Care Clinic of St. Anna hospital in Geldrop, The Netherlands with the chief complaint painful tooth and anxiety. No dental radiographs has been taken. He did not show up for his treatment until ten months later. Clinical examination revealed marked grade I mobility of the maxillary left first primary molar and hard palpable expansion of the buccal plate on this area. Panoramic radiograph showed a round radiolucent unilocular lesion. CT-scan was taken and surgical enucleation in general anesthesia and extraction of 64, 65 and 84 were planned by oral surgeon. During the procedure, some materials were sent for histopathologic examination and the first permanent premolar was extracted due to massive bone loss. The histopathologic result showed a radicular cyst. **FOLLOW UP** At three months recall, good healing of soft tissues and bony lesion was observed. The first bicuspid was in an improved position. **CONCLUSIONS** This case emphasizes the need for recognizing and treating carious deciduous teeth to avoid damage for underlying permanent successor caused by inflammatory pathological lesions.

### P 11 ECC prevalence according a new protocol among children in Belarus

Shakavets N\*, Tserakhava T, Antonenka A, Zhylevich A, Svirskaya A

Belarusian State Medical University, Belarus

**AIM** The aim of this study was to estimate the severity and prevalence of ECC using the ECC 0-3 criteria among Belarusian children. **METHODS** A total of 217 children from 1 up to 6 years old were examined



according to a new Protocol for ECC Diagnosis and Risk Assessment (2018) by two calibrated dentists in Minsk. There were 113 (52.1%) boys and 104 (47.9%) girls. Regional Ethics Committee approval was obtained. The results were analyzed statistically. **RESULTS** Most of the parents have a high education – 77.6% of mothers and 71.1% of fathers. 60.6% of parents brush their children's teeth by themselves and only 25.0% of them use fluoridated toothpaste. 76.9% children were breastfed with mean age of 12.8 (8.1) mo and 23.1% were bottle-fed for 16.2 (7.1) mo. 52.9% of the parents take their children to the dentist once a year. Almost a half of children (44.2%) has 3-4 meals per day and 72.1% take sweets and free sugar containing food every day. The prevalence of ECC was 82%. The mean ECC0-3mft was 4.59 (4.37) and the mean ECC0-3mfs was 7.12 (8.83). The mean ECC-1 was 1.37 (1.95) and the highest level was at the age 24-35 mo (1.75 (2.03)). **CONCLUSIONS** New Protocol of ECC detection allows 29.8% more caries lesions to be detected comparing with WHO criteria in examined group of children. The highest part of reversible caries was diagnosed in 1-2 year olds.

**P 12 Pediatricians' knowledge and awareness about children's oral health in Kuwait**

Alanzi AN\*, Hajiah S, Fraidoon A, Alterkait A  
Kuwait University, Kuwait

**AIM** to assess pediatricians' knowledge, attitudes, and professional experience regarding oral health and prevention of dental caries in children. **METHODS** A cross-sectional survey was distributed to the attendees of the 4th International Pediatric Conference, Kuwait, who were pediatricians or pediatric residents. Data concerning demographic variables, knowledge on dental caries preventive measures, current anticipatory guidance, and experience with the dental problems and oral care were collected. **RESULTS** Of the 462 attendees, 255 were eligible survey recipients. 230 completed the surveys for a response rate of 90%. The majority of respondents (81%) reported seeing dental caries regularly. Two-third of respondents reported their confidence in detecting dental caries. However, more than two-thirds were unfamiliar with preventive measures and management of dental trauma. Only 16.5% of the respondents got a satisfactory knowledge score on the preventive measures questions and 51% of them got a satisfactory knowledge on the current anticipatory guidance questions. No effect of gender, age, and years of practice on the knowledge scores. Respondents' confidence in detecting caries was significantly associated with the knowledge score of the anticipatory guidance ( $p=0.003$ ). **CONCLUSIONS** Dental caries is a recognized dental problem by pediatricians in Kuwait. The majority have poor to fair knowledge scores on the preventive measures of dental caries and anticipatory guidance of oral health issues. Adequate training in oral health in medical school, residency, and in continuing education courses are recommended, in efforts to promote the oral health in Kuwait.

**P 13 Association between caries experience restorative care in deciduous teeth and the socioeconomic status of 7- to 8-year-olds**

Winter J\*, Schmidt P, Heinzl-Gutenbrunner M, Pieper K  
Department of Operative Dentistry and Endodontics, Philipps University, Marburg, Germany

**AIM** The study aimed on investigating the association between caries experience and restorative care in 7- to 8-year-olds (second graders) and their SES. **METHODS** The database was provided by a prevention study in Northern Hesse, which was subjected to a secondary evaluation. 1164 second graders had been examined on the basis of the International Caries Detection and Assessment System (ICDAS) by a calibrated examiner. A standardized questionnaire had been used to record amongst other parameters the SES. The study was approved by the ethics committee of the University of Marburg. Differences in caries scores and level of restoration in respect to SES, were evaluated with Fisher's exact test and the t-test. **RESULTS** 236 children (20.3 %) had no caries experience ( $d3-6mf-t=0$ ). One-sided statistical testing showed a significant difference between the children with low SES ( $n=365$ ) and with high SES ( $n=332$ ). While 48.5 % in the low SES group had ICDAS caries scores 3-6, the corresponding value for the high SES group amounted to 41.6 %;  $p=0.039$ ). Regarding restorative care, no significant differences were found between the two groups (degree of tooth restoration: children with low SES 49.9 %; children with high SES 50.4 %;  $p=0.894$ ). **CONCLUSIONS** There was no difference in the level of restoration depending on the SES of the children. This is possibly a positive effect of the dental care system in Germany, which gives all children free access to restorative and preventive care.



**P 14 The effect of education and motivation on the oral health of young children: Longitudinal study**

Kalnina J\*, Brinkmane A, Ribalkina E  
Riga Stradins University, Institute of Stomatology, Latvia

**AIM** `To evaluate the effect of patient motivation and regular professional dental hygiene on the oral health status of children after 6 years follow up.` **METHODS** `The study included 102 twelve-year-old children (56 girls, 46 boys). Caries intensity was determined for teeth and surfaces by DMF index. For assessment plaque and dental calculus, a simplified Greene – Vermillion oral hygiene index was used. Periodontal status was assessed by CPI index. During the visit, children underwent professional oral hygiene, were motivated to maintain good oral health, their parents were interviewed about their oral hygiene routine. Oral health status was determined every six months for six years. In the analysis of data of the study subjects, descriptive and analytical statistical measures were calculated using IBM SPSS 22.0.` **RESULTS** `At baseline, the mean DMFT index was 5.02(SD=3.54), the mean DMFS – 7.9(SD=6.8), DMFT increased (p0.001), reaching 5.5(SD=4.00). The mean DMFS also increased (p0.001), reaching 10(SD=9.1). The mean Greene – Vermillion index was 1.2(SD=0.6) and increased (p0.001), reaching 1.34(SD=2.11). The number of healthy sextants was 5.1(SD=1.7), it increased reaching 2.9(SD=2.44), but the number of bleeding sextants also increased (p0.001), from 0.6(SD=1.4) to 2.4(SD=2.2). The number of sextants with dental calculus was 0.3(SD=0.9) at baseline decreased (p0.001) reaching 0.7(SD=1.2).` **CONCLUSIONS** `After six years patient education and motivation, there were no visible improvement in oral health status of young children. Further research is needed. However, family is one of the most important social supporters in education of children.

**P 15 The effect of monthly professional toothbrushing (PTB) on dental caries among schoolchildren: 2 years randomised controlled trial**

De Melo Avila W\*, Mendes Soviero V, Hesse D, Calil Bonifacio C  
Academisch Centrum Tandheelkunde Amsterdam (ACTA), The Netherlands

**AIM** `To evaluate the influence of monthly professional toothbrushing (PTB) compared to half-yearly PTB on the dental caries among schoolchildren after a period of 2 years.` **METHODS** `Schoolchildren aged between 4-10 years old (mean=5.9 ±1.5) from Petrópolis, Brazil were included in this research. Children were randomly allocated into two groups: monthly PTB and half-yearly PTB. Clinical examinations were performed at schools at baseline and every 6 months, for a period of 2 years. Dental caries was assessed using Nyvad criteria and the presence of active caries lesions was considered failure. Kaplan–Meier survival analysis was performed on the censored data and the differences among survival curves was determined with a log-rank test. Cox regression analysis was used to investigate the association of child related variables (age, sex, upper or lower teeth, anterior or posterior teeth, primary or permanent teeth, dental plaque at baseline and previous caries experience) and failures. The significance level for all analysis was set at p0.05.` **RESULTS** `A total of 215 schoolchildren were included, totalising 42,140 tooth surfaces at the baseline. The drop-out rate was 20.9% at the 2 years follow-up. The overall survival rate was 95% and there was no difference between the groups (monthly PTB=96% versus half-yearly PTB=95%; p=0.22). Posterior teeth (HR=5.06; 95%CI=3.20-8.011) and previous caries experience (HR=6.44; 95%CI=4.96-8.36) were associated with dental caries.` **CONCLUSIONS** `There was no difference between PTB interval on dental caries among schoolchildren. Posterior teeth and previous caries experience were associated with dental caries lesions.

**P 16 Is early childhood caries associated with a negative impact on oral health-related quality of life in children?**

Solanke C\*, Stamm T, Bekes K  
Department of Paediatric Dentistry, Medical University of Vienna, Austria

**AIM** `To assess the impact of early childhood caries (ECC) on oral health-related quality of life (OHRQoL) in pre-school children.` **METHODS** `Children aged 0 to 5 years and their caregivers who were recruited at the Department of Pediatric Dentistry in Vienna, Austria, participated in this study. OHRQoL data was obtained using the German version of the ECOHIS questionnaire (ECOHIS-G). The ECOHIS consists of 13 questions and is divided into two main parts, namely the child impact section (9 items) and the family impact section (4 items). The caregivers completed the ECOHIS-G and their children were clinically examined for the presence of dental caries and plaque accumulation.` **RESULTS** `241 with a mean age of 3.7 years (SD = 1.2)

participated in this study. 113 of them were caries-free, 128 showed at least one caries affected tooth. Children with at least one decayed and/or treated teeth showed higher ECOHIS scores in both sections of the ECOHIS than those who were free of dental disease (child impact: 5.0 [ $\pm 4.5$ ] vs 2.5 [ $\pm 3.1$ ]; family impact: 3.6 [ $\pm 3.3$ ] vs 0.8 [ $\pm 1.4$ ]). The summary score was 2.6 times higher in children showing caries (8.6 [ $\pm 6.7$ ] vs 3.3 [ $\pm 3.9$ ]). Differences in children with and without plaque accumulation were also present (7.6 [ $\pm 6.0$ ] vs 5.1 [ $\pm 6.1$ ]) and statistically significant. **CONCLUSIONS** The presence of caries affected teeth impacts OHRQoL in 0 to 5-year-old children negatively.

**P 17 Dental treatment in children under general anesthesia in Latvia, 2008-2019**

Slepčova O\*, Juhno D, Čaplijeva A, Maldupa I, Viduskalne I  
Rīga Stradiņš University, Latvia

**AIM** To describe the demographic characteristics of children treated under general anaesthesia from 2008 to 2019 at Rīga Stradiņš University clinic, Rīga, Latvia **METHODS** Descriptive study. After obtaining permission from the RSU Ethics Committee, eleven operators extracted information from the clinical records of patients treated under GA (date of treatment, age, gender, place of residence, primary/ repeated treatment, private/public financed and a number of teeth restored or extracted). Descriptive statistics were calculated with the statistical software R. **RESULTS** The total number of children served from 2008 to 2019 was 14,130. An upward trend was observed (754(34 private) patients in 2008 and 1619(729 private)- in 2019. 6015 girls and 8115 boys were served. The mean age has raised during 11 years (4.21 years (SD=3.22) in 2008 and 5.75 years (3.48) in 2019). The highest increment of patients was observed in the 4-5 year age group but a decrease in the 1-3 year age group. Six patients received 4 treatments, 30 - 3 and 495 - 2 treatment sessions. The total number of treated teeth was 109,301(mean=7.74; SD=3.07), including 82,005(5.80;2.38) restorations and 27,296(1.93;2.33) extractions. **CONCLUSIONS** There is an increase in the number of children who have been treated with general anaesthesia in the period 2008-2019. The main increase has been in the group of children aged 4-5 years.

**P 18 Dental treatment and salivary antimicrobial peptide LL-37 in children with caries: A pilot study**

Almusaillekh FR\*, Meade D, Devine P  
University of Leeds, United Kingdom

**AIM** To assess whether the salivary LL-37 concentration in children can be used as a reliable tool to predict caries experience in children and/or is related to current caries activity. **METHODS** Unstimulated saliva will be collected from at least 30 systemically healthy participants aged 6-10 years on the day of their pre-planned general anaesthetic appointment prior to their dental treatment for extraction of carious teeth. The participants will be asked to provide a second saliva sample one month after their dental treatment during their routine dental review appointment. Salivary levels of LL-37 will be measured using an enzyme linked immunosorbent assay (ELISA) and changes in concentration prior and after dental treatment will be assessed in relation to changes in the decayed-missed-filled tooth (dmft/DMFT) index. Linear regression will be used to assess the relationship between the salivary level of LL-37 and caries status as both variables are continuous. The outcome, y variable, will be the change in dmft/DMFT index and the predictor, x variable, will be the change in LL-37 level in saliva. Ethical approval was sought and granted from Yorkshire The Humber-Leeds West Research Ethics Committee (REC) (ref 19/YH/0119) and Health Research Authority (HRA). **RESULTS** Results are expected in June 2020. To date, 12 participants have been successfully recruited to the research and 4 participants were reviewed for the second saliva sample. **CONCLUSIONS** Results are expected in June 2020. To date, 12 participants have been successfully recruited to the research and 4 participants were reviewed for the second saliva sample.

**P 19 E-SMART: A novel method of combined atraumatic techniques in treating dental caries in young children: Clinical care report**

Igna A, Ogorescu E, Corneschi L\*, Ogorescu A  
University of Medicine and Pharmacy Victor Babes Timisoara, Romania

**INTRODUCTION** Dental anxiety among young children is a clinical reality that puts up a challenge for the dental practitioner in using conventional treatment methods like performing local anaesthesia or using the rotary instruments. **BACKGROUND** The protocol that we used for treatment of dental caries in 5 young

children included chemo-mechanical preparation of the cavity using an enzymatic gel and manual instrumentation, followed by the Silver Modified Atraumatic Restorative Technique (S.M.A.R.T.). We refer to this technique as E-SMART (where E stands for “enzymatic”).` **CASE REPORT(S)**` Five patients, aged 3 to 5 years, were selected from the casuistry of the Paediatric Dentistry Clinic of Victor Babeş University of Medicine and Pharmacy in Timișoara, based on the following criteria: dental anxiety, carious primary molars with history of pain, negative to percussion, with no periapical or inter-radicular pathology. No local anaesthesia was performed. The procedure was done under relative isolation. The treatment protocol followed chemo-mechanical excavation of affected dentin using an enzymatic gel (Brix 3000, Brix Medical Science) and manual excavators. The remaining tissue was infiltrated with a 37% SDF solution (Riva Star, SDI), followed by final restoration with glass ionomer cement (Equia Forte, GC).` **FOLLOW UP**` At the 9-month recall, all patients showed good clinical outcome, with the restoration still in place and remission of the clinical symptoms. Follow-up for these cases is still ongoing.` **CONCLUSIONS**` To our experience, E-SMART has proven a viable treatment modality, that ensures good clinical results, as well as a positive experience and further efficient collaboration with the patient.

**P 20 Implementation of the new German fluoride recommendations by dentists in Northern Germany - a survey**

Geiken A\*, Takriti A, Conrad J, Mourad M, Splieth C

University Schleswig-Holstein, Clinic for Conservative Dentistry and Periodontology, Kiel, Germany

**AIM**` Fluoridated toothpastes are essential for the prevention of tooth decay. A new German guideline recommends an amount of 500ppm fluoride (pea size) or an increased fluoride concentration of 1000ppm (rice grain size) after the first tooth eruption and from 2 years of age, 1000ppm (pea size). The aim of this study was to evaluate how dentists implement the fluoride directive.` **METHODS**` At a continuing education conference on preventive and pediatric dentistry, a questionnaire was distributed anonymously to the participating dentists, containing questions about themselves and their reception of the respective guidelines using a Likert scale (1=never, 5=always). For statistical evaluation, the answers of general dentists (GD) were compared with pedodontists (PD:median (lower/upper quartile), p0.05).` **RESULTS**` 134 GD (f=85, m=49) and 74 PD (f=55, m=19) were included (GD: age 44.9±11.8y, PD:45.4±12.1y). Both groups recommended tooth brushing with fluoridated toothpaste after first tooth eruption (GD: median 4.5(3/5), PD:5(4/5); p=0.061), when primary teeth were fully erupted (GD:1(1/2), PD:1(1/2); p=0.475) or when children were able to spit it out (GD:1(1/3), PD:1(1/4); p=0.387). PD recommended the use of a highly fluoridated toothpaste (1000pm) under the age of six (GD: 1(1/3), PD:2(1/3); p=0.026) and on the opposite fluoride-free toothpaste (GD:1(1/1.7), PD:1(1/3.2); p=0.019) significantly more often.` **CONCLUSIONS**` On one hand a portion of PD recommended highly fluoridated toothpaste, on the other hand another portion recommend fluoride-free toothpaste more frequently than GD, the latter following the general recommendations and guidelines more frequently.

**P 21 Adolescent rampant caries related to soft and energy drinks: a case report**

Lunackova J\*, Kaiferova J, Navarova L

Paediatric Dentistry Department, School of Dental Medicine, Charles University and General University Hospital in Prague, Czech Republic

**INTRODUCTION**` Soft and energy drinks can have a devastating impact on dental hard tissues.` **BACKGROUND**` Long-term high consumption of soft and energy drinks significantly increases the caries risk in adolescents. It may lead to severe carious lesions when combined with present poor dental hygiene.` **CASE REPORT(S)**` A 16-year-old male patient was referred by his general dental practitioner, regarding extensive caries affecting permanent dentition. The patient was a smoker and had a history of daily consumption of soft and energy drinks for approximately 20 months. He suffered from extreme teeth sensitivity, had aesthetic concerns about his front teeth and feared pain related to dental treatment. Clinical and radiographic examination revealed the following: poor dental hygiene, chronic gingivitis, multi-surface carious lesions, DMFT of 28. Preventive measures including comprehensive dietary advice, oral hygiene instructions and use of fluorides were introduced. Initial dental treatment was provided under local anaesthetic using mainly glass-ionomer materials, which allowed us to restore cavities within a short time, thus achieving relief from sensitivity and preserving pulp vitality. Upper incisors were restored using

performed celluloid crowns. After achieving stabilization, subsequent final treatment was planned. **‘FOLLOW UP’** ‘The patient was followed-up for 12 months, during which he unfortunately adopted only part of introduced preventive measures. New carious lesions developed and were restored. All treated teeth maintained vitality. He began eating more solid foods and regained his weight. Conversion to composite restorations was initiated in upper incisors.’ **‘CONCLUSIONS’** ‘The presented case demonstrates the complexity of treatment of adolescent rampant caries. A focus on comprehensive prevention is paramount.

**P 22 Recurrence of ECC after treatment under general anaesthesia: A 24-month record-based follow-up study**

Bernidaki S\*, Schiffner U  
University of Hamburg, Germany

**AIM** ‘To determine the rate of new caries after comprehensive treatment of ECC under general anaesthesia (GA) and to investigate factors affecting relapse rates and the type of the second intervention.’ **‘METHODS’** ‘Dental records of 297 children who had received treatment under GA in a private paediatric dental practice in Hamburg were evaluated. Inclusion criteria were age 6 years at the time of GA, ASA class 1 or 2 and at least one examination within a 24-month postoperative period. Patients’ demographic and socioeconomic records (age, gender, type of insurance) as well as medical and dental information (ASA health status, history of previous GA, stage of tooth eruption, caries experience at baseline, preoperative behaviour, number of recalls attended) were collected from the records. Data were evaluated statistically using descriptive procedures (Kaplan-Meier survival plot) as well as analytical procedures (Cox proportional hazards regression).’ **‘RESULTS’** ‘Survival analysis showed caries relapse rates of 35.7% at 24 months post-GA. The majority of new caries lesions were treated in the dental chair (20.5%), while few of them required a repeated GA (6.1%). Some new lesions only required non-operative treatment (9.1%). Children with incomplete primary dentition and lower caries experience at baseline were significantly at higher risk of caries relapse. No variable was found affecting the type of subsequent retreatment significantly.’ **‘CONCLUSIONS’** ‘The rate of caries relapse is high but lower than found in similar studies. The rate of repeated GA is low which might be due to the strict treatment plan. Thus, GA is an acceptable treatment option.

**P 23 Parental knowledge and attitude towards oral prophylaxis of infants and toddlers**

Silova N\*, Grisakova J, Matveja K, Viduskalne I, Kronina L  
Riga Stradins University, Latvia

**AIM** ‘to investigate parental knowledge and attitude towards oral prophylaxis of infants and toddlers.’ **‘METHODS’** ‘A cross-sectional study was conducted among 137 parents with children age from 1 day to 36 months. Data was collected through a self-administered questionnaire with 13 questions, regarding tooth brushing habits and oral health knowledge (published on one of the most popular parenting websites in Latvia). Descriptive and analytical statistics (chi-squared test) were performed using the SPSSv26.’ **‘RESULTS’** ‘Major part of the group, 49.3% [CI: 41.2-58.1], accounted children 13-24 months of age. Half of parents (52.9% [44.9-61.8]) evaluated their knowledge regarding children’s oral health as good, 72.8% [65.5-80.01] of all parents started to brush children’s teeth since the very first tooth. Most parents (72.1% [65.4-79.4]) were choosing their tooth paste according to age, not fluoride concentration. One third (33.8% [25.8-41.9]) brushed children’s teeth at least 2 times daily and 53.7% [45.6-61.8] at least 1 time. Child crying and being resistant, as well as the lack of the time in the morning ( $p=0.002$ ) were the main reasons for missing teeth brushing. 44.9% [36.8-52.9] parents thought that children should be taken to the dentist only after all primary teeth are erupted and 27.2% [19.9-35.3] between age 1 and 2. Healthy primary teeth were mentioned only by 13.3% [4.4-23.6] of parents as important value, regarding their children health and development.’ **‘CONCLUSIONS’** ‘Most parents self-evaluate their knowledge regarding children’s oral health as good, but the actual knowledge was not always correct or was not applied correctly.

**P 24 Parents' knowledge regarding the risk factors of early childhood caries**

Sirghe A\*, Balan GG, Pintiliciuc-Serban V, Adumitroaie A, Savin C  
Faculty of Dental Medicine, U.M.F. Grigore T. Popa Iasi, Romania

**AIM** ‘The purpose of the study was to establish the level of parents' knowledge with regard to risk factors for Early Childhood Caries (ECC).’ **‘METHODS’** ‘The study was carried out on questionnaires concerning different risk factors involved in ECC occurrence; the questionnaires were filled in by the parents of the



children who presented to Iasi Pediatric Dentistry Clinic for control or treatment. **RESULTS** The children living in rural areas have a higher ECC experience than children living in urban area of Nord East of Romania. Prolonged bottle-feeding is most commonly seen in children with ECC. We can also find this type of pathology in young patients taking on regular basis syrups for general pathologies. Cultural, social and family values are linked to family practices regarding children's dental health. **CONCLUSIONS** Early childhood tooth decay is a major global economic and health problem due the sensation of early pain affecting the child's quality of life. The pediatric dentist plays a key role in encouraging parents to take the child to dental office as early as possible, in order to prevent the progression of ECC.

**P 25 Caries in 1- and 2-year-old children in Hamburg**

Wolter I\*, Schulz B, Schiffner U

Department of Dental and Oral Medicine (ZMK), University Medical Center Hamburg-Eppendorf (UKE), Germany

**AIM** To evaluate the caries prevalence and experience in 1- to 2-year-old toddlers in Hamburg and to relate the data to sociodemographic variables. **METHODS** A sample of 213 children was examined in 21 randomly selected nursery schools in Hamburg. Caries was scored following WHO criteria but initial caries was recorded in addition. Information about socioeconomic status (SES, based on parents' education) and immigration background was collected using a structured parental questionnaire. Caries prevalence and dmft-values were calculated with and without including initial caries. Statistical comparisons with respect to gender, SES and migration background were performed by Chi-square test, Mann-Whitney-test and Kruskal-Wallis-test. **RESULTS** Based on WHO criteria, 95.3 % of the toddlers were free of dentin caries experience. There was no significant difference with respect to gender, but significantly differing percentages with respect to SES ( $p=0.002$ , low SES related with higher prevalence) and migration background ( $p=0.010$ , higher prevalence in children with such background). The mean dmft value was  $0.14 \pm 0.82$ , again differing significantly regarding SES ( $p=0.001$ ) and migration background ( $p=0.010$ ). Including initial caries lesions, 83.6 % of the children were caries free, and the dmft was  $0.54 \pm 1.61$ . Statistical evaluation including initial caries did not reveal a difference with respect to migration background but with respect to SES. **CONCLUSIONS** There is a distinct caries polarization already in very young children. Caries prevalence and experience including initial caries require caries preventive concepts starting very early in life.

**P 26 Multi-disciplinary management of a child with hypodontia complicated by bilateral canine/first premolar transposition and crowding**

Shah A\*, Sharma G

Oral and Maxillofacial Surgery Department, Wexham Park Hospital, United Kingdom

**INTRODUCTION** Hypodontia is the most common dental anomaly; however management can be complicated by the presence of other dental anomalies such as impaction of teeth, microdontia and transposition. Management is in part dictated by severity. Early diagnosis and multi-disciplinary management is prudent for treatment success. **BACKGROUND** A fit and healthy 11-year-old female presented in the mixed dentition with congenital absence of her upper lateral incisors and second premolars on the right side complicated by the presence of maxillary unerupted bilateral canine/first premolar transposition and crowding. **CASE REPORT(S)** The patient had a Class I incisor relationship on a skeletal I base and the family history was unremarkable. Management involved joint input from paediatric, orthodontic and surgical specialists and comprised the extractions of over-retained primary teeth and impacted lower left second premolar, exposure and bonding of gold chains to her upper canines, upper right first and left second premolar teeth and fixed appliance therapy. **FOLLOW UP** The patient continues to have orthodontic follow up appointments to finalise alignment of her upper dentition in the following arrangement: 6-341|14356. On completion of orthodontic treatment, restorative treatment is planned to lateralise the upper first premolar teeth and for prosthetic replacement of the upper right second premolar. **CONCLUSIONS** This case highlights the complexities involved in the management of hypodontia cases with multiple complicating factors and how a holistic and systematic approach is crucial to achieve treatment objectives. The appropriate multi-disciplinary management of a complex paediatric case is described to achieve a satisfactory functional and aesthetic outcome in the least invasive approach.



**P 27 Molar incisor hypomineralisation and oral health related quality of life: a systematic review**

Kooter-Nugteren M\*, Bonifacio CC, Hesse D, Slot DE

Department of Pediatric Dentistry, Academic Centre for Dentistry Amsterdam (ACTA), University of Amsterdam and Vrije Universiteit Amsterdam, The Netherlands

**AIM** `This systematic review synthesizes the available evidence among children concerning the effect of molar incisor hypomineralization (MIH) compared to non-MIH on oral health related quality of life (OHRQoL) measured by patient-reported outcomes (PRO).` **METHODS** `Two databases were searched up to December 2019 for studies among children that evaluated the effect of MIH compared to non-MIH on OHRQoL measured by PRO's. A quality assessment was performed. A descriptive analysis was executed for both children and their parents separately on the following domains: social, emotional, oral symptoms, dental anxiety, functional limitations, and combined scores.` **RESULTS** `Initially, 420 papers were retrieved. After screening and selection, 9 papers concerning 8 comparisons were included. The data did not allow meta-analysis. In only 20-40% of the studies, children reported a negative impact of MIH on their OHRQoL compared to non-MIH for the following domains: social, emotional, oral symptoms, functional limitations, and combined scores. Dental anxiety showed no difference. From the parents' perspective, only 33-50% of the papers reported a negative impact of MIH on OHRQoL for social, emotional, and functional limitations domains. None of the studies found a difference in the domains of oral symptoms, dental anxiety, or combined scores.` **CONCLUSIONS** `The majority of studies did not show a difference in impact on OHRQoL based on PRO's for children with MIH compared to non-MIH for any of the domains social, emotional, oral symptoms, dental anxiety, functional limitations, and combined scores. This applies to the perspective of the children and their parents.

**P 28 A Micro-Invasive Approach To Improve Esthetics In Young Patients: 12 Months Follow-Up**

Bacaksiz A\*, Bacaksiz I

Private Practice, Turkey

**INTRODUCTION** `Developmental defects of enamel (DDE) may occur due to early childhood caries, previous trauma history to the primary teeth and genetic disorders. Tooth discolorations resulting from DDE, usually require esthetic interventions to make the lesions non-remarkable thus, more acceptable for patients.` **BACKGROUND** `Resin infiltration systems proved to be micro-invasive and obtain promising results for masking discolorations caused by DDE or white spot lesions.` **CASE REPORT(S)** `A 7,5 year-old male patient referred to the clinic with the complaint of brown/white discolored upper right central incisor. The treatment option was assigned as using a resin infiltration system due to its micro-invasive application procedures. According to the manufacturer's instructions, Icon-Etch and Icon-Dry was applied 3 times respectively until the sufficient results were obtained. Then Icon- Infiltrant was applied on the lesion by using microbrushes and allowed to set for 5 minutes. The excess infiltrant was removed by using cotton pellets and dental floss. The tooth was light cured for 40 seconds. Final polishing was made with disks and diamond polishing paste.` **FOLLOW UP** `The patient was reassessed on 1st week, 1st, 6th and 12th months. The change in the esthetic aspect visually maintained stable on all recall appointments. Although the lesion was not fully masked, the esthetic of the teeth was significantly improved. Furthermore, the underlying tooth structure remained sound.` **CONCLUSIONS** `Resin infiltration systems help to improve esthetics on tooth discolorations occurred due to DDE. Furthermore this esthetic enhancement can be obtained by a micro-invasive approach which may help to protect tooth structure.

**P 29 Extraction of first permanent molars severely affected by MIH - a follow-up study**

Brusevold IJ\*, Kleivene K, Grimsoen B, Skaare AB

Department of Pediatric Dentistry and Behavioural Science, University of Oslo, Norway

**AIM** `The aim of this study was to evaluate possible spontaneous space closure after extraction of first permanent molars in children and eventual need for orthodontic treatment.` **METHODS** `Twenty-seven children with at least one first permanent molar planned for extraction were enrolled in the study. The children were referred to Department of Paediatric Dentistry, University of Oslo, between 2009 and 2017. All extracted teeth were severely affected by Molar Incisor Hypomineralisation and/or caries. The children

and their parents gave consent to follow-up. Data were analyzed with SPSS 26. **RESULTS** The age of the children was between 5.5 and 12.1 years (mean 8.7) at extraction. The mean follow-up time was 3.2 years (range 1.1 to 6.3). Sixteen children (59.3 %) had all four molars extracted, five (18.5%) had three, five had two and one had one molar extracted. In the maxilla, the second permanent molar had erupted in the place of the first molar in all the children, and none of them needed orthodontic closure. In the mandible, eight patients (29.6%) needed orthodontic treatment to close the gaps after extraction, of which two needed treatment for additional reasons. In three children, the second molar was not yet erupted and treatment need was not settled. Eight children (29.6 %) had no orthodontic treatment need whereas ten children (37 %) required orthodontic treatment for other reasons. **CONCLUSIONS** Extraction of severely affected first permanent molars before the eruption of the second molar is a treatment option causing little additional treatment in the majority of cases.

**P 30 Oral rehabilitation of a 5-year-old patient with hypoplastic Amelogenesis Imperfecta under general anaesthetic**

Cooper J\*, Barry S

University Dental Hospital of Manchester, United Kingdom

**INTRODUCTION** Amelogenesis Imperfecta is a genetic condition affecting the appearance and structure of enamel. It is an inherited condition which can be x-linked, autosomal dominant or autosomal recessive and affects all teeth in the primary and permanent dentition. **BACKGROUND** A 5-year-old girl without prior medical diagnosis attended Manchester Dental Hospital complaining of sensitivity of her primary molar teeth, leading to difficulty in eating and brushing. She was troubled by a pitted appearance of her teeth and was being bullied at school. **CASE REPORT(S)** Family history and clinical examination was consistent with hypoplastic amelogenesis imperfecta. Following clinical and radiographic examination it was clear that all teeth required restoration whilst addressing sensitivity and aesthetics. Initially, preformed metal crowns were placed LRE and LLE using the Hall technique. However, the patient struggled to co-operate during treatment. Further treatment was completed under general anaesthetic and included the placement of preformed metal crowns using the conventional technique URE, URD, ULD, ULE, LLD, LRD and the restoration of URB, URA, ULA and ULB using strip crowns. Direct composite veneers were placed URC, ULC, LLC, LLB, LLA, LRA, LRB, LRC. **FOLLOW UP** On 2 month review, the patient and parents were pleased with aesthetics and eating and brushing habits had greatly improved. She will be regularly reviewed and permanent dentition managed appropriately. **CONCLUSIONS** This case demonstrates the successful management of a severe case of amelogenesis imperfecta. It highlights the importance of judicious treatment planning to achieve optimal long term aesthetic and functional outcomes for children in the primary dentition.

**P 31 Challenges in the diagnosis and treatment of Dentine Dysplasia Type 1: A Case Report**

Reynolds L\*, Kandiah P

University Dental Hospital of Manchester, United Kingdom

**INTRODUCTION** Dentine Dysplasia Type 1 (DD-I) is a rare autosomal dominant condition affecting 1 in every 100,000. DD-I is characterised by short, stunted roots, pulp obliteration, pulp calcifications and periapical radiolucencies. Teeth may exhibit excessive mobility or premature exfoliation. Typically, the crown morphology appears normal. **BACKGROUND** This case report gives an overview of DD-I along with the challenges faced by the multidisciplinary team in both diagnosis and management. **CASE REPORT(S)** An 11-year old girl was referred regarding a localised draining sinus associated with an upper central incisor. Clinical examination revealed that the central incisors and canines were proclined and significantly dilacerated. Radiographically, there were multiple large periapical radiolucencies and pulp calcifications. The first permanent molars had completely obliterated pulps, diminutive, malformed roots and displayed mobility. Clinical, radiographic and histopathological examination confirmed a diagnosis of DD-I. Management involved a multidisciplinary approach involving Paediatric Dentistry, Orthodontics, Restorative Dentistry, Oral Maxillofacial Radiology and Clinical Genetics. Dental treatment was complex for several reasons. Endodontically, due to pulp obliteration, calcifications, abnormal root morphology and open apices. Orthodontics was challenging due to abnormal root morphology, diminutive roots and tooth mobility. **FOLLOW UP** Two years on, the patient continues to retain her entire natural dentition. Her endodontically treated teeth remain symptom-free and she continues to undergo fixed orthodontic treatment.

**CONCLUSIONS** The dental management of patients with DD-I requires extensive planning with a multidisciplinary team approach. The fundamental aim of treatment is to retain the natural dentition for as long as possible. Close follow up and rigorous prevention is thus paramount.

**P 32 Getting to the roots of the problem: Managing the implications of radiation therapy in the paediatric patient**

Loy F\*, Kandiah P

Children Dental Health Department, University Dental Hospital of Manchester, United Kingdom

**INTRODUCTION** The risk of odontogenic anomalies is increased when patients are treated with chemotherapy under 5 years of age. Radiotherapy may alter craniofacial development and cause damage to the tooth bud, resulting in microdontia, malocclusion, arrested development of roots and tooth growth retardation. This can create aesthetic, functional and psychological issues for patients. **BACKGROUND** A 10-year-old girl, N.A., was referred to the Manchester Dental Hospital regarding hypodontia. **CASE REPORT(S)** N.A. was troubled by the appearance of her upper right front tooth. Her medical history was notable for radiochemotherapy to treat ethmoidal rhabdomyosarcoma in 2012 and an atrial septal defect which has been repaired successfully. She currently takes growth hormone supplements. Clinical examination revealed delayed eruption of UR6, UL6, UR1 with a retained, mobile URA, caries associated with LR6 and a developing class 3 skeletal relationship. A radiographic report noted the absence of UR6, UR5, UR4, UR3, UL5 and UL6, diminutive lower second premolars and generalised maxillary arrested root development. Oncology and cardiology teams advised that the patient was medically stable. Treatment included intensive caries prevention and restoration of LR6 with composite under local anaesthesia. URA was extracted and an upper removable appliance provided to replace UR1 space and restore aesthetics. **FOLLOW UP** On review, cone beam computed tomography reported a likely dentigerous cyst associated with unerupted UR1. N.A. is under the care of the Multi-Disciplinary Hypodontia Clinic for long term planning. **CONCLUSIONS** This case highlights possible challenges that may be encountered in the inter-disciplinary management of a patient with a constellation of medical and dental diagnoses.

**P 33 Transitional implants: An asset to pediatric dentistry- A case report**

Deulkar PV\*

Datta Meghe Institute of Medical Sciences, India

**INTRODUCTION** Trauma and congenital hypodontia are two most prevalent causes of missing teeth in children. Psychosocial development of the young child gets hampered in absence of teeth due to loss of function and lack of normal alveolar growth. Ideal mode of treatment in such cases can be dental implants. **BACKGROUND** Trauma and congenital hypodontia are two most prevalent causes of missing teeth in children. Psychosocial development of the young child gets hampered in absence of teeth due to loss of function and lack of normal alveolar growth. Ideal mode of treatment in such cases can be dental implants. **CASE REPORT(S)** case report **FOLLOW UP** 2 years **CONCLUSIONS** Implant placement was carried out in a 9 year old patient taking into consideration her impeding growth. Transitional implants are the newer modalities for pediatric age group which will maintain adequate bone width and length for replacement at later stages after growth completion. Clinicians have incorporated the use of implants in their multidisciplinary approach treatment plan.

**P 34 Use of silver diamine fluoride for treatment of sensitive severely broken down hypomineralized primary and permanent molars**

Jasulaityte L\*

Jeugd tandzorg West, The Netherlands

**INTRODUCTION** Children with molar incisor hypomineralization (MIH/HSPM), especially with severe form, have a higher probability of developing caries and molars can be hypersensitive. Remineralising agents have been investigated to desensitize the hypersensitive MIH molars, however these studies did not include molars with caries. **BACKGROUND** Recently new guidelines for using a desensitizing and remineralising agent silver diamine fluoride (SDF) have been developed by AAPD to arrest dentine caries in primary dentition. No studies were found using SDF for treatment of HSPM or MIH molars with caries. **CASE REPORT(S)** For 3-year-old girl with severe form of HSPM, sensitivity and active caries, otherwise caries-free, SDF (Riva Star, SDI) was applied on all four HSPM. Sensitivity decreased; hygiene quality improved. The

girl came regularly for training sessions. When cooperation improved, minimally invasive ART and Hall restorations were placed without local anaesthesia. For 7-year-old girl with fear of needles and severe form of MIH in three first permanent molars with post-eruptive breakdown, hypersensitivity and difficulty to brush, SDF (Riva Star, SDI) has been applied on the sensitive lesions and they were covered with Cavit™ Temporary Filling Material. Brushing instructions have been given. Sensitivity decreased and oral hygiene improved. After needle exposure and relaxation training the lesions have been restored with local anaesthesia and composite. **‘FOLLOW UP’** ‘At 1,5 and one year follow up respectively no adverse effects and no sensitivity has been observed, the situation is stable.’ **‘CONCLUSIONS’** ‘SDF can be used to desensitize the severely affected HSPM and MIH molars with caries before hygiene and coping training sessions and restorative treatment.

**P 35 Minimal invasive aesthetic rehabilitation of conical teeth malformation-oligodontia case**

Cerci Akcay H\*, Sar Sancakli H, Pinar Erdem A  
Istanbul University, Faculty of Dentistry, Istanbul, Turkey

**INTRODUCTION** ‘Oligodontia is a rare developmental dental anomaly usually associated syndromes showing congenital absence of six or more teeth with further dental anomalies, as reduced size and/or shape alterations. Conical teeth malformation is one of the dental anomalies associated characterized as being smaller than normal sizes usually showing conical form as peg, cylindrical, barrel shaped etc.’ **‘BACKGROUND’** ‘A 11-years old female patient having non-syndromic oligodontia was referred with complaint of aesthetic and functional disorders. Clinical and radiographic examination revealed 21 teeth with particularly conical anteriors.’ **‘CASE REPORT(S)’** ‘Minimal invasive treatment planning with direct composite veneers were planned for the aesthetics rehabilitation of anterior teeth. Partial impressions were taken for anatomical guidance to obtain a silicone index. Following isolating with rubber-dam and retraction cords, teeth surfaces were only roughened with polishing discs prior to etching(%37 orthophosphoric acid) and bonding procedure(3M Universal) for a minimal invasive intervention. Starting with the palatal layering, the required morphological shape was obtained with anatomic matrices (Polidentia-Unica anterior matrices) by two-layer technique with dentin/body and enamel layering. Finishing polishing steps were followed with occlusal adjustments.’ **‘FOLLOW UP’** ‘12 months follow-ups showed no discolorations and disintegrations with continuous marginal integrity.’ **‘CONCLUSIONS’** ‘Considering the age of the patient, minimally invasive direct veneering can enable a future invasive and permanent treatment requiring space preservation following continuing growth and development patterns of the patient with solving patient’s aesthetic complaint and improving her smile but moreover self-confidence.

**P 36 Gold onlays for the restoration of hypoplastic first permanent molars.**

Brown L, O'Sullivan E\*  
City Health Care Partnership, Hull, United Kingdom

**INTRODUCTION** ‘Children commonly present with hypoplastic first permanent molars (FPM) due to Molar Incisor Hypomineralisation (MIH) or in certain Amelogenesis Imperfecta (AI) phenotypes. Restoration of teeth may be required for various reasons and present challenges to the Paediatric Dentist.’ **‘BACKGROUND’** ‘Hypoplastic FPM have irregular morphology. Cusps may be lost and cavities may extend onto palatal and buccal surfaces making the placement of resin composite materials difficult. Placement of gold onlays have been suggested to ease the restoration of these teeth providing cuspal coverage.’ **‘CASE REPORT(S)’** ‘Patients presented to the Specialist Paediatric Dental service in Hull following referral by their general dental practitioner for MIH. 1. 12 year old girl presenting with hypoplastic FPMs. UR6 had atypical shape and was restored using a gold onlay. 2. 9 year old boy, disliked the brown discolouration of his anterior teeth, also presented with post eruptive breakdown of his FPMs. Diagnosis of MIH made but health of unerupted second molars unclear. Treatment included bleaching of anterior teeth, composite veneers, and gold onlays on all FPMs. 3. 8 year old girl, with a phenotype of pitted hypoplastic AI. All FPM extremely hypoplastic with ‘peaks’ of enamel in place of cusps. Due to the morphology undercuts had to be blocked and the margins extended.’ **‘FOLLOW UP’** ‘Long-term all are happy with their appearance, have no sensitivity and gold onlays remain sound clinically and radiographically.’ **‘CONCLUSIONS’** ‘This case series provides examples of clinical cases when gold onlays provided the patient with a reliable restorative option for restoring hypoplastic FPMs.



**P 37 'Can you fix my crumbly brown teeth?' - A service evaluation of children referred with Molar-Incisor-Hypomineralisation (MIH)**

Humphreys SJ\*, Jarad F, Albadri S  
University of Liverpool, United Kingdom

**AIM** `To evaluate the care pathway for children with MIH referred to a UK dental hospital.` **METHODS** `Patient records for children (n=426) attending their first Paediatric Dentistry appointment in 2015 were reviewed. A data collection form was designed and piloted. Data was collected retrospectively for children with MIH and included: demographic information, reason for referral, previous treatment for MIH before referral, patient symptoms / concerns, number of teeth affected, severity (mild / severe) , treatment planned and completed, and appointment number.` **RESULTS** `48 children (11%) had a diagnosis of MIH, with a mean age of 9 (range 5-14 years). 22 were female (46%).MIH was recorded as the reason for referral in 16.7% of cases (n=8); 60.4% (n=29) referred for another enamel defect, usually hypoplasia. 62.5% (n=30) of children had had some treatment prior to referral. Most children (70.8% n=34) had a complaint related to MIH - most frequently toothache (22.9% n=11). Four molars (52.1% n=25) and no incisors (33.3% n=16) were most frequently affected. MIH was severe in 81.3% (n=39) of cases. 41.7% (n=20) completed treatment with general anaesthetic (GA). 56.3% (n=27) had molars extracted at a mean age of 10.3 (range 7.4 - 14.8 years). 18.8% (n=9) of patients were planned for aesthetic treatment to their incisors. 79.2% (n=38) completed treatment, with a median of four appointments necessary (range 1-16).` **CONCLUSIONS** `The majority of children with severe MIH required specialist intervention including GA. The presentation and treatment required varied significantly, reflecting the spectrum of disease severity.

**P 38 Potential aetiological factors of molar-incisor hypomineralisation in children.**

Rubene I\*, Viduskalne I, Rivare A, Rakecka S, Cerane L  
Institute of Stomatology, Riga Stradins University, Latvia

**AIM** `To assess potential aetiological factors of molar-incisor hypomineralisation (MIH) in children.` **METHODS** `The patients' history, information regarding potential aetiological factors, were acquired directly questioning parents. Data regarding maternal pregnancy complications and diet during pregnancy, specifically concerning smoked meat consumption, were collected. Gestation and weight at birth as well as the delivery mode (vaginal versus Cesarean section) were recorded. Further data regarding length of breast feeding, recurrent fever, infections (i.e. ear, throat and chest) and disorders of the digestive tract in the first three years of life were documented.Statistical analysis was performed with IBM SPSS Statistics V22 (Pearson Chi-Square test and Fisher's Exact test).` **RESULTS** `A total of 80 (52 females, 28 males), 6 to 9-year-old children were examined using the EAPD criteria for MIH. Molar-incisor hypomineralisation was observed in 40 (32 females, 8 males) children, median age 8,5 (range: 6-9).First trimester pregnancy complications (p=0,01), smoked meat consumption at least three times a week during pregnancy (p=0.05) , premature birth (p=0,005) and delivery via Cesarean section (p=0.05) were found to be statistically significant aetiological factors.` **CONCLUSIONS** `There are likely multifactorial aetiological aspects causing molar-incisor hypomineralisation in children. In order to identify dominant causative factors, prospective longitudinal study with larger sample size is warranted.

**P 39 Impact of Molar Incisor Hypomineralization children's oral health-related quality of life**

Elhennawy K, Doueiri M, Rajjoub Eldik O\*, Hamad R, Reissmann D  
Department of Orthodontics, Dentofacial Orthopedics and Pedodontics, Charite -  
Universitaetsmedizin, Germany

**AIM** `To evaluate the impact of Molar Incisor Hypomineralization (MIH) on oral health-related quality of life (OHRQoL) in a group of 7 to 14-year-old children.` **METHODS** `This cross-sectional study sample consisted of 319 children, aged 7-14 years (49% girls, 51% boys) consecutively recruited at a university-based dental clinic in Berlin, Germany. MIH was diagnosed using the European Academy of Paediatric Dentistry (EAPD) criteria. OHRQoL was assessed using the German 19-item version of the Child Oral Health Impact Profile (COHIP-G19). Additionally, data regarding hypersensitivity, number of affected teeth, severity, and the involvement of the incisors were collected.` **RESULTS** `At total 219 untreated MIH patients (28% mild, 72% severe) and 100 healthy patients (controls) were recruited. Two MIH cases were excluded due to lack of OHRQoL data. In MIH patients, anterior teeth were affected in 79% and hypersensitivity was reported in 57%.



OHRQoL was substantially impaired in MIH patients when compared to controls, that was indicated by significantly lower COHIP summary scores in MIH cases (60.9 points) than in controls (67.9 points;  $p=0.001$ ). Furthermore, severe MIH patients (59.6 points) showed significantly worse OHRQoL than mild ones (63.6 points;  $p=0.013$ ). However, when MIH severity was statistically controlled for potential confounders (age, sex, number of affected teeth, involvement of incisors, presence of hypersensitivity) MIH severity was no longer statistically significant ( $p=0.381$ ) but the number of affected teeth was a significant predictor ( $p=0.024$ ).` **CONCLUSIONS`** `MIH has a substantial negative impact on children's OHRQoL. Moreover, severe MIH is associated with greater negative impact than mild MIH.

**P 40 Etiology of MIH – A case-control study**

Stanciu I\*, Luca R, Munteanu A, Farcasiu C, Farcasiu T  
Carol Davila University, Bucharest, Romania

**AIM`** `Etiology of MIH is still uncertain and includes pre-, peri- and postnatal factors. The aim of the study was to assess the relationship between children' medical history and MIH occurrence.` **METHODS`** `A case-control study was conducted upon 2 groups of children: study group – 70 children with MIH ( $v=8.73\pm 2.97$  years) and control group – 70 children without MIH ( $v=8\pm 1.95$  years). Data about birth and health of the child up to age of 3 were gathered from the pediatricians' medical records. Mothers were asked about their health during the pregnancy. Data were statistically analyzed with SPSS vs 20.0, using Pearson chi-square test and Fisher test ( $p<0.05$ ).` **RESULTS`** `There were statistically significant (SS) correlations between MIH and the following factors: type of delivery (natural/Caesarean) ( $\chi^2=4.05$ ,  $p=0.04$ ,  $OR=2.29$ ) and health problems of the child up to age of 3 ( $\chi^2=18.70$   $p=0.02$ ,  $OR=2.05$ ). The strongest correlation was between MIH and eruptive fevers ( $\chi^2=6.86$ ,  $p=0.009$ ,  $OR=6.33$ ). A week SS correlation was found between MIH occurrence and hypoxia at birth ( $\chi^2=4.15$ ,  $p=0.04$ ,  $OR=0.26$ ,  $RR=0.43$ ). No associations were found between MIH and prenatal factors, birth weight and treatments in the first three years of life, respectively. Thus, natural delivery and health problems of the child up to age of 3 can be considered to have stronger influence on MIH occurrence.` **CONCLUSIONS`** `In our study group peri- and postnatal factors were involved in MIH etiology, eruptive fevers having the strongest influence.

**P 41 Deciduous molar hypomineralization and molar-incisor hypomineralization - an exploratory study in Northern Germany**

Stein B\*, Runge S, Eggert B, Graetz C, Geiken A  
Dental Joint Practice Dr. Warner & Dr. Hallberg, Gettorf , Germany

**AIM`** `Deciduous molar hypomineralization (DMH) and molar-incisor hypomineralization (MIH) are global diseases with high variability that cause considerable clinical problems in paediatric dentistry. Several etiological risks were hypothesized, however, their relevance is still under discussion. The objective of this cohort study was to investigate the correlation of DMH and MIH in mixed dentitions.` **METHODS`** `Out of the cohort study sample of 338 children ( $f=168$ ,  $m=180$ ) treated in eight dental practices focused on Pediatric Dentistry those with all first permanent and second deciduous molars and canines have been selected ( $n=178$ ,  $f=90$ ,  $m=88$ , average age  $\pm SD=8.13\pm 1.79$ ). Clinical status including the severity of hypomineralization lesions were evaluated by eight calibrated examiners. For statistical analysis, subgroups of healthy (HDG) versus affected second deciduous molars and canines (DMHG) were compared according to MIH (t-test, Pearson correlation,  $p<0.05$ ).` **RESULTS`** `The deciduous second molar and canine were the most frequently affected teeth. Gender DMHG distribution was  $f= 44.4\%$  and  $m=55.6\%$  (HDG:  $f=51.1\%$ ,  $m=48,9\%$ ). In DMHG mean  $\pm SD$   $1.78\pm 1.56$  first permanent molars were affected compared to mean  $\pm SD$   $2.34\pm 1.32$  ( $p=0.02$ ) in HDG. There was a negative correlation between DMH at second deciduous molars and canines and MIH at first permanent molars ( $R=-0.174$ ,  $p=0.02$ ).` **CONCLUSIONS`** `Within the limitations of the study, we could not confirm a correlation between MDH and MIH.

**P 42 Non-syndromic oligodontia: Case report**

Bolaca A\*  
Pamukkale University, Faculty of Dentistry, Turkey

**INTRODUCTION`** `Oligodontia is a rare developmental anomaly, defined as congenital absence of six or more teeth, excluding third molars.` **BACKGROUND`** `Although it affects both dentitions, permanent teeth are mostly affected. It can occur either as an isolated form or as a part of several syndromes and/or severe

systemic disorders. The isolated form (non-syndromic) oligodontia has been linked to mutations of MSX1, PAX9 and AXIN2 genes. **CASE REPORT(S)** A 14-year old boy was referred to Pamukkale University, Clinic of Pedodontics with a complaint of aesthetic problems. There is no systemic/congenital disease in the medical history of patient and his family. Clinical and radiographic examination revealed that twelve permanent teeth were missing. There was no congenitally missing teeth in family history. Extraoral examination revealed retrognathic maxilla. Anterior and posterior cross-bite, retained primary teeth, carious lesions (#26,#47), poor oral hygiene were observed on intraoral examination. After professional teeth cleaning and restoration of the carious lesions, the patient referred to orthodontic clinic for evaluation. **FOLLOW UP** The patient has been seen biannually. Orthodontic (orthognathic surgery) and prosthodontics treatment including dental implants will be proceed after the completion of the active pubertal growth. **CONCLUSIONS** As a result of oligodontia, patients can suffer aesthetic, functional and psychological problems. Patient's age, intraoral findings should be considered for treatment alternatives. Dental rehabilitation of such patients generally requires a multidisciplinary approach.

**P 43 Multidisciplinary management of a boy with severe oligodontia, 17 years of follow-up**

Du Pont E\*, Declerck D

KU Leuven, Department of Oral Health Sciences and Department of Dentistry, Unit of Pediatric Dentistry and Special Dental Care, University Hospitals Leuven, Belgium

**INTRODUCTION** Oligodontia is defined as the congenital absence of at least 6 permanent teeth (except for wisdom teeth). There are many causative pathways, including mutations in different genes. Psychosocial impact and the need for demanding treatments should not be disregarded in young children.

**BACKGROUND** This report presents a case of severe oligodontia that was treated and followed-up for 17 years.

**CASE REPORT(S)** An 8-year old boy was referred to the paediatric dentistry unit of the University Hospitals of Leuven (Belgium) in 2001. The otherwise healthy child was referred because of missing teeth. The panoramic radiograph showed that 12 of his permanent teeth were agenetic. There was no familial history of missing teeth. Primary teeth were preserved as long as possible, making use of composite build-ups. Frontal aesthetics was improved with a composite bridge in the lower front region at the age of 14 years. At the age of 20 years orthodontic treatment was started, including the use of bone anchors; followed by the placement of implants and crowns. Rehabilitation was completed by the age of 24 years.

**FOLLOW UP** Since the start of his trajectory, this patient visited the dental clinic about 100 times. A final check-up at our clinic took place 1 year after finishing the orthodontic treatment. Further follow-up is taken care of by his own dentist. **CONCLUSIONS** A multidisciplinary approach is a must in complex cases like this. Both patient's and parent's wishes must be taken in consideration in order to reach an optimal result.

**P 44 Amelogenesis Imperfecta care- improving the patient journey through an electronic pathway**

Lafferty F\*, Balmer RC, Mighell AJ

Health Education England Yorkshire and Humber Future Leaders Programme, United Kingdom

**INTRODUCTION** Children with Amelogenesis Imperfecta (AI) often require time critical and efficient access to multiple disciplines.

**BACKGROUND** Access to appropriate specialist services is inconsistent throughout the U.K. Development of an electronic care pathway for AI has been piloted in the Yorkshire and Humber area. Analysis of a specific patient journey has highlighted deficiencies that could be addressed through the use of an electronic care pathway.

**CASE REPORT(S)** A 9-year old patient was referred to specialist care due to poor condition first permanent molars. There was history of a general anaesthetic for dental treatment in another care setting at 2 years old. He was diagnosed with hypomature/ hypoplastic phenotype AI and hypodontia. From 9-13 years old multiple orthodontic opinions, lab technician support and extractions and restorations under inhalation sedation were required. His family have also sought genetic testing.

**FOLLOW UP** The patient requires ongoing specialist care but is currently happy with his dental aesthetics and is symptom free. Analysis of his care through the pathway pilot revealed the following areas that would have been improved if an electronic pathway had been available:- Access to specialist care and an AI diagnosis while still in the primary dentition.- Access to genetic testing at an earlier stage.- A formal orthodontic assessment at a defined stage.- Restorative dentistry assessment with plans for transition of

care.` **CONCLUSIONS`** `An electronic care pathway will be a useful tool in improving care for this patient group. Early diagnosis and identification of appropriate multi-disciplinary involvement is essential.

**P 45 Management of impacted and dilacerated maxillary central incisor: A case report**

Ilisulu C, Ozkurt S\*, Cankaya B, Seymen F

Department of Pediatric Dentistry, Faculty of Dentistry, University of Istanbul, Turkey

**INTRODUCTION`** `Dilaceration is an uncommon dental deformity generally characterized by an angulation between crown and root, and consequently causing non-eruption of tooth. Dilaceration generally occurs following trauma to apices of deciduous dentition. The purpose of this case report was to present the correction of vertically impacted and dilacerated left central incisor through orthodontic and surgical treatment.` **BACKGROUND`** `A 12-year-old female patient referred to our clinic with the complaint of missing of maxillary left central tooth. It was reported that the physically healthy patient had a missing central tooth in the clinical examination.` **CASE REPORT(S)`** `Panoramic radiography and computerized tomography (CT) was used in radiographic examination of the patient which was diagnosed impacted dilacerated left central incisor. The orthodontic braces were applied for three months for levelling of teeth. After the three months, the inverted central tooth was brought to the its right position by a surgical operation. Then, the spontaneous eruption was waited to occur.` **FOLLOW UP`** `Two months after the operation, spontaneous eruption was seen in the clinical examination. Clinically and radiologically no mobility, inflammation or resorption was seen at 6 months recall. The tooth will be restored in the following times.` **CONCLUSIONS`** `Surgical exposure and orthodontic retraction of a severely dilacerated impacted incisor is a clinical challenge. Early diagnosis of impacted teeth prevent complex treatment.

**P 46 Children's views: six-months following micro-invasive treatment of their hypomineralised permanent incisors**

Lawson JA\*, Hasmun N, Yesudian G, Zaitoun H, Rodd HD

Sheffield Teaching Hospitals NHS Foundation Trust, United Kingdom

**AIM`** `To explore children's assessment of treatment outcomes at a six-month review, following micro-invasive treatment to reduce the visibility of incisor opacities.` **METHODS`** `Participants included children, aged 7-16 years, with molar incisor hypomineralisation (MIH), referred to a UK hospital paediatric dentistry service for management of their incisor opacities. Following ethical approval, children expressing concern about 'marks' on at least one permanent incisor, received aesthetic treatment with any combination of the following regimens: resin infiltration; microabrasion; tooth whitening or direct composite resin restoration. Prior to and on completion of treatment, participants completed four child-generated questions, using a 10cm visual analogue scale (VAS) response format: i) How worried are you about the marks on your front teeth? ii) How embarrassed are you about your front teeth? iii) How 'chalky' or discoloured do you think your front teeth are? iv) How happy are you about your front teeth?` **RESULTS`** `90 participants were recruited, of whom 75 were reviewed at six-months (83% completion rate). Children had a mean age of 10.7 years (SD=2.47; range=7-16); 55% (n=41) were female and 45% (n=34) were male. At their review, children were significantly less embarrassed (VAS change=3.9), worried (VAS change=3.7) and unhappy (VAS change=4.4) about their teeth. They also thought they were significantly less discoloured (VAS change=3.3) (p<0.05, paired t-test).` **CONCLUSIONS`** `Micro-invasive treatment is a straightforward and acceptable means of reducing the visibility of incisor opacities and improving how children feel about their teeth and themselves. Longer-term studies are indicated to determine the stability of patient-reported outcomes.

**P 47 Prevalence of ectopic eruption of permanent maxillary first molars in a Catalan population**

Yau Liao J\*, Yuste S, Veloso A, Viroles M, Guinot F

International University of Catalonia (UIC), Spain

**AIM`** `To determine the prevalence of ectopic eruption of the first upper molars in children aged 5-8 years.` **METHODS`** `A retrospective study was performed using panoramic radiographs of 246 patients (133 girls and 113 boys). Panoramic radiographs of 5-8-year-old patients of the Dental University Clinic (International University of Catalonia), taken between January and December 2019, were assessed for the prevalence of ectopic eruption of the first molars, based on the analysis of variance of patient age and sex and the unilateral or bilateral position of their first molars. The statistical programs Chi square test and Fisher's exact test were

used. **RESULTS** 25 patients (13 girls and 12 boys), resulting in a frequency 10% out of 246 had an ectopic rash, the mean age was 6.18 (range: 5-8) years, with a prevalence at the age of 6 (20%). Girls showed a higher prevalence (12%) and 52% of their first molars were bilateral. The relationship between age and ectopic eruption was statistically significant with a P value 0.01. **CONCLUSIONS** Although the prevalence of ectopic rash is generally low, in order to improve management of these patients, it is important to make a good diagnosis and to know the different therapeutic options.

**P 48 Quantification of incisor opacity characteristics in children with Molar Incisor Hypomineralisation.**

Warner CG\*, Lawson JA, Hasmun N, Elcock C, Rodd HD

Department of Paediatric Dentistry, Charles Clifford Dental Hospital, Sheffield, United Kingdom

**AIM** To determine incisor opacity size and site in children with Molar Incisor Hypomineralisation (MIH) using digital image analysis. **METHODS** Following ethical approval standardised intra-oral anterior colour images were obtained from 25 children with MIH using a digital SLR camera, prior to aesthetic treatment of opacities on their upper permanent central incisors. Image software (Image-Pro Plus®V7, Media Cybernetics, Inc.) was used to convert images to 16-bit greyscale and 200% magnification. Using interactive drawing tools, and after linear calibration, the total labial tooth surface and lesion areas were quantified and the proportion of affected tooth surface area was determined. Lesion location and incisal edge involvement were also recorded. For measurement repeatability Intra-class Correlation Coefficients (ICC) were calculated from remeasuring 20% of the sample. **RESULTS** Thirty four incisors from 17 female and 8 male children (mean age 10 years, range 7-16), were measured. All opacities were located in the incisal third, with 38.2% (n=13) involving the incisal edge. The mean incisal labial surface area was 63.5mm<sup>2</sup> (SD 9.26, range 41.0-80.7mm<sup>2</sup>) and opacity size ranged from 3.8 to 35.6mm<sup>2</sup> (mean 13.7mm<sup>2</sup>, SD 7.69). The average proportion of tooth surface area affected was 21.7% (SD 11.6, range 6.2-49.6%). Intra-examiner repeatability was excellent (ICC 0.998). **CONCLUSIONS** This study has provided novel data about some characteristics of anterior enamel opacities in children with MIH. In this sample it was notable that some opacities involved up to half the total labial tooth surface area. Further work will evaluate other lesion features, including colour and post-intervention change.

**P 49 Unilateral ectopic eruption of a maxillary first permanent molar**

Cosma LL\*, Muntean A, Lupse I, Badea ME

Iuliu Hatieganu University of Medicine and Pharmacy, Faculty of Dentistry, Department of Paedodontic, Cluj-Napoca, Romania

**INTRODUCTION** The ectopic eruption of the first permanent maxillary molar is established as a disturbance of the eruption, in which the referred tooth is blocked from his normal eruption onto the occlusal plane. **BACKGROUND** The incidence of this anomaly has been reported in the literature as being between 3-4 %. The case of this obstruction has generated several etiological theories. **CASE REPORT(S)** A eight-year-old boy attended the Paedodontic Departement, of the UMF "Iuliu Hatieganu" Cluj-Napoca, for a regular check-up. The extraoral examination revealed a typical adenoidian facies with labial incompetence and oral breath, assessed at the functional tests. In the intraoral examination we notice the cease of eruption for 2.6 and unilateral posterior crossbite in the left molar region. The orthopantomography provided informations regarding the impacted tooth (2.6) and the premature resorbtion of 6.5. The treatment consisted in enameloplasty of the distal surface of 6.5 in order to provid space, guide and make possible first permanent molar eruption. **FOLLOW UP** The patient is still under observation. **CONCLUSIONS** Dental eruption must be assessed during regular check-up, even it is a phisiological process. From practical point of view, we emphasize on early diagnosis, to prevent further complications for dentition development.

**P 50 Regenerative endodontic treatment of a dens invaginatus causing a canine fossa abscess**

Wal-Adamczak A\*

Private practice, Poland

**INTRODUCTION** Dens invaginatus is an anomaly which may lead to pulp necrosis. The most common approach to save necrotic teeth is an endodontic treatment. However, in early developmental stage the results may be unpredictable. **BACKGROUND** An 8-year old patient was admitted for endodontic



treatment of tooth 12. On the basis of hospitalization information card it was determined that an incision of the canine fossa abscess had been performed. Two dens invaginatus (12 and 22 Oehler's type II) had been diagnosed. General antibiotic therapy had been administered. After three months, on the day of admission, the patient complained of pain of tooth 12 during biting. An X-ray of tooth 12 revealed a short root (R1/2) and apical periodontitis. **CASE REPORT(S)** Under a microscope the inner part of invagination was perforated, providing access to the dental papilla and allowing for regenerative endodontic treatment (RET). The protocol with calcium hydroxide was applied. Biodentine was applied within the invagination. **FOLLOW UP** After four months an intraoral and X-ray examination reported correct mucous membrane, no reaction in percussion examination and further symmetric development of the roots of teeth with dens invaginatus. After one year, consistent development of teeth 12 and 22 was observed. X-ray images taken after 2,5 years presented correct growth of the root with completed apex formation in teeth 12, 22. In tooth 12 one observed obliteration in the newly formed part of the root. **CONCLUSIONS** RET of dens invaginatus proved to be a successful approach, allowing to save the tooth and achieve complete full length root development.

**P 51 The utilisation of indirect composite restorations in the management of amelogenesis imperfecta.**

Jorgenson KM\*

Newcastle Dental Hospital, United Kingdom

**INTRODUCTION** Amelogenesis Imperfecta (AI) is an inherited disorder of enamel development characterised by defective or missing tooth enamel. It can lead to a substantial treatment burden for the patient, as management starts early in tooth development and will continue throughout adulthood.

**BACKGROUND** An 8 year old boy was diagnosed with AI. On eruption of his permanent teeth, enamel post eruptive breakdown occurred almost immediately revealing the underlying dentine. Two phases of treatment were completed with the aim of protecting the dentine, decreasing sensitivity and improving aesthetics. **CASE REPORT(S)** Phase 1 (mixed dentition) included placing preformed metal crowns (PFMC) on his first permanent molars and composite veneers on his upper incisor teeth. Phase 2 (permanent dentition) involved a multidisciplinary approach. Orthodontic and restorative reviews were completed. Premolar teeth and lower left 6 (following the loss of a PFMC) were restored with indirect composite restorations. **FOLLOW UP** The patient has continued to be followed up on a regular basis and all restorations remain stable. **CONCLUSIONS** Indirect composites provided the patient with high quality restorations with the aim of lasting into adulthood and reducing the burden of repeated restorative interventions. In addition, the restorations are minimally invasive and are an acceptable technique in this age group. Indirect composite restorations can be used successfully in the management of patients with AI.

**P 52 Identifying key candidate variables associated with Molar Incisor Hypomineralisation in birth cohorts**

Alshahrani SM\*

Leeds, United Kingdom

**AIM** To identify key candidate variables based on a review of the literature. **METHODS** A search strategy using keywords and MESH terms was developed for Medline and Embase. For studies to be included they had to be a cohort or case control study; to have a sample of 200 or more subjects; and published in English between 2000-2019. For each included study a data extraction form was used to identify essential information. Data analysis plans to explore associations need to be developed a priori and then mapped out using a Direct Acyclic Graph (DAG). **RESULTS** The search strategy identified twenty studies, with three studies excluded owing to study design or sample size. Seventeen variables with a strong association with MIH were grouped into prenatal (three variables), perinatal (four variables) and postnatal (ten variables). A DAG was drawn to demonstrate the potential causal pathway with the variables plotted throughout the diagram. **CONCLUSIONS** These key candidate variables identified from the literature have informed our a priori statistical plan and DAG enabling a robust examination of the (SWS) cohort dataset.



**P 53 Prevalence, severity and clinical consequences of molar incisor hypomineralization in Ukrainian children**

Liubarets S\*, Bidenko N, Savychuk O

Department of pediatric and preventive dentistry of Bogomolets National Medical University, Kiev, Ukraine

**AIM** `To evaluate the prevalence, severity, clinical consequences, and putative contributing factors of molar incisor hypomineralization (MIH) in children from different regions of Ukraine.` **METHODS** `A total of 2024 children aged 6-18 years from different regions of Ukraine had all permanent teeth evaluated according to the European Academy of Pediatric Dentistry (EAPD) criteria. The potential etiological factors of MIH through medical records and personal interview with the parents were retrieved. The dental impact caused by MIH with the Decayed, Missing and Filled Teeth (DMFT) index (WHO) was evaluated. Statistical analysis using SPSS Statistics 20.0.0 was performed.` **RESULTS** `MIH was diagnosed in 128 (6,32 %) from the 2024 investigated children. Moderate severity of disease was confirmed in 50.78 %, mild and severe degree, respectively, in 34.38 % and 14.84 %. Mild degree of MIH was manifested by the presence of demarcated opacities. The moderate and severe degree showed post-eruptive enamel breakdown associated with opacities and hyperesthesia. Caries as a complication of MIH was diagnosed in 14.29 % of children aged 6-12 years and 75.0 % of adolescents aged 13-18 years. Complications during birth, artificial feeding, diseases during the first year of life were found to be significantly associated with MIH. Children with MIH had high DMFT values.` **CONCLUSIONS** `MIH was diagnosed in 6.32 % Ukrainian children with prevalence of mild and moderate degree correlated with negative inducing factors during the first year of life. Positive association between MIH and caries was revealed.

**P 54 Congenital Bilateral Perisylvian syndrome: A rare neurological condition associated with dental anomalies – A case report**

Kakiora V\*, Parekh S, Ashley P

UCL Eastman Dental Institute, United Kingdom

**INTRODUCTION** `To date there is no reported association between Congenital Bilateral Perisylvian syndrome and dental anomalies.` **BACKGROUND** `Congenital Bilateral Perisylvian Syndrome (CBPS) is a rare neurological condition characterised by irregular development of the cerebral cortex. Patients with CBPS can suffer from muscular paralysis, difficulties in speaking, chewing and swallowing, generalized epileptic seizures and intellectual disability.` **CASE REPORT(S)** `A 6 year old girl was referred to the Paediatric Department of the Eastman Dental Hospital regarding multiple dental anomalies. The patient was diagnosed with CBPS and Crohns disease at birth. Clinical examination revealed: megadont first permanent molars and second primary molars, shovel shaped mandibular incisors and unerupted maxillary incisors. Radiographically macrodontia of the second permanent molars and maxillary incisors, hypodontia of mandibular second premolars, shovel shaped crown of all the unerupted incisors were noted. Treatment planning was focused on prevention and acclimatization given the challenging, pre-cooperative behavior of the patient. A three-month recall scheme was implemented. The mandibular central incisors were restored lingually to improve oral hygiene. The patient was assessed in Joint Ortho- Paeds clinic.` **FOLLOW UP** `Review appointment in MDT clinic planned for June 2020 to re-assess whether further eruption of the maxillary incisors is noted or if expose and bond will be required.` **CONCLUSIONS** `This case of dental anomalies presenting in a CBPS patient is the first to be recorded.

**P 55 Dental management of hypoplastic second primary molars.**

Tsiligianni A\*, Gatzogianni M, Agouropoulos A, Gizani S

School of Dentistry, National and Kapodistrian University of Athens, Greece

**INTRODUCTION** `Hypoplasia is a developmental, quantitative defect of the enamel, with unknown aetiology and prevalence of 20% internationally, for primary dentition. The problem is often located in the second primary molars, the probability of caries on the affected teeth is high and is correlated with similar defects in the first permanent molars.` **BACKGROUND** `The aim of this study is to present a treatment case of second primary molars with enamel hypoplasia.` **CASE REPORT(S)** `A 5 year old boy visited the Postgraduate Pediatric clinic at the School of Dentistry of the National and Kapodistrian University of Athens with a history of pain in the primary molars. The clinical and the radiographic examination indicated

hypoplasia of all the second primary molars and caries of the first primary molars. The treatment included resin restorations of the first molars, pulpotomy in #75, direct pulp capping using MTA in #65, stainless steel crowns in all the second molars and recall of the patient every three months. **FOLLOW UP** After 1,5 years of follow up, no clinical or radiographic pathology was noted. **CONCLUSIONS** Enamel hypoplasia in the primary teeth can lead to caries development, tooth wear, sensitivity and aesthetic problems. The treatment should aim to the restoration and the prevention to avoid future problems and close monitoring for early detection of similar condition in the first permanent molars.

**P 56 Prevalence of developmental defects in enamel in the permanent dentition of children and adolescents**

Benning-Chalari P\*, Schiffner U

University Medical Center Hamburg-Eppendorf (UKE), Germany

**AIM** To evaluate the prevalence of Developmental Defects in Enamel (DDE) in permanent teeth of Hamburg students aged 6 to 15 years and to relate the prevalence to sociodemographic factors and to caries prevalence. **METHODS** A cross-sectional epidemiological survey evaluating caries and the frequency of DDE was conducted in a sample of pupils from randomly chosen schools in Hamburg. A parental questionnaire was used to collect information about socio economic status (SES, based on parents' education) and migration background. Clinical findings included the DMFT registration and the examination for fluorosis, MIH, symptoms due to trauma of the teeth's primary predecessors, Turner teeth, Amelogenesis imperfecta and idiopathic enamel defects. Statistical evaluation was performed with regard to the relation of DDE to gender, SES, migration background and caries prevalence (Chi-square test). **RESULTS** 1580 children were examined. Of these, 36.0% showed at least one tooth exhibiting DDE. Fluorosis (24.6%) and MIH (13.5%) were most common. The remaining defect types were rarely observed (trauma of the primary predecessor 0.5%, Turner teeth 1.5%, idiopathic enamel defects 1.1%, no case of Amelogenesis imperfecta). Some children (5.0%) exhibited more than one kind of DDE. Statistically, no relationship to gender could be demonstrated. Children from low SES families were significantly more often affected by DDE ( $p=0.009$ ). Contrarily, children from families with migrant background were significantly less frequently affected than children without ( $p=0.002$ ). Significant correlations between the presence of caries and DDE could be demonstrated ( $p<0.001$ ). **CONCLUSIONS** The results show a high DDE prevalence. This deserves attention, not least because of the association of DDE and caries prevalence.

**P 57 A Case Report: Turner Tooth Restoration**

Gul EB\*, Kasimoglu Y, Ustun N, Gencay K

Istanbul University, Dentistry Faculty, Department of Paediatric Dentistry, Turkey

**INTRODUCTION** Hypoplasia caused by infection or trauma is observed in single permanent teeth and generally in crowns as hypoplastic or hypocalcified areas. Turner tooth is a permanent tooth with defect due to local infection or trauma in the primary tooth; hypoplasia that occurs as a result of local infection is called Turner Hypoplasia. **BACKGROUND** A 9-year-old boy applied to the Istanbul University Faculty of Dentistry department of Paediatric Dentistry for an abnormal tooth. **CASE REPORT(S)** When we questioned the history of trauma, we learned that at the age of 1, he received trauma to the permanent central and it was intruded. We didn't find any signs of infection on the periapical x-ray. And we restored the tooth with composite filling. **FOLLOW UP** We did not encounter any infection in the 6-month follow-up. **CONCLUSIONS** Families should be informed that the history of trauma and infection in primary teeth can cause morphological disorders in permanent teeth. Permanent teeth should be followed and if any problems are encountered, they should be treated with the appropriate treatment option.

**P 58 Evaluation of aloe vera as an obturating material in primary teeth.**

Baliga S\*

Sharad Pawar Dental College, Sawangi (meghe), Wardha, Maharashtra, India

**AIM** To evaluate and compare aloe vera and metapex as an obturating material in primary teeth. **METHODS** A total of 150 teeth from children aged 3 to 9 years were selected and divided into 2 groups. Teeth in Group A were obturated with metapex while group B with an aloe vera based obturating material. Both groups were evaluated clinically and radiographically at the interval of 3, 6, 9 months. **RESULTS** After 3, 6, 9 months of evaluation, metapex showed 100% and 76% while aloe vera based material showed 100%

and 100% of clinical and radiographical success rate respectively. **CONCLUSIONS** Aloe vera based obturating material can be used as an alternative to presently used obturating materials.

**P 59 Saliva contamination effects on two different adhesive systems bonding to enamel and dentin**

Taraboanta I\*, Gamen AC, Stoleriu S, Nica I, Andrian S  
Grigore T. Popa University of Medicine and Pharmacy, Iasi, Romania

**AIM** The main purposes of this study were to evaluate the marginal seal of two universal adhesive systems (etch and rinse and self-etch) applied to enamel and dentin and to assess the marginal microleakage at the tooth-restoration interface in case of saliva contamination condition by dye penetration evaluation on different phases of the adhesive bonding. **METHODS** Thirty class V cavities were prepared on molars and premolars on the buccal surfaces (group I-etch and rinse adhesive system) and on the lingual surfaces (group II-self-etch application system). Each group was divided in 3 subgroups pursuant to the moment of the saliva contamination, as follows: subgroup 1- no contamination, subgroup 2- contamination before light curing of the adhesive system, subgroup 3- contamination after light curing. A 4-score scale was used in order to do the penetrating test at the tooth-restoration interface. **RESULTS** High microleakage values were obtained for group 2 and 3 as to group 1, both on enamel and dentin. In group I, a similar mean value of the dentin microleakage was obtained regarding the saliva contamination before and after light curing of the adhesive. For group II, higher values of microleakage were obtained in the subgroups where salivary contamination took place before light curing of the adhesive resin, compared to group I. **CONCLUSIONS** The enamel microleakage value was higher in case of saliva contamination during the adhesive application using the etch and rinse technique. In what concerns the dentine, the values of microleakage were increased for both adhesive systems.

**P 60 A minimally invasive restorative approach for severe Molar Incisor Hypomineralization: a case report with 6 years follow-up**

Zaffarano L\*, Campus G, Grazia Cagetti M  
University of Milan, Italy

**INTRODUCTION** Molar Incisor Hypomineralization (MIH) is a specific form of qualitative enamel defect affecting one or more first permanent molars (FPMs) and / or incisors. In severe cases, post-eruptive breakdown (PEB) can occur. **BACKGROUND** A 7 yr girl, with no significant medical history, reported pain at all FPMs. Severe MIH with PEB and carious lesions (ICDAS 6) were diagnosed based on the clinical appearance. No clinical or radiographical signs of endodontic involvement were found. **CASE REPORT(S)** Two full arch alginate impressions were performed in order to obtain two casts, wax-up of the four FPMs, and the corresponding occlusal semi-rigid (60 Shore A) transparent silicon indexes. During the appointments, after appropriate local anesthesia and rubber-dam isolation, careful removal of the caries was carried out, keeping as much sound tooth tissue as possible. In order to avoid any pulp response, a resin modified glass-ionomer cement liner was used before a mild two-steps self-etch adhesive, with previous selective enamel etching. A resin composite stratification with a flowable and packable composite was performed. In order to achieve good occlusal contacts, the last layer was light cured for 60 s only after the positioning of the transparent silicon index. No occlusal adjustments were required. **FOLLOW UP** After six years, during which a strict follow up and a personalized oral hygiene program were done, no clinical or radiographic signs of restorative or endodontic failure were found. **CONCLUSIONS** In severe cases of MIH, a direct composite restoration could be considered as a predictable first line therapeutic solution ahead of other more invasive options.

**P 61 Esthetic crowns as new modality for treatment of permanent molars in children with molar-incisor hypomineralization: A case report**

Sabbarini J\*  
Private Dental Center, Irbid, Jordan

**INTRODUCTION** Molar-incisor hypomineralization (MIH) is defined as a demarcated qualitative defect of the enamel affecting the first permanent molars and often the permanent incisors. The clinical features of MIH in molars are lesions with severe mineral deficit and rapid progression to post-eruptive enamel breakdown can occur. **BACKGROUND** Stainless steel crowns were and still are the treatment for severely

destroyed molars .The introduction of esthetic crowns offers a good alternative to improve esthetics and child psychology.` **CASE REPORT(S)**` A 10-year-old female patient attended to our private clinic suffering from severe pain and sensitivity from her permanent molars , but refused to treat them as she was not satisfied with an old treatment of her deciduous molars with stainless steel crowns. Parents and the girl were concerned about esthetics while treating her permanent molars. After examination, it was found that 63-64 were badly destructed and sensitive, 61-62 were badly decayed and upper 11-12-21-22 were treated with composite fillings due to white and yellow spots as the mother described. The decision was to treat her 63-64 with prefabricated zirconia permanent crowns and 61-62 with composite fillings.` **FOLLOW UP**` On her next recall after two weeks, sensitivity disappeared. There was some gingival inflammation but both parents and the girl were satisfied. After 3, 6 months gingival inflammation subsided.` **CONCLUSIONS**` The introduction of prefabricated permanent zirconia crowns and adhesive systems in dentistry, offers a new alternative treatment for severely destroyed teeth. Providing pleasing esthetics and functional restoration increases the confidence of both children and parents in the dental management.

**P 62 Clinical performance of SSCs on primary molars - 36 months follow-up**

Luca R\*, Radu F, Petcu C, Radu R, Stanciu I  
Carol Davila University Bucharest, Romania

**AIM**` To evaluate clinical performance of SSCs applied in a pediatric dentistry office on primary molars (PM) with severe crown destruction and root canal treatment (RCT).` **METHODS**` A longitudinal prospective clinical study was performed on 55 SSCs applied by the same operator on PM in children aged 51 to 74 months (mean: 61.81 mo). All molars had RCT. Tooth preparation followed conventional guidelines. SSCs were cemented with Fuji Plus, GC, Japan. No rubber dam was used. The molars with SSCs were clinically examined at 6, 12, 18, 24 and 32 months. Retention and occlusal integrity of SSCs were recorded. Data was processed with IBM SPSS Statistics 20.` **RESULTS**` Of the 55 PM with SSC, 42 (76.36%) survived after 32 months of follow-up. 10 PM (18.18%) with intact SSCs were lost by physiological exfoliation after 12-24 months and 3 (5.45%) could not be evaluated at the last follow-up examination due to the absence of the patients. For the first 12 months retention rate was 100%. After 36 months, 94.54% of SSCs were either satisfactory or lost by tooth exfoliation. The mean survival rate was 34.25 months (SE 0.707; 95% CI for mean: 32.869 to 35.640). Failures (loss of cementation/perforation of the occlusal surface) occurred only after 12 and 18 months (3.63%, respectively 1.81%).` **CONCLUSIONS**` SSCs used in a paediatric dentistry office on primary molars with severe crown destruction and root canal treatment can be regarded as efficient crown restorations after 36 months follow-up.

**P 63 Inhibition of Matrix Metalloproteinase (MMP) activity via a Novel SMART Composite versus commercial filling materials**

Jamal HA\*, Alkhouri N, Young A, Ashley P  
University College London, United Kingdom

**AIM**` This study quantifies MMP activity at the surface of demineralised dentine following sealing by a new SMART composite versus commercially available restorative materials.` **METHODS**` 2mm thick sections of coronal dentine from sound human molars, obtained following ethical approval, were fully demineralised through immersion in 4M formic acid for 48 hours. Following application of a green fluorescent probe (EnzCheck Collagenase Assay Kit) for 5 minutes, restorative materials were applied on one surface. Materials included SMART (Schottlander), 3M ESPE Filtek Z250, Activa KIDS Bioactive compomer OptiBond Solo Plus adhesive and GC Fuji IX, GIC according to the manufacturer's instructions. Non-restored dentine was used as control. Samples were stored in deionised water and incubated at 37oC. Following 1 or 14 days, samples (n=4) were sectioned and the interface area imaged using Confocal Light Scanning Microscopy (CLSM). The percentage area of green fluorescence in sections (260x260µm<sup>2</sup>) defined MMP activity was determined through ImageJ.` **RESULTS**` SMART restoration had the least fluorescence initially (0.5%), which after 14 days almost totally disappeared. Z250 and Activa results were similar after incubation at day 1 (2.5%-2.0%) and day 14 (2.0% 1.8%) respectively. MMP activity of GIC (Fuji IX) was lower than Z250 and Activa on day 1, however, it was significantly higher at day 14 reaching 3.5%.` **CONCLUSIONS**` Sealing of demineralised dentine by restorative materials substantially reduces the enzyme activity that causes degradation of demineralised collagen. The new SMART composite was particularly effective.



**P 64 Investigation of SMART composite penetration into caries affected dentin of primary teeth**

Almuqahwi MA\*, Ashley P, Young A

University Collage of London, Eastman Dental Hospital, United Kingdom

**AIM** `The aim was to assess if a new composite (SMART) developed specifically for sealing of minimally prepared dentine can penetrate disease affected primary dentine more effectively than commercial materials.` **METHODS** `Extracted primary molars with proximal caries were minimally excavated. These were then restored using SMART composite (Schottlander), Activa Kids (Pulpdent) and Fuji II LC (Fuji GC). SMART was used in paste or compule form, Activa with and without phosphoric acid etch and Fuji II LC with or without polyacrylic acid conditioning (n=3 per group). Cured restorations were sectioned to expose the dentine / restorative interface. Following this the samples were stained with red Rhodamine B (0.2 % in isopropanol) and then scanned using Confocal Microscopy.` **RESULTS** `Resin tags of up to 200 micron in length in carious dentine were observed with SMART composite applied from compules but not in paste form. The same depths of resin tag penetration was not seen with the other materials.` **CONCLUSIONS** `Unlike other commercial restorative materials, SMART composite in compules can seal carious dentine. This demonstrates its potential for use with minimally invasive tooth restoration.

**P 65 Now you see me, now you don't – The resolution of a peri-apical radiolucency with Biodentine**

Ezzeldin M\*, Bhatia S

University Dental Hospital, Cardiff, United Kingdom

**INTRODUCTION** `Biodentine is a calcium-silicate based material with a wide range of applications including endodontic repair, pulp capping and dentine replacement. Case reports have demonstrated that Biodentine should be considered as a conservative intervention in the treatment of symptomatic permanent immature teeth. This case aims to illustrate its potential benefit in a mature tooth with a peri-apical radiolucency.` **BACKGROUND** `A 12 year-old patient with a diagnosis of ectodermal dysplasia presented to the University Dental Hospital, Cardiff, with hypodontia, taurodontism and pulpal caries affecting the lower right first permanent molar (46). Multidisciplinary management plan included restoration/endodontic treatment of the 46, followed by orthodontic and restorative treatment to manage the hypodontia.` **CASE REPORT(S)** `Radiographic examination of the mature 46 illustrated a radiolucency into pulp with associated periodontal widening and a peri-apical radiolucency. The tooth exhibited hypersensitivity to cold and electrical pulp testing (EPT), with tenderness to percussion (TTP). In January 2019, a partial pulpotomy was undertaken under isolation, followed by Biodentine placement and a composite restoration, with an aim of preserving the radicular portion of the pulp.` **FOLLOW UP** `Follow up 3 months post-operatively revealed an asymptomatic 46 with normal reaction to cold/EPT and no TTP. Radiographic investigations at 7-months revealed the resolution of both the peri-apical area and periodontal widening, with a subsequent asymptomatic 12-month follow-up. Other treatment continues and further review is planned.` **CONCLUSIONS** `Bioactive Biodentine was a suitable material for pulp regeneration in this case. The elongated taurodont pulp with increased stem cells may have provided a better ability to repair with subsequent peri-apical resolution.

**P 66 Placing a crown on a primary molar using CAD-CAM technology.**

Papadopoulou P\*, Kalash A, Mourouzis P, Tolidis K, Arhakis A

Department of Paediatric Dentistry, School of Dentistry, Aristotle University of Thessaloniki, Greece

**INTRODUCTION** `Computer-aided design and manufacturing (CAD/CAM) technology has made enormous improvements since its introduction, and was recently introduced as an aesthetic alternative for primary teeth restorations.` **BACKGROUND** `A healthy 8-year-old patient attended a private dental clinic, complaining of discomfort due to food impaction, in the maxillary left molar area. Clinical and radiographic examination revealed deep proximal caries on #64.` **CASE REPORT(S)** `Caries lesions and cavity preparation extended beyond the anatomic line angles. Following parental preference for aesthetic restoration, the decided treatment plan was placement of a resin-modified ceramic CAD/CAM crown. The prepared tooth was scanned with a powder-free intraoral scanning device. Gingival margins, insertion axis, occlusal and



interproximal contact points were all defined by the software. Following milling procedure, the crown was cemented with self-adhesive resin cement. Total chairside time was 35 minutes. Oral hygiene instructions were given as part of full mouth rehabilitation. **FOLLOW UP** At the 3, 12 and 18 months follow-up visit there were no reported symptoms from the patient. The clinical and radiographic examination revealed no gingival inflammation and no radiolucency of the inter-radical region of the restored teeth. The crown's integrity was sustained. **CONCLUSIONS** This case presents CAD/CAM as a reliable alternative treatment option for extensive primary molar restorations, exhibiting specific advantages compared to prefabricated crowns. In addition, it offers the advantage of limited chairside time, in combination with full digital crown customization and aesthetics.

**P 67 Biofilm growth inhibition on novel polylysine and monocalcium phosphate-containing dental composites**

Alostad M\*, Ashley P, Young P, Allan E

Department of Paediatric Dentistry, UCL Eastman Dental Institute, London, United Kingdom

**AIM** The aim of this study was to assess if increasing levels of antibacterial polylysine (PLS) and monocalcium phosphate (MCP) within dental composites can reduce *Streptococcus mutans* biofilm formation on their surfaces. **METHODS** 4 experimental composites were prepared with PLS (4 or 8wt%) and MCP (8 or 16 wt%). Control samples were commercial materials Z250 (3M), Activa and (Pulpdent) experimental with no PLS or MCP. Set discs (10mm diameter and 1mm depth) were immersed in 1ml BHI broth with 1% sucrose and  $5 \times 10^6$  S. mutans then incubated in air with 5% CO<sub>2</sub> for 24 hours (n=3\*3). Biofilm thickness and mass on material surfaces were determined using confocal microscopy and crystal violet (CV) staining. Average effects of PLS and MCP were determined using factorial analysis. **RESULTS** Biofilm thickness was between 120 and 150 micron for all the commercial materials and experimental control. With 4% and 8% PLS these declined to 70 and 40 micron whilst 8 and 16% MCP gave average thickness of 60 and 50 micron respectively. Biofilm mass decreased by 55% on increasing PLS from 4 to 8% whilst effect of increasing MCP from 8 to 16% was not significant (p0.05). **CONCLUSIONS** Doubling PLS content in composites caused a greater reduction in biofilm growth on dental composites than doubling MCP.

**P 68 Comparison of seven universal adhesives regarding bonding to dentine of primary teeth after different storage periods**

Danevitch N\*, Luecker S, Frankenberger R, Kraemer N

Department of Paediatric Dentistry, Giessen, Germany

**AIM** The aim of the in vitro study is the comparison of seven universal adhesives regarding microtensile bond strength ( $\mu$ -TBS) to dentine of primary teeth after three different storage periods. **METHODS** 120 extracted primary teeth were ground to expose caries-free dentine simulating a caries excavation. The samples were bonded with seven universal adhesives (Adhese® Universal [AU]/Ivoclar Vivadent, All-Bond Universal® [ABU]/Bisco, Clearfil™ Universal Bond [CU]/Kuraray, G-Premio Bond [GPB]/GC Europe, iBond® Universal [iBU]/Kulzer, PrimeBond active™ [PBa]/DentsplyDetrey, PrimeBond® NT [PBNT]/DentsplyDetrey) and a composite build-up (Filtek™ Z250/3M) was added. After 24 h, 6 months and 12 months storage in distilled water (37°C), the samples were cut in sticks. With 1488 sticks  $\mu$ -TBS tests were executed. Afterwards, the fractures were analysed under fluorescence microscope with 40x magnification. **RESULTS** Compared to the reference group PBNT (32.5 MPa after 6 months; 31.2 MPa after 12 months) two adhesives showed a significantly higher bond strength after 6 months (AU:44.1 MPa, ABU:40.9 MPa; ONEWAY-ANOVA-Test, mod. LSD p0.05) and one adhesive after 12 months (AU:42.9 MPa, ONEWAY-ANOVA-Test, mod. LSD p0.05). Whereas GPB revealed in all storage groups a significantly lower bond strength (16.9 MPa after 24h, 15.5 MPa after 6 months, 10.9 MPa after 12 months; ONEWAY ANOVA, mod. LSD p0.05). Two adhesives (AU, iBU) did not suffer pre-testing-failures [PTF] within the different storage periods. GPB showed the largest amount of PTF (5% after 6 months, 12% after 12 months; ONEWAY-ANOVA-Test, mod. LSD p0.05). **CONCLUSIONS** After 12 months PBNT, iBU, CU, AU and GPB showed significantly lower results compared to initial  $\mu$ -TBS whereas AU revealed the highest outcomes in  $\mu$ -TBS and no PTF.

**P 69 Effectiveness of silver diamine fluoride (SDF) in arresting and preventing dental caries: Systematic review**

Almoharib BK\*, Almoharib M, Ansari S

Pediatric Dentistry resident at King Abdulaziz Medical City, Kingdom of Saudi Arabia

**AIM** `To assess the effectiveness of SDF in arresting and preventing carious lesions.` **METHODS** `Specific databases were searched including: Cochrane Database of Systematic Reviews, Google Scholar, NCBI, PubMed, EBSCO, and Embase. Preferred Reporting Items for Systematic Reviews and Meta-Analyses (PRISMA) was utilized to report in this systematic review. The Cochrane methodology was utilized to evaluate the bias risk in the different reports that were integrated into this systematic review.` **RESULTS** `The total number of articles that were included in this review was 20. However, 7 articles were excluded as they didn't meet the inclusion criteria. The results indicated that SDF was effective in arresting and preventing carious lesions. Moreover, many articles reported that SDF with the concentrations of 30% and 38% was an effective tool to control dental caries in primary dentition in children and young adolescents. Furthermore, many studies reported that teeth discoloration was a significant drawback when using SDF. In other words, around 40% of parents refused the SDF option due to esthetic reasons. However, other studies suggested that the addition of other components such as Potassium Iodide to SDF preparations that have higher affinity toward silver would improve the esthetic aspect of this treatment.` **CONCLUSIONS** `In conclusion, the use of SDF with the concentration of 30-38% in children and young adolescents showed that it's an effective treatment modality to arrest carious lesions and prevent future caries. Moreover, the addition of Potassium Iodide to SDF preparations improve the esthetic quality of this treatment.

**P 70 Margin Quality of Tooth-colored Primary Molar Crowns**

Moehn M\*, Luecker S, Frankenberger R, Kraemer N

Department of Paediatric Dentistry, Medical Center for Dentistry, University Medical Center Giessen and Marburg (Campus Giessen), Justus-Liebig-University Giessen, Germany

**AIM** `The aim of this in vitro study was to evaluate the margin quality of various tooth-colored primary molar crowns compared to stainless steel crown.` **METHODS** `144 extracted human primary molars were prepared, and randomly assigned to nine groups (n=16): 1)SSC + Ketac™ Cem Plus; 2)SSC + Fuji I; 3)Pediatric Esthetic Crown + Ketac™ Cem Plus, 4)Pediatric Esthetic Crown + RelyX Unicem II, 5)NuSmile® Zirconia + Ketac™ Cem Plus, 6)Sprig EZ-Crown + Ketac™ Cem, 7)KinderCrowns® Zirconia + Ketac™ Cem, 8)CS270 GC Europe + LinkForce and 9)KiddyCap + LinkForce. Following 2,500 thermocycles (Syndicad; + 5 °C / + 55 °C, dwell time 15 s), mechanical loading was performed in a chewing simulator (CS 4.8, SD Mechatronik; 100,000 cycles, 50 N, 1.67 Hz). Before and after thermo-mechanical loading, replicas were produced (Alpha Die MF, Schütz Dental), and margin quality was evaluated using light microscope (criteria: perfect margin/ positive step/ gap/ overfilled/ underfilled/ artefact; AZ100M, Nikon Metrology NV). Statistical analysis of all parameters will be performed using SSP for windows 15.0 (IBM Inc.) and the Mann-Whitney-U-test will be executed.` **RESULTS** `The following means of gaps were measured after thermo-mechanical loading (Mann-Whitney-U-test, p0.05, X shows statistically significant differences): 1)SSC+K 1.87 [7.07]A,E, 2)SSC+F 5.53 [11.51]A,B, 3)PEC+K 6.68 [15.72]A,B, 4)PEC+R 3.76 [10.95]A,B,F, 5)NSZ 11.18 [23.47]B, 6)SC 57.24 [33.45]C, 7)KKZ 39.30 [35.39]D, 8)CS270 0.38 [2.14]E,F, 9)KC 4.45 [12.63]E,B.` **CONCLUSIONS** `The resin-modified glass ionomer cement and the resin cements showed a good performance in comparison to conventional glass ionomer cements considering the margin quality after subcritical loading.

**P 71 Reattachment as a treatment option in teeth injury**

Vasakova J\*

Department of Paediatric Dentistry, Dental School of Medicine, General Teaching Hospital, 1st Faculty of Medicine, Charles University, Czech Republic

**INTRODUCTION** `Teeth injury at children is the second most often reason for dental visit. The mainly affected group is the children between 6 to 12 years of age. Therefore we need quick and effective treatment option.` **BACKGROUND** `Reattachment is the treatment option which immediately reconnects the broken part of clinical tooth crown to the residual part of the tooth in the oral cavity. The strength of the connection depends on the congruency, the area of the surface of the adjacent parts, on the direction of the fracture plane and on the size of the broken fragment.` **CASE REPORT(S)** `All presented case reports were treated

by the author. They describe the treatment of the uncomplicated and complicated fracture of maxillary incisors followed by reattachment of the same fragment. Some cases were treated during one visit by plain reattachment with or without the additional chamfer in the enamel. Other cases were treated with pulpotomy, endodontic treatment or with surgery involvement preceding the reattachment itself. Storage of the fragment during the treatment was considered. **FOLLOW UP** Vitality tests, intraoral x-ray and clinical check-up were made every 6 months for at least 2 years. Within 2 years after the treatment no disconnections of the attached fragments were observed. **CONCLUSIONS** Reattachment of fractured tooth fragment offers a viable restorative alternative. Immediately reestablishes tooth function and esthetics by using of a very conservative and cost-effective approach.

**P 72 Delayed presentation of dental trauma - Give it a Go**

Keogh A\*, Breen M  
St Georges Hospital, London, United Kingdom

**INTRODUCTION** This case illustrates how joint management of delayed dental trauma can yield a favourable clinical outcome. The authors suggest that with valid consent from the patient and parent alongside close clinical monitoring there is little to lose by attempting to save traumatised teeth with delayed presentation. **BACKGROUND** A 13 year old boy attended the A+E department following an assault at school. He presented 24 hours after the incident due to a delay in referral from his general dental practitioner. Upon clinical and radiographic examination, a diagnosis of mid third root fracture of both maxillary central incisors was deduced. **CASE REPORT(S)** The right central incisor became non-vital whilst the left central incisor underwent healing by pulpal obliteration. The subsequent management involved orthodontic, endodontic and restorative treatment with a multi-disciplinary team approach. **FOLLOW UP** Long term follow-up with the paediatric dental department is anticipated. **CONCLUSIONS** A delayed presentation following dental trauma is associated with negative trauma sequelae and less favourable clinical outcomes. Maintaining anterior traumatised teeth has both physiological and psychological advantages. This case illustrates how appropriate treatment protocols by experienced clinicians in a timely manner enabled a favourable clinical outcome with both physiological and psychological benefits to the child in question.

**P 73 Emergency dental care among children and adolescents at Public Dental Service, Norway**

Saelen F\*, Virtanen J, Graue A, Bletsa A, Skeie M  
Department of Clinical Dentistry, University of Bergen. Oral HealthCentra of Expertise in Western Norway- Hordaland, Norway

**AIM** To examine the occurrence and reasons of emergency dental visits after working hours, and to investigate patient satisfaction to the emergency care received. **METHODS** This was a prospective study of emergency dental care by children and adolescent up to the age of 19 years, taking place in Hordaland, Western Norway. During the one-year study period (2018-2019), comprehensive data of oral health, waiting time, parental satisfaction, and background information were collected. The emergency clinic hours were from 18.00 to 20.30 during workdays and from 15.30 to 20.30 during weekends provides free dental care to children and adolescents. Chi-square test and independent sample t-test were applied to analyzing differences between groups. **RESULTS** Totally, 511 individuals requested emergency care in 2018-2019, of them 70.6% originated from Bergen. The number of visits was 537 as some individuals had more than one visit. The number of visits for boys was significantly higher than girls (p0.001). Traumatic Dental Injuries (TDI) and caries were the main reasons for seeking emergency care. Regarding TDI, significantly more boys than girls were affected, and then most often in maxillary front teeth. Eleven percent of the visits did not necessarily need immediate attention. The mean waiting time was approximately two hours. The vast majority of the parents, almost 95% were very satisfied or satisfied with dental emergency care received. **CONCLUSIONS** TDI and especially in the primary dentition, caries, constituted the bulk of the visits. The satisfaction of the care was very good.

**P 74 Prevalence and outcomes of untreated dental fractures in children with intellectual disability living in orphan institution**

Gadzhikulieva KA\*, Korolenkova MV

Central Research Institute of Dentistry and Maxillofacial Surgery, Russian Federation

**AIM** `To assess prevalence and outcomes of untreated dental fractures in children with intellectual disability (ID) living in orphan institution.` **METHODS** `The study comprised 200 adolescent (mean age 15.29±2.46 years) with ID living in Moscow orphan institution. All children underwent oral examination in order to reveal signs of previous dental trauma. Those with confirmed diagnosis of untreated dental fractures were examined radiologically to assess the outcomes of dental trauma.` **RESULTS** `From 200 children with ID 51 (25.5%) had a history of dental fractures with 71 teeth involved. All the teeth at initial examination at the time of injury were diagnosed with crown fracture with no pulp exposure and were left untreated for unknown reasons. In 17 cases multiply fractures were diagnosed. The most prevalent injured teeth were upper incisors (62 from 71). In 6 children the teeth were fractured in the act of autoaggression. In 11 (21.5%) from 51 children injured teeth were extracted because of inflammatory complications, 7 (13.7%) showed signs of pulp necrosis at the time of examination.` **CONCLUSIONS** `The prevalence of dental fractures in orphan children with ID is much higher than in general Russian pediatric population. Specific etiological factors include autoaggression. Pulp necrosis occurs in 35.3% of cases left untreated. Routine annual screening for dental trauma should be recommended for children with ID living in orphan institution.

**P 75 A three-year retrospective study on the pattern and treatment outcome of dental trauma in immature teeth**

Schneider S, Lembacher S\*, Gramstadt A, Bekes K

Department of Paediatric Dentistry, Medical University Vienna, Austria

**AIM** `The aim of this study was to retrospectively analyze dental traumatic injuries in immature permanent anterior teeth in children. Pattern, treatment and outcome factors were examined and decisions made to the advice given in existing clinical guidelines were compared.` **METHODS** `Children who presented at the University Dental Clinic in Vienna (Austria) between 2014 and 2016 with a trauma in their permanent anterior teeth were included. Dental records including age, gender, location of trauma, type of trauma and treatment were obtained. After a follow-up of 12 months, the parameters of sensitivity, mobility, percussion and complications were evaluated.` **RESULTS** `The sample comprised 246 teeth of 142 patients (mean age 8.27 years +/-1.32). Fractures (119 teeth [48.4%]) were the most frequent injuries. In 60.5% cases, enamel and dentin was affected. Dislocations were present in 90 teeth (36.6%). Combined injuries were observed in 15% (37 teeth). After twelve months, 87 teeth in 44 patients were followed-up. 90.8% of these teeth were in situ. Most of them showed no increased mobility and no sensitivity to percussion. A total of 15 teeth (17.2%) got root-canal treatment within the follow-up period. 35.2% of the teeth that showed at least one complication were categorized as combined injury at baseline. All in all, the treatment chosen was in accordance with the current guidelines of the German Society of Dentistry and Oral Medicine in 90.8%.` **CONCLUSIONS** `Teeth which suffered multiple injuries (fracture and dislocation at the same time) showed a higher risk of complications.

**P 76 Development, quality and readability assessment of patient information for dental trauma on a website in Turkish**

Yilmaz E\*, Eden E

Ege University Department of Pediatric Dentistry, Turkey

**AIM** `To develop and assess the quality and readability of patient information on a website about dental trauma in Turkish.` **METHODS** `Patient information on a website about dental trauma was developed by referring to various resources such as text books, International Association of Dental Traumatology guidelines and other medical websites. The content of the developed web page was critically read by the dentists and pediatric dentists. Feedback from the experts was used to design and modify the information. "eEurope 2002: Quality Criteria for Health Related Websites" was used to design the website. Keywords were defined. Readability was checked by using "Çetinkaya-Uzun readability index" and "Ateşman readability index" and "Ensuring Quality Information for Patients" (EQIP) tool was applied to assess layout and design characteristics and information quality in the developed website.` **RESULTS** `Readability scores by using



Çetinkaya-Uzun Readability Index was found 48.05 which shows that the website was found to be 'instructional reading'. This is the level that reader can process and make sense of the text with the help of an educator. "Ateşman readability index" was found 78.3 which points that the website's readability level was 'easy'. The EQIP score of the website was found to be 93.75% which shows the website is qualified to assess the information about dental trauma. **CONCLUSIONS** The website developed in the present study had good quality and standard readability score for trauma patients as basic emergency information.

**P 77 Suboptimal management of an avulsed permanent central incisor – the tooth, the whole tooth and nothing but the tooth!**

Al-Jassim D\*, Barry S

Paediatric Dentistry Department, University of Manchester, United Kingdom

**INTRODUCTION** Avulsion describes complete tooth displacement out of the alveolar socket following a traumatic dental injury. Avulsed permanent teeth need to be managed effectively and within specific time frames to ensure optimal long term outcome. **BACKGROUND** A 9-year-old boy attended Manchester Dental Hospital 10 months following an avulsion injury UL1 that had not been managed effectively prior to referral. Due to the suboptimal previous treatment, the UL1 has developed external root resorption, compromising its prognosis. **CASE REPORT(S)** Following the avulsion, UL1 was placed in milk for an hour prior to replantation. However, the tooth was incompletely positioned in a local AE department for three hours, leading to a total of four hours extra-alveolar time. This tooth was then correctly positioned and splinted using a wire and composite splint by a different clinician. Follow up by the dentist did not include radiographs or extirpation. On examination, the patient presented with a mixed dentition which was clinically caries free. The splint was still in situ. Clinical and radiographic investigations showed a non-vital UL1, with extensive infection related resorption. Immediate treatment included, splint removal with extirpation of the UL1 under LA and placement of non-setting Calcium Hydroxide. **FOLLOW UP** On 2 month follow-up, the infection related resorption had arrested. The patient will be seen on an interdisciplinary clinic for long term treatment planning, to incorporate the loss of UL1. **CONCLUSIONS** This case highlights the importance of early and judicious management of the avulsed permanent central incisor in order to improve long term prognosis.

**P 78 Comparative study of Ca(OH)<sub>2</sub> apexification and REP for dentin growth stimulation in immature teeth with pulp necrosis**

Rakhmanova MS\*, Korolenkova MV

Central Research Institute of Dentistry and Maxillofacial Surgery, Russian Federation

**AIM** The aim of the study was to compare the efficacy of Ca(OH)<sub>2</sub> apexification and regenerative endodontic procedure (REP) in immature teeth with pulp necrosis. **METHODS** The pilot study included 12 children aged 89 to 126 months having pulp necrosis in immature incisors. Dental trauma was the etiology for pulp necrosis in all cases and initial X-rays showed periapical translucency lesions (PTL). The patients were randomly divided in 2 groups with either Ca(OH)<sub>2</sub> apexification (group 1, n=6) or REP (group 2, n=6). The root length and the growth of root wall thickness, as well as root to crown ratio and dentinal wall to root canal space ratio were assessed radiologically in 6, 12 and 24 months. **RESULTS** The root length increase was detected in 83% of all cases, but the pattern of root dentin growth in the groups was different. Dentin thickness in REP group was more prominent in the middle third of the root canal and significant increase of the apical third was seen in 3 cases while in group 1 dentin thickness increased in the coronal third of the root in all cases and middle third in 50% of cases and no growth in the apical part was seen. PTL were successfully eliminated in both groups. **CONCLUSIONS** The study proved Ca(OH)<sub>2</sub> apexification and REP techniques to be equally successful for PTL healing but showed different pattern of dentinal wall growth in the study groups as only REP proved to stimulate dentinal thickness growth in the apical third of the root canal (p=0,02).

**P 79 Laser management of trauma, lacerations, pain and edema in pediatric patients**

Taha MA\*

Misr International University, Egypt

**INTRODUCTION** Laser, as a technology, is booming in the dental practice, yet, its use in pediatric dentistry is quite challenging. By the correct knowledge and proper case selection the best outcome of laser



treatments could be obtained very simply while treating pediatric patients. Where nowadays, laser treatment in the Pediatric field became a daily routine in the dental office. **BACKGROUND** Lasers in dentistry are used in trauma management due to its efficacy in wound healing and biostimulation. Lasers do not only enhance the micro-circulation in the exposed area, they also stimulate healing, enhance the anti-inflammatory response and immunity through several channels, as increasing both the ATP synthesis and anti-inflammatory prostaglandins. **CASE REPORT(S)** Laser: Diode 940 nm in Non-Contact mode, continuous wave, non initiated tips. Power range 1.5 - 2W according to child acceptance, pain control and type of hand piece. Two laser sessions were done with 48 hours gap in between. **FOLLOW UP** Follow up was done after 48, 96 and 144 hours. **CONCLUSIONS** Trauma in children is a very common problem that is daily faced in the dental office, where trauma varies from falling to Lip and Cheek bites following anesthesia. Soft Tissue trauma regarding edema, tissue lacerations and ulcerations and pain can be managed and healing is easily enhanced by using laser. All patients showed remarkable decrease in pain directly after the first laser session in clinic. By the second laser treatment, decreased edema (nearly diminished) and obvious healing took place in all patients.

**P 80 Partial pulpotomy of immature anterior permanent teeth with complicated crown fractures: Two long term cases**

Hacinlioglu Ozpar NM\*  
Private Practice, Turkey

**INTRODUCTION** Partial pulpotomy is a vital pulp therapy choice for traumatized immature teeth with pulp exposure aiming continuation of root development, which leads to apical closure and strengthening of the root structure. **BACKGROUND** Aim of this report is to describe the treatment and long-term follow-up of two complicated crown fracture cases with partial pulpotomy. **CASE REPORT(S)** 7 and 8-year old patients were referred to our dental clinic with chief complaint of trauma causing fracture in #11 and #11, 21 teeth respectively. Clinical examination was performed less than 6 hours in both cases. Intraoral examination revealed horizontal mid-crown fracture of #11 and oblique mid-crown fracture of #11, 21 affecting enamel, dentin and exposing pulp. Radiographic examination showed immature apex without root fracture or periapical radiolucency. Tooth fragments were recovered only in one case. Partial pulpotomy was performed with mineral trioxide aggregate (MTA) and sealed with resin modified glass ionomer restoration. Two days later tooth #11 was restored with tooth fragments while #11, 21 was restored by composite resin restorations. **FOLLOW UP** At 7-year follow-up both cases didn't have any pathological mobility, sensitivity to percussion, abscess or pain and were clinically acceptable. A slight grayish discoloration was observed around the MTA. Teeth responded positive to electrical pulp test. Radiographically root development was completed with no periapical radiolucency. **CONCLUSIONS** Partial pulpotomy procedure in immature permanent incisor teeth with complicated crown fracture is a valid and long-term treatment approach in well-chosen cases.

**P 81 Management of a complicated crown root fracture**

Alobathani F\*, Barry S  
Paediatric Dental Department, University Dental Hospital Manchester, United Kingdom

**INTRODUCTION** A complicated crown-root fracture is defined as a fracture involving enamel, dentin and cementum with pulpal exposure. Affected teeth are symptomatic and tender to percussion with mobility of the coronal fragment. Diagnosis may be challenging for dentists as apical extension of the fracture is not visible radiographically. Symptomatic relief, space preservation and aesthetics are the main concerns of the short-term management plan to facilitate optimal long-term outcomes. **BACKGROUND** A 14 year old female patient presented with trauma to UL1 from a laser quest gun. Initial diagnosis by her general dentist had been a complicated crown fracture and he had attempted a Cvek pulpotomy. Upon tooth preparation, he had noticed a vertical root fracture and temporized with composite resin. Medical history was non-contributory. **CASE REPORT(S)** The patient presented with a permanent dentition which was clinically caries free. Clinical and radiographic examination was consistent with a root fracture extending beyond cemento-enamel junction. This was confirmed clinically after removal of the temporary filling. The root was vertically split and the palatal segment was mobile. Following a discussion with the patient and parent, UL1 was extracted under local analgesia and replaced using an upper removable appliance. The long term plan is

to assess the patient at an inter-disciplinary planning clinic to plan replacement of UL1. **FOLLOW UP** On 3 month review, the extraction socket had healed well and a new, more accurate removable partial denture was fabricated. **CONCLUSIONS** This case highlights the importance of space maintenance and the restoration of aesthetics following traumatic injury to the developing dentition.

**P 82 Factors that affect the rigidity of the tire fixation in dislocation of teeth.**

Kovtun T\*, Iakovenko L

Department of Pediatric Oral and Maxillofacial Surgery Bogomolets National Medical University Kiev, Ukraine

**AIM** To determine the optimal position of the splint construction of the dentition of the upper jaw of the child in alternating occlusion. **METHODS** The stress-strain state of the biomechanical system of the upper jaw with the splint construction of the dentition was performed using CAD / CAE methods. **RESULTS** Based on the obtained data, the qualitative characteristics of the displacement fields and the total distribution fields of the Mises equivalent stresses are determined, according to which the rigidity of the biomechanical "dental row-splint" system is determined. The system is more stable when applying a splint construction in the area of the equator of the crowns of teeth with full root length and in the presence (Pzi -3,17E-05; Pyi- 8,90E-05) or no approximate contacts (Pzi -4,83E-05; Pyi-1,08E-04). With tooth injuries with 70% root length and contact between adjacent teeth, the system is more stable when the bar is locked in the lower third of the crown (Pzi -3,66E-05; Pyi-1,06E-04). Such teeth are less susceptible under the influence of compression load and bending. In the absence of contact of adjacent teeth, the system is more stable when fixing the tire in the middle of the tooth crown (Pzi -5,77E-05; Pyi-1,33E-04). **CONCLUSIONS** The pathogenetic factors that influence the rigidity of the fixation of the tire on the injured teeth were determined: the degree of root formation, the direction of force, the position of the splint on the crown of the tooth, the presence of approximate contact between adjacent teeth.

**P 83 Management of complicated enamel-dentine fracture with Cvek pulpotomy**

Alsolaihim N\*, Barry S, McClean L

University of Manchester, Manchester, United Kingdom

**INTRODUCTION** Cvek Pulpotomy involves the removal of 1 to 3 mm of inflamed pulp, in a traumatically exposed permanent incisor tooth, reaching deeper, healthier tissue. Success rate has been reported to be 96%. Possible medicaments include calcium hydroxide, Biodentine and mineral trioxide aggregate (MTA). Biodentine is composed of calcium-silicate which makes it more biocompatible than MTA. **BACKGROUND** A 9-year-old boy presented with a traumatic dental injury following a fall in the school's Yard. Medical history was notable only for well-controlled asthma. **CASE REPORT(S)** On examination, he presented with a late mixed dentition, which was clinically caries free. UR1 had a complicated enamel-dentine fracture with coronal fragment still attached and mobile. The tooth was reliably positive to sensibility testing with ethyl chloride and (TTP). A periapical and upper occlusal radiograph showed no evidence of root fracture. Treatment: The fractured coronal fragment was removed under local analgesia and rubber dam and 3mm of inflamed coronal pulp was excavated. Haemostasis was achieved with 3 minutes using cotton pellet. Biodentine was applied and, following the 12 minute setting time, the coronal fragment was bonded in place using flowable composite. **FOLLOW UP** At two month follow-up, the patient complained of sensitivity of UR1 to cold and slight TTP. The tooth was reliably positive to sensibility testing using ethyl chloride. Patient and parent were happy with aesthetics. **CONCLUSIONS** Cvek pulpotomy should be considered in cases of traumatic pulp exposure. This procedure is minimally invasive and will maintain the integrity of tooth and the remaining pulp tissue.

**P 84 Repeated permanent tooth replantation: a 7 year follow-up case report.**

Tzika E\*, Economides N, Kotsanos N

Department of Paediatric Dentistry, School of Dentistry, Aristotle University of Thessaloniki, Greece

**INTRODUCTION** Permanent tooth avulsion prognosis is affected by immediate replantation conditions and management of complications. **BACKGROUND** Replantation and splinting should follow strict protocols. Common unfavorable outcomes may be ankylosis and external resorption. **CASE REPORT(S)** A 9 ½ year old boy visited a paediatric dental clinic in January 2013, with an avulsed permanent central incisor (#11). Its

apex was partially open. The tooth had been placed in milk 15-20 min after the avulsion. Replantation was performed 60 min after the accident and a non-rigid splint was applied. **FOLLOW UP** Vitality tests remained negative and, at 8 months an apical radiolucency was evident. Endodontic treatment with MTA apical plug technique was performed. At 2 years, tooth ankylosis was evident. External inflammatory resorption appeared radiographically in the distal aspect in the coronal 3rd of the root at 4-year follow-up. The site was judged as surgically inaccessible. Due to ongoing resorption at follow-up and 2mm infraocclusion at year 5, intentional extraction, debridement of inflammatory tissue and restoration of resorption cavity with BIODENTIN were done, while the tooth was kept in gauze with saline for a total of 7min. The tooth was replanted and splinted non-rigidly with incisal edge at occlusal level. Two years later, the tooth remains asymptomatic and not ankylotic. **CONCLUSIONS** Difficult decisions based on sound planning, may manage unfavorable consequences of avulsion cases (e.g. ankylosis, external resorption) and prolong tooth survival.

**P 85 Guided tissue regeneration during teeth replantation on kids**

Mamedov A, Morozova N, Shishov A, Belyaeva O\*, Kozlitina Y  
I. M. Sechenov Moscow Medical Academy, Russian Federation

**AIM** Traumas of the maxillofacial region are in second place in frequency of occurrence after the inflammatory diseases of the maxillofacial region. Teeth avulsion among children and teenagers occurs regardless of age and cause, mostly as a household injury, during physical activity, because of a car accident or by any other cause. To evaluate the prospective of newly suggested methods of treatment of dental avulsion and decreasing the degree of inflammatory resorption and ankylosis by using stem cells for tooth replantation, we studied the researches of these techniques. **METHODS** To carry out this study, we have analyzed and studied several articles on the use of stem cells in tooth implantation. **RESULTS** Considering that the use of the described stem cells has a positive effect on the condition of periodontal ligament, it is worthwhile to study the possibility of combination of these methods with each other in order to establish their interaction and influence on the recovering of periodontal ligaments and tooth cement. **CONCLUSIONS** Based on the results of the analyzed studies, we concluded that the in vivo and in vitro experiments have great potential for further study in vivo, since the data presented by the authors indicate a significant improvement in the prognosis of replanted teeth after avulsion.

**P 86 Traumatic dental injuries, treatment and complications in children and adolescents in Lithuania.**

Antipoviene A, Narbutaite J\*, Virtanen JI  
Clinic for Preventive and Paediatric Dentistry, Lithuanian University of Health Sciences, Lithuania

**AIM** To investigate traumatic dental injuries (TDI) with respect to causes, time elapsed from injury to first visit to dentist, treatment method and complications in children under 18 years. **METHODS** Patient records of all child patients under 18 years and visiting the Clinic for Preventive and Paediatric Dentistry, Lithuanian University of Health Sciences, Kaunas, Lithuania due to dental trauma in 2010-2016 were analysed. The background of the patients, cause, type of TDI, traumatized teeth, time elapsed from injury to first visit to the dentist were utilized. **RESULTS** Totally, 407 TDI patients records (62% boys) were analysed. Of 579 TDI cases 281 (54.1%) were registered in permanent and 238 (45.9%) in primary teeth. The highest number of TDIs was seen among 0-3-year-olds (n=160; 39.3%); the numbers declined with age (4-8-year-olds, n=134; 32.9% and 9-18-year-olds, n=113; 27.8%). Lateral luxation (19.8%) and intrusion (14.8%) were significantly more common in the primary dentition than in the permanent dentition (12.8% vs. 3.6%, p0.05). More enamel-dentine fractures were seen in permanent teeth (33.5%) compared to primary teeth (19.8%) (p0.05). Avulsion was registered in about 10% of permanent and primary teeth. Less than 1% of the children came to the clinic during the first hour after injury and about half within 1-7 hours after the TDI. **CONCLUSIONS** Boys had more TDIs than girls. Lateral luxation in primary and enamel-dentine fractures in permanent teeth were the most frequent TDIs. A delay in seeking emergency dental care was observed.

**P 87 Multidisciplinary management of a complex injury in the maxillary central incisors of a 9-year-old boy with 9 years follow-up.**

Chatzidimitriou K, Lygidakis NN, Lygidakis NA\*  
Private Practice, Greece

**INTRODUCTION** `Intrusion is a rare and severe luxation injury, while root fractures of the apical third are also uncommon.` **BACKGROUND** `Moderate or severe intrusion requires orthodontic or surgical repositioning and endodontic treatment of the traumatized tooth. Apical third root fractures have favorable prognosis and treatment depends on the fracture location.` **CASE REPORT(S)** `A 9-year-old healthy boy presented 16 hours following trauma in his upper teeth. Clinical examination revealed severely intruded #21 with crown fracture and subluxated #11. Radiographic examination showed additionally apical third root fracture of #11 and complete root formation of both maxillary central incisors. Treatment plan involved monitoring of #11, orthodontic repositioning of #21 with fixed appliances and initiation of endodontic treatment 2 weeks later. Orthodontic set-up also acted as splinting for #11 root fracture. Once the final repositioning of #21 was achieved, fixed appliances were maintained for a further 4 weeks for stabilisation. During that time, root canal treatment was completed, and regular follow-up of the patient was scheduled. One year later, full orthodontic treatment was initiated. Clinically, discoloration of #21 and radiographically, root canal obliteration and resorption of the root fragment of #11 were seen. Four years after the trauma, orthodontic treatment was completed, and internal bleaching followed by composite resin build-up of #11 was performed.` **FOLLOW UP** `Nine years following the initial trauma, no further pathological signs or symptoms were recorded.` **CONCLUSIONS** `Successful treatment of complex traumatic injuries requires multidisciplinary approach and precise treatment plan. Regular follow-up is essential, in order to minimise future complications.

**P 88 Iatrogenic perforation treated with NeoMTA Plus**

Mutlu E, Simsek C\*, Kasimoglu Y, Gencay K  
Department of Pediatric Dentistry, Faculty of Dentistry, University of Istanbul, Turkey

**INTRODUCTION** `Iatrogenic perforations are undesired complications of endodontic treatment. A new type of mineral trioxide aggregate (MTA; NeoMTA Plus) became popular to use in anterior region because its formulation does not contain bismuth oxide.` **BACKGROUND** `In this report, we presented a complicated crown fracture case in which the treatment of perforation was accomplished by NeoMTA Plus. Perforation repair was performed prior to resin restoration.` **CASE REPORT(S)** `A 14-year-old boy was referred to the clinic with dental trauma in the anterior region, which showed a deep crown fracture of the upper left central and lateral incisors. The medical history of the patient indicated that he was in good health and no systemic diseases. Clinical examination revealed that the fractured fragments were loosely attached to the teeth. Periapical radiograph revealed fully-formed apexes and complicated crown fractures of both teeth. After removing the crowns, root canal therapy was carried out immediately on the same appointment. After the tooth was asymptomatic for a week, the root canal was prepared for the post placement by removing gutta-percha. However, during the fiber post preparation, an iatrogenic perforation was occurred in the central incisor. The perforation site was sealed with NeoMTA Plus with nonsurgical intervention. The day after MTA placement, the posts were luted in the canals. The crowns were rehabilitated with strip crowns and composite resin restorations.` **FOLLOW UP** `Clinical and radiographical examinations were carried out after 1 month, 1 year and 2 years, and the tooth responded favorably.` **CONCLUSIONS** `The NeoMTA Plus showed successful result in the treatment of root perforation.

**P 89 Dental trauma management at the Department of Paediatric Dentistry, University of Athens, based on the data archives of five years.**

Gkourtsogianni S\*, Agouropoulos A, Kotsanti M, Gizani S  
Paediatric Dentistry Department, National and Kapodistrian University of Athens, Dental School, Greece

**AIM** `The aim of this retrospective study was to assess traumatic dental injuries (TDI) in primary and permanent teeth among children and adolescents presented at the Department of Paediatric Dentistry, National and Kapodistrian University of Athens (NKUA) during the last five years` **METHODS** `The study population consisted of patients aged between 1 and 18 years old, who presented with dento-alveolar



trauma, at the Postgraduate Dental Clinic at the Department of Paediatric Dentistry NKUA, from 1/1/2014 to 31/12/2019. Data recorded were: gender, age, month of the year of the injury, type of trauma, type of dentition and number of traumatized teeth. **RESULTS** The total number of TDI was 390 (78% permanent and 22% primary teeth) and 22 different types of trauma, with and without periodontal involvement, were recorded. Mean age of children was 8 years old (range 1-18 yrs) and boys had more often dental injuries than girls (65%: permanent and 59%: primary teeth). Single tooth trauma was the most prevalent TDI, while 12 cases involved 4 – 9 teeth in the same patient. The most common type of injury was enamel-dentin fractures in permanent teeth (43%), avulsion (17%) and concussion(14%) in primary teeth. Most TDI occurred during spring time (34%) while the majority involved anterior central incisors. **CONCLUSIONS** Traumatic dental injury management is an important part of the services provided at the Department of Paediatric Dentistry NKUA. The prevalence and variety of dental trauma highlights the importance of proper education for the Paediatric Dentists.

**P 90 Maintaining space with optimum aesthetics as outcome measures in the management of a nonvital permanent incisor.**

Nazar SN\*, Barry S, Srinivasan V

Paediatric Dentistry Department, University of Manchester, United Kingdom

**INTRODUCTION** Complicated crown fractures of the tooth with pulp exposure can potentiate the loss of pulp vitality and impact on the root development of teeth with immature apices. Non-vital teeth with open apices require extirpation of the infected pulp, followed by apexification using a biocompatible material and warm vertical obturation in the long term. Judicious short and long-term treatment planning is essential to maintain space, bone and aesthetics and ensure optimal patient outcome. **BACKGROUND** A 9 years old female sustained a traumatic dental injury resulting in a complicated crown fracture following a syncopal attack while watching television. **CASE REPORT(S)** On intraoral examination, the patient presented with a caries free late mixed dentition and a class II Division 1 malocclusion with an overjet of 6 mm. The proclined UL1 presented with a complicated enamel-dentine fracture and was tender to percussion with a delayed response to sensibility testing with ethyl chloride. The pulp of UL1 was extirpated with local analgesia under rubber dam and restored using composite resin. MTA apexification was completed and the tooth obturated using a warm vertical technique. An orthodontic referral was completed. **FOLLOW UP** On 12 week review, UL1 was asymptomatic with no clinical or radiographic evidence of periapical pathology. Patient was happy with the aesthetic outcome. The orthodontic plan is to correct the malocclusion using twin block functional appliance. UL1 will be kept under regular clinical and radiographic review. **CONCLUSIONS** This case highlights the importance of maintaining space and aesthetic following traumatic injuries to the developing dentition.

**P 91 Treatment of the extrusive luxation of the maxillary central incisor**

Chehertma E\*

Bogomolets National Medical University, Ukraine

**INTRODUCTION** Extrusive luxation of the tooth often causes loss of pulp vitality. In order to prevent this, the protocol of treatment of this type of trauma must be strictly followed. **BACKGROUND** The clinical case describes the pulp-saving treatment of extrusive luxation of the child's permanent tooth with significant displacement. **CASE REPORT(S)** A 7-years-old girl visited the university clinic 4 hours after trauma accident. Initial examination revealed the vertical displacement of tooth 21 by approximately 3 mm, the II-nd degree of tooth mobility and bleeding from the gums, painfull vertical percussion. Radiographic: an expanded periodontal space was revealed especially apically. **FOLLOW UP** On the day of the trauma, tooth 21 was reposed, immobilized, and X-ray were performed. After 14 days, the vitality of the tooth was maintained, with no changes on the X-ray and no gums inflammation. On the 21st day, the immobilization was removed, and professional oral hygiene was performed. Tooth vitality was preserved. Recommendations regarding individual oral hygiene were provided. One month after trauma, the vitality of the tooth was saved and the X-ray picture was normal. After 6 months, the vitality test was positive. One year after trauma, the tooth 21 remained vital, periodontal pockets were not found, the radiographic picture was stable. The professional oral hygiene was performed. Recommendations regarding individual oral hygiene were made. It is recommended to visit for examination in 1 year. **CONCLUSIONS** This clinical case demonstrates that



early diagnostic and accurate following to treatment guideline can ensure the vitality of the pulp even with significant tooth displacement.

**P 92 Traumatic injuries of permanent teeth in a Pediatric Dentistry office in Bucharest, Romania**

Sava V\*, Luca R  
"Carol Davila" University Bucharest, Romania

**AIM** `To analyse the prevalence and characteristics of traumatic injuries of permanent teeth (TIPT) in patients who attended a pediatric dentistry office.` **METHODS** `A retrospective study was performed in patients aged 7-16 years consulted and treated between January 2018 and December 2019 in Dent Estet 4 Kids clinic from Bucharest. The data from the registry books were analysed and all TIPT cases were selected. Age, gender, affected teeth, tip of injury and etimologic factors were registered for each patient with TIPT. The prevalence of TIPT was calculated. The distribution of TIPT was analysed for the entire group of patients and separately for 7-10 years aged group (Sample A), respectively 11-16 years group (Sample B). Data was statistically analysed.` **RESULTS** `Of the total of 2505 patients who attended the dental office, 95(3.79%) had TIPT. Male/female ratio was 1.5/1. Tip of injury - entire group: 90(94.73%) crown fractures, 58(64,4%) uncomplicated, 32(35,5%) complicated, 4(4.21%) avulsions, 1(1.05%) intrusion; Sample A: 70(100%) crown fractures 45(64,2%) uncomplicated, 25(35,7%) complicated, 4(0,057%) avulsions, 1(0.014%) intrusion; Sample B: 20(100%) crown fractures 13(65%) uncomplicated, 7(35%) complicated. The main cause for trauma was playing sports in their spare time and only 1 was from aggression.` **CONCLUSIONS** `In our paediatric dentistry office prevalence of traumatic injuries of permanent teeth was below 5%. Uncomplicated crown fractures was the most common type of traumatic injuries in both age groups. Injuries to the periodontal tissues were only found in the 7-10 years age group.

**P 93 Root extrusion - A practical approach in permanent incisor's crown-root fracture in children**

Marciuc D\*, Savin C, Gavrila L, Marciuc EA, Toma V  
Univesity of Medicine and Pharmacy Grigore T. Popa,Iasi, Paediatric Dentistry Department, Romania

**INTRODUCTION** `Oblique crown-root fractures involving enamel, dentine and pulp tissue are challenging and difficult to treat. The root extrusion may represent a treatment method that has multiple advantages in children in this kind of traumatic dental injuries, even if it is more difficult to achieve.` **BACKGROUND** `This report describes the restoration of an upper central incisor with a complicated crown-root fracture in a young boy aged 12 years old.` **CASE REPORT(S)** `A 12 years old patient suffered a traumatic dental injury which resulted in a complicated crown-root fracture at the level of 2.1. The line of fracture was extended below the gingival margin. As therapeutic approach we used a step by step multidisciplinary approach that included: extraction of the coronary fractured fragment, gingival plasty, root canal obturation, root extrusion and prosthetic treatment.` **FOLLOW UP** `The clinical and radiographic follow-up was done at 3 months, 6 months, 1 year and 2 years and revealed no pathological modifications.` **CONCLUSIONS** `Rapid orthodontic extrusion - as a treatment method in cases of complicated crown-root fractures involving upper permanent incisors, represents a practical approach with clinical, financial and psychological advantages.

**P 94 Six years treatment follow-up of a case with multiple traumatic crown-root fractures in posterior primary teeth.**

Giannoukou E\*, Liatsi A, Gyftodimou A, Syrrakou EP, Vadiakas G  
Community and Preventive Dentistry Department, National and Kapodistrian Univeristy of Athens, Dental School, Greece

**INTRODUCTION** `Dental trauma suffered by preschool children usually affects primary maxillary incisors (86,5% of all traumatized primary teeth). Traumatic crown-root fractures in primary molars constitute an infrequent type of injury (0.8%). The complexity of the injury, the demanding treatment and the potential complications are challenging for the clinician.` **BACKGROUND** `The aim of this presentation is to address the management and six years follow up of a case with injured primary molars with multiple crown-root fractures in a preschool child.` **CASE REPORT(S)** `A 4-year old white male child was referred to the Postgraduate Clinic of Pediatric Dentistry by a general practitioner complaining about pain upon mastication.

Based on history, he fell off the bunkbed, two months before his visit. Clinical and radiographic examination indicated crown-root fractures in teeth #64, #65, #74, #85 and a crown fracture in #75, with no periapical lesions present. The treatment plan consisted of behavioral guidance, restorative treatment (three pulpotomies, placement of four stainless steel crowns, and a composite resin restoration), an extraction (#74 - non-restorable) and a band and loop appliance. After 2,5 years, #85 was extracted due to pulp infection and a lower lingual holding arch was placed. **FOLLOW UP** `At present, six years after the injury, the patient is free of symptoms and is functioning well.` **CONCLUSIONS** `Traumatic crown-root fractures in primary molars, although difficult to manage, can be treated conservatively, provided that the pulp is vital and the teeth restorable. Early diagnosis and treatment as well as regular monitoring of the treatment outcome, are critical factors to manage potential complications.

**P 95 The interdisciplinary management of a complicated crown-root fracture: A case report**

Keaney M\*, Leith R

Dublin Dental University Hospital, Ireland

**INTRODUCTION** `Crown root fractures are complicated injuries which often require multidisciplinary management. The extent of the fracture line and amount of remaining tooth structure dictate the management options. There is little information with regard to the prognosis of such injuries (Gungor 2014).`

**BACKGROUND** `Successful interdisciplinary management of a permanent complicated crown-root fracture in a 7-year-old is described, with follow-up of over two years.`

**CASE REPORT(S)** `The patient was referred for management of a complicated crown root fracture of tooth 11 which occurred nine months previously. Emergency treatment had involved extraction of the fragment and placement of a temporary dressing. Examination revealed an extensive fracture extending subgingivally on the distal surface with soft tissue overgrowth. The child was initially treated under general anaesthesia for elective first stage endodontic treatment of 11, surgical exposure of the fracture line and composite build-up. The tooth was then orthodontically extruded using a fixed appliance and a button bonded to 11 to expose the fracture line. The endodontic treatment was completed and a composite crown placed.` **FOLLOW UP** `Five months later the composite restoration fractured during function. The tooth was subsequently successfully restored with a glass fibre/resin post with composite core and crown build-up.` **CONCLUSIONS** `Every effort was made to preserve the tooth in this case as extraction would have compromised the volume of the alveolar process in this growing child. A successful outcome was achieved, however, it is important to ensure the patient and parents are aware of the treatment burden involved in stabilising such an injury.

**P 96 Physical aggression as a risk factor for repetition of dental injuries in children**

Skrinjaric T\*, Verzak Z, Gorseta K

School of Dental Medicine University of Zagreb, Croatia

**AIM** `The causes of traumatic dental injuries (TDI) are complex and a range of psychosocial factors could be associated with increased risk for injury. The aim of this study was to examine the association between physical aggression and repeating of injuries among a cohort of children aged 9 – 17 years.` **METHODS** `The aggressive behaviour was analysed in the sample of 157 patients (103 males and 54 females) with TDI. The sample comprised children with single injury (SI) or one trauma episode and with repeated injuries (RI). The Overt Aggression Scale (OAS) was used to assess aggression in children. This scale includes verbal and physical aggression.` **RESULTS** `Males in all age groups displayed higher level of physical aggression than females. Males with RI displayed significantly higher aggressive behaviour than males with SI ( $x_2 = 6.36$ ;  $P = 0.012$ ). Males aged 12-17 years with high level of physical aggression have 7 times higher risk for injury repetition than males with lower AS ( $OR = 7.00$ ;  $95\% CI = 1.185 - 41.360$ ). Females with RI in all age groups showed similar level of physical aggression.` **CONCLUSIONS** `High level of physical aggression in boys increases risk for injury repetition. The use of OAS in children with TDI could be of help to identify individuals at risk for injury repetition. Using treatments to reduce aggression among boys during childhood could potentially help to decrease the risk for injury repeating in adolescence.

**P 97 The conservative management of a severely intruded primary incisor: a case report.**

Hughes AM\*, Leith R  
Dublin Dental University Hospital, Ireland

**INTRODUCTION** `Intrusive luxation injury in the primary dentition generally results from an axial impact dislocating the tooth apically causing damage to the periodontal ligament, the pulp and the alveolar bone. Up to 1/3 of these injuries will develop endodontic complications, ankylosis, or damage to permanent successors (Lauridsen et al. 2017)` **BACKGROUND** `We report the successful conservative management of a severely intruded primary maxillary incisor with over 2 years follow-up.` **CASE REPORT(S)** `A 3-year-old presented following trauma to the upper anterior teeth. Clinical and radiographic examination determined a diagnosis of intrusive luxation of 61 and palatal luxation of 62. The root of 61 was palpable buccally and the crown was intruded to the level of the adjacent gingival margin. No active treatment was carried out, and the patient was closely monitored with a view to extraction in the future if required.` **FOLLOW UP** `At early review appointments spontaneous progressive re-eruption occurred but a significant defect in the alveolar bone height persisted. After 2 years, the gingival margins of 51 and 61 were almost equivalent with complete re-eruption of 61. Radiographic follow-up revealed symmetrical physiological resorption of the primary incisor roots and normal development of the permanent successors.` **CONCLUSIONS** `Extraction is often recommended following a severe intrusion injury. This case describes the delayed spontaneous re-eruption of a severe intrusion injury whereby development of the alveolus took much longer to re-establish than the spontaneous re-eruption of the crown. This case highlights the need for long-term follow-up of intrusive injuries to the primary dentition.

**P 98 Autotransplantation after traumatic tooth loss: A case report**

Billen R\*, Van Gorp G, Wyatt J  
KU Leuven, Department of Oral Health Sciences and Department of Dentistry, Unit of Pediatric Dentistry and Special Dental care, University Hospitals Leuven, Leuven, Belgium

**INTRODUCTION** `Loss of a permanent upper incisor after a traumatic insult is a challenging situation, especially in a young patient. Autotransplantation is a possible treatment option offering many advantages.` **BACKGROUND** `This report presents a case of autotransplantation and esthetic rehabilitation in a young child.` **CASE REPORT(S)** `A healthy 8-year-old boy presented in August 2009 at the paediatric dentistry unit of the University Hospitals of Leuven (Belgium) after avulsion of teeth 11, 21, 52, and 62, treated with repositioning and two-month splinting of the upper central incisors by the referring dentist in May 2009. External inflammatory resorption and apical infection had developed on both upper central incisors necessitating their removal. Tooth 22, showing arrest in root development, failed to emerge and was surgically exposed in November 2011. The tooth eventually emerged but needed to be removed because of extreme mobility. In August 2012, tooth 45 was autotransplanted to position 21. Four months later, teeth 12 and 45 were reshaped into central incisors and orthodontic regulation was undertaken between 2014 and 2017. At the end of this treatment, final esthetic build-up was carried out.` **FOLLOW UP** `After more than seven years the transplanted tooth is still functioning well with good esthetic outcome.` **CONCLUSIONS** `Autotransplantation is a valid alternative for dental implant therapy in cases of traumatic tooth loss. In young patients the benefits are particularly clear: bone preservation, maintenance of proprioceptive function, possibility of orthodontic movement and no impact on facial growth. Collaboration between the pediatric dentist, orthodontist and restorative dentist guarantees optimal results.

**P 99 Endodontic treatment of maxillary incisor after avulsion: a case report**

Basic R\*, Negovetic Vranic D, Jelcic J, Cukovic Bagic I  
School of Dental Medicine University of Zagreb, Croatia

**INTRODUCTION** `Aim of this study was to report the management of root resorption after traumatic dental injury in an 12- year-old female patient by changing endodontic treatment.` **BACKGROUND** `A 12 -year-old healthy female patient was referred to Paediatric dentistry clinic with a history of avulsion to the maxillary right central incisors due to an accidental fall, that occurred 12 months before her referral. Radiographic examination showed external and internal root resorption of the root of the maxillary right central incisor. Tooth was slightly movable and patient had pain while in function. Previous endodontic therapy during last year was performed with Calasept Calcium Hydroxide. In the clinic Biodentin (Septodont) endodontic

placement in the affected root was performed to try to stop the resorption. **CASE REPORT(S)** `Over a period of 12 months treated tooth was followed clinically and radiographically every 2 months to supervise state of the root. **FOLLOW UP** `There were no complications and resorption was stopped. Tissue healing was started due to the osteogenic properties of the material and root resorption in this case was reversed. **CONCLUSIONS** `The method used in this clinical case was use of Biodentin and it has proven successful, it increased osteogenic potential of the root and promoted formation of dentin bridges. There were no complications following the treatment during the 12 month follow-up.

**P 100 Management of traumatized anterior tooth using nitrous oxide sedation, a child with negative dental experience**

Kalitina M\*

Private practice, Kharkov, Ukraine

**INTRODUCTION** `Rehabilitation of the tooth 11 with its fragment, with 2.5 years follow up. **BACKGROUND** `The tooth was destroyed as a result of injury by falling from stairs. Incorrect treatment was initiated with child retention, which could lead to stunted incisor root growth. **CASE REPORT(S)** `The timely parents addressing to European Centrum of Pediatric Dentistry (ECPD) helped the child save the anterior tooth and get in contact with the dentist using Nitrous Oxide. **FOLLOW UP** `Patient is followed up for 2.5 years with very good results. **CONCLUSIONS** `Immediate and correct treatment is necessary for traumatised permanent teeth.

**P 101 Endodontic treatment of the permanent central incisor with dilaceration: a case report**

Hocevar L\*, Hitij T, Pavlic A

Department of Paediatric and Preventive Dentistry, Faculty of Medicine, University of Ljubljana, Slovenia

**INTRODUCTION** `Dilaceration refers to an angulation or a sharp bend in the root or crown of a formed tooth. It is usually caused by trauma to the primary tooth, which occurs during the permanent tooth development. The most common trauma that can lead to dilaceration is avulsion and intrusion. **BACKGROUND** `Necrosis of dental pulp of teeth with dilaceration is common. Endodontic treatment of such teeth can be challenging. **CASE REPORT(S)** `A 5-year-old girl came to the department because of hypersensitivity of her erupting upper right incisors. In her medical history the avulsion of tooth 51 was reported as she was one year old. At that visit, we covered hypoplastic enamel defects on teeth 11 and 12 with glass-ionomer cement. The x-ray showed abnormal morphology of both crowns and of the developing tooth root 11. The girl returned only 5 years later due to the disturbing appearance of the tooth 11. Clinical examination revealed a palatal angulated dental crown and a fistula buccally. Pulp vitality tests were negative. The x-ray of tooth 11 confirmed a periapical radiolucency. For endodontic treatment labial access was performed. After several appointments, the final treatment included apical sealing with MTA, root canal filling with gutta-percha and tooth crown restoration with a composite. **FOLLOW UP** `Control radiographic image after 12 and 36 months showed no pathological signs. **CONCLUSIONS** `Palatal angulation of the crown in dilacerated upper incisors usually complicates endodontic treatment. In the case described, adjusting the accessible cavity enables proper endodontic treatment of the tooth.

**P 102 Comparison of Pulpotec, MTA and formocresol efficiency for pulpotomy in primary molars. 18-month randomized controlled trial**

Maslak EE\*, Osokina AS, Matvienko NV, Khmizova TG, Arjenovskaya EN

Volgograd State Medical University, Russian Federation

**AIM** `To compare the efficiency of Pulpotec, MTA and Formocresol use as pulpotomy agents in primary molars. **METHODS** `A randomized controlled prospective clinical trial was organized with the Regional Ethic Committee permission. Informed consents were obtained from the parents of 58 children aged 3-9 years; 105 primary molars with reversible pulpitis were randomized into 3 groups for pulpotomy with Pulpotec (Produits Dentaires SA, Switzerland) (P), PD MTA White (Produits Dentaires SA, Switzerland) (M) or Pulpevit Formocresol (VladMiVa, Russia) (F). Follow-ups were performed after 6, 12 and 18 months. Clinical and radiographical success rates (%) and survival rates (%) of treated molars were calculated; the differences were assessed by Chi-square test. **RESULTS** `Natural exfoliation of treated teeth was observed in 5.7%, 2.9% and 2.8% in P, M and F groups. Clinical success rates were 100% in all groups at 6- and 12-month follow-ups; 100%, 97.0% and 100% in P, M and F groups at 18-month follow-up. Radiographical success rates were



100% after 6 months; 97.2%, 93.8% and 94.2% in P, M and F groups after 12 months; 93.6%, 96.9% and 85.3% after 18 months. According to radiographical assessment, 1 (2.8%) tooth from F group was referred to extraction. Molars survival rates were 94.3%, 94.1% and 94.4% in P, M and F groups. The differences between the groups were not significant statistically ( $p=0.2105$ ).` **CONCLUSIONS`** `The efficiency of Pulpotec, PD MTA White and Pulpevit Formocresol for pulpotomy in primary molars was high without statistically significant differences in clinical and radiographical success rates.

**P 103 Orthodontic therapy to make Regenerative Endodontic Therapy possible.**

Heijdra JS\*, Krikken JB, Elfrink ME, Kouwenberg H, Weerheijm KL  
Paediatric Research Project (PREP), The Netherlands

**INTRODUCTION`** `Description of two case reports in which RET was needed but not possible because of insufficient eruption of the affected teeth.` **BACKGROUND`** `Treatment of teeth with wide open apex is challenging. Since 2004 the Regenerative Endodontic Therapy (RET) ( Leeds University), is a promising treatment-method. It focuses on continuation of the root growth by revitalization of the pulp tissue. Orthodontic therapy is sometimes necessary to make RET possible.` **CASE REPORT(S)`** `Because of the favourable outcomes, non-vital teeth with wide open apices are treated by the RET method. In the first case, orthodontic treatment was necessary to extrude the tooth after intrusion luxation in order to perform the RET procedure. In the other case orthodontic treatment prior to RET was needed because of trauma in an early eruption stage. In both cases, endodontic opening and irrigation was performed to treat the clinical inflammation signs. Three months later, after orthodontic extrusion, RET was performed in more ideal circumstances.` **FOLLOW UP`** `Two years after RET treatment the signs of reinforcement of the root and continuation of apical formation was visible. No signs of ankylose were seen clinically and radiographically.` **CONCLUSIONS`** `Orthodontic treatment can be supportive to make RET possible.

**P 104 Intracanal medication in permanent immature teeth revascularization : A systematic review.**

Chouchene F\*, Masmoudi F, Baaziz A, Maatouk F, Ghedira H  
Faculty of Dental Medecine of Monastir, Tunisia

**AIM`** `The aim of the present systematic review was to evaluate antibiotics efficacy in permanent immature teeth revascularization.` **METHODS`** `The search was conducted in five databases (MEDLINE via PubMed, ScienceDirect, Cochrane Central Register of controlled trials, Scopus and EBSCO). A pilot tested spreadsheet to extract data from articles in a standardized way were used. Data extraction was performed by the three reviewers.` **RESULTS`** `A total of 1080 papers were identified from the electronic search. After exclusion of irrelevant articles only 33 were retained. Of the 33 studies included, 14 were cross sectional: eight clinical trials, three prospective clinical studies, two retrospective studies and one cohort study. The quality assessment of the included study was done with different quality assessment scales. The three main inter-appointment medications studied in this systematic review are Triple Antibiotic Paste (2 times), Calcium Hydroxide Paste (3 times) and Double Antibiotic Paste (2 times). Out of 14 articles, three did use more than one medication.` **CONCLUSIONS`** `Adequately disinfecting root canals prior to attempting regenerative procedures is a challenge facing clinicians. A paradigm shift in thinking is required for these procedures. Irrigants and medicaments must be chosen based on their antimicrobial efficacy and with the slightest damage inflicted to apical papilla cells and growth factors present in the microenvironment. In this systematic review, the first spot for intracanal medications can be assigned to low concentrations of Triple Antibiotic Paste, followed by Calcium Hydroxide.

**P 105 Manual and rotary systems of unique lima for pulpectomies in primary molars: Clinical case**

Burbano Castano D\*  
UIC University International of Catalunya, Spain

**INTRODUCTION`** `Rotary instrumentation in paediatric dentistry was introduced by Barr et al. in 2000. Recently, single file reciprocating systems have emerged that are widely used in the permanent dentition and in vitro studies appear to show their applicability in preparing temporary molars. The main advantages of the single file systems used in permanent teeth are less preparation time, a simplified procedure and greater patient cooperation.` **BACKGROUND`** `Two cases of pulpectomies are presented, comparing two



systems of files. The selected patients required a pulpectomy on a second lower molar with sufficient remaining structure for subsequent restoration, and absence of internal or external pathological resorptions, interradicular radiolucency and/or periapical lesions. **CASE REPORT(S)** Pulpectomies were performed with the 2 systems: one using a manual K-file system; the second, with a Reciproc Blue® single-file rotary system. In both cases we compared: working time, quality of canal obturation, ease of application of the obturation material, ease of operator handling during instrumentation, and patient cooperation. **FOLLOW UP** Patient follow-up consisted of continued clinical and radiographic controls of individual caries risk. **CONCLUSIONS** No differences in patient behaviour were observed regarding the technique used. Greater operator ease with the rotary system was found, as well as a decrease in instrumentation time. No differences were found between the two systems regarding quality of canal obturation.

**P 106 MTA pulpotomy in an immature permanent molar with extensive carious exposure: A case report**

Thomadaki A\*, Karamplia M, Salamara O, Agouropoulos A, Gizani S  
Department of Paediatric Dentistry, School of Dentistry, NKUA, Greece

**INTRODUCTION** Deep caries may lead to extensive pulp exposure. Optimal treatment in immature permanent teeth is important for their long-term retention. **BACKGROUND** It is common practice to treat extensive pulp exposure, due to caries, in permanent teeth with endodontic treatment. However, in young permanent teeth loss of pulp vitality results in termination of root formation. Recently, pulpotomy with bioactive cements can be used as an alternative option. **CASE REPORT(S)** An 8-year-old boy, with non-contributory medical history, presented to the postgraduate Paediatric Dentistry Clinic of the School of Dentistry (NKUA), Greece with pain in the posterior area. Clinical examination showed hypomineralized first permanent molars and caries lesions in primary and permanent teeth. Radiographic examination revealed immature roots in permanent teeth with no periapical lesions. Lower right first permanent molar (#46) had a deep caries lesion and caries excavation led to extensive pulp exposure. Due to its immature roots, MTA cervical pulpotomy was chosen to treat the tooth. After obtaining hemostasis with NaOCl, MTA with a wet cotton pellet and temporary restoration were placed. After 2 days the tooth was restored with a stainless-steel crown. **FOLLOW UP** Clinical and radiographic re-evaluation at 6, 24 and 36 months showed absence of signs and symptoms. Root formation continued normally resulting to improvement in roots' length and walls' thickness and apexogenesis. **CONCLUSIONS** Pulpotomy in young permanent teeth with extensive carious exposure is deemed as a preferable alternative to root canal treatment because it maintains the vitality of pulp-dentin complex and permits apexogenesis. In this way, optimum root anatomy and strength can be achieved.

**P 107 Regenerative treatment of an immature, two times traumatized tooth with platelet rich fibrin: A case report**

Sarac O\*, Demir P  
Inonu University, Turkey

**INTRODUCTION** Revascularization procedures are a successful method with the potential to heal necrotic pulp that may be beneficial for the root development of immature permanent teeth. **BACKGROUND** A seven-year-old male patient was referred to our clinic with necrosis due to trauma in the right upper central tooth. **CASE REPORT(S)** After the access cavity preparation, the canal was effectively irrigated with 20ml of 2.5% sodium hypochlorite solution and 10ml of 0.9% NaCl solution and dried with paper points. Ca(OH)<sub>2</sub> paste was placed inside the root canal. On the same day, the patient referred to our clinic with a root crack in the coronal region caused by second trauma. Ca(OH)<sub>2</sub> paste was renewed but was not required to splint due to absence of mobility. After 21 days, Ca(OH)<sub>2</sub> paste was removed, the PRF was placed into the canal till the level of cemento-enamel junction and 3mm of white MTA was placed directly over the PRF clot. To avoid leakage from the cracked area, that area was also closed with MTA. A week later, for the setting of MTA, the patient was called and the tooth was sealed with zinc phosphate cement and composite restoration. **FOLLOW UP** The patient was reviewed at 3, 6, 9, 12 months. It was observed that the tooth was asymptomatic, the canal walls thickened and the root elongated. **CONCLUSIONS** On the basis of one-year results of the present case, it seems that regeneration of vital tissues in a tooth with necrotic pulp by using revascularization procedure is a promising and successful method.

**P 108 The biological effect of low-level laser therapy on primary dental pulp cells**

Cetiner S\*, Kucuk F

Department of Pediatric Dentistry, Faculty of Dentistry, University of Kyrenia, Cyprus

**AIM** `This is to evaluate the cytotoxic or proliferative effects of low-level laser therapy (LLLT) on dental pulp cells harvested from primary teeth.` **METHODS** `Dental pulp cells isolated from a 11-year old patient's exfoliated primary canines with good systemic and oral health and were seeded in 6-well plates with culture medium. The cells were passed through 3 passages and used for the experiment. Cells were randomly divided into experimental groups as, Group 1: 0.1 j/cm<sup>2</sup>; Group 2: 0.2 j/cm<sup>2</sup>; Group 3: 0.3 j/cm<sup>2</sup>; Group 4: 0.4 j/cm<sup>2</sup> diode laser Irradiation (Gallium-Aluminum-Arsenide (GaAlAs)) and Group 5: positive control (cells with culture medium); Group 6: negative control (culture medium with no cells). Cytotoxicity was tested at 0 and 48-hour time points. The cells were seeded on 96-well plates (5x10<sup>3</sup> cells/well) for MTT assay. One well used for each time interval, with 6 wells per group. Data were statistically analyzed using repeated measures ANOVA followed by Bonferroni test.` **RESULTS** `In both time points low level laser therapy showed a proliferation rate on dental pulp cells in comparison with positive control. Group 1 and Group 3 showed a significant difference with positive control group at 0 h time point (p<0.05).` **CONCLUSIONS** `LLLT promoted cell proliferation and could be an alternative irrigating agent for regenerative endodontic procedures where cell viability is crucial.

**P 109 Pulp revascularization in immature and traumatized teeth: two case reports**

Sifil NE\*, Kinay Taran P

Bezmialem Vakif University, Faculty of Dentistry, Department of Pediatric Dentistry, Turkey

**INTRODUCTION** `Revascularization is a relatively new technique aiming to complete immature necrotic tooth development based on the ability of stem cells to differentiate` **BACKGROUND** `Three immature and traumatized teeth (in two patients) were treated via the revascularization protocol using irrigants, a double antibiotic paste, and a coronal seal of MTA and composite resin filling.` **CASE REPORT(S)** `First patient was referred for evaluation and management of her upper anterior teeth with complicated coronal fracture containing exposed pulpal tissue. Radiographic examination showed immature open apices with thin dentinal walls. After pulp necrosis was diagnosed, revascularization procedure was planned. Second patient had two traumatized central incisors; one with enamel-dentinal fracture and the other with concussion with no coronal fracture. The presence of fistulas in apical region for both affected teeth was observed. Radiographic examination revealed that the teeth had incomplete root formation and periapical lesion. The diagnosis of pulp necrosis was confirmed and revascularization procedure was planned. Revascularization procedure was applied with using 2.5% NaOCl irrigation, medication with double antibiotic paste placed in the coronal third of the root canals, induction of apical bleeding, and coronal sealing with mineral trioxide aggregate. Coronal restorations was performed with composite resin.` **FOLLOW UP** `The teeth were asymptomatic and functional clinically and radiographically during the follow-up period. The follow-up showed evidence of progressive thickening of the dentinal walls and development of root length and apical closure.` **CONCLUSIONS** `On the basis of a follow-up period of 1 year, the present cases demonstrate a favorable outcome of the revascularization procedure in immature and traumatized anterior teeth.

**P 110 Early childhood caries: epidemiological survey among preschool children in the region of Monastir, Tunisia**

Mabrouk R\*, Elelmi Y, Masmoudi F, Ben Salem K, Ghedira H

Pediatric Dentistry Department, Dental Faculty of Monastir, Tunisia

**AIM** `To estimate the prevalence of ECC among preschool children in the region of Monastir and to identify risk factors associated with ECC.` **METHODS** `It was a community-based descriptive cross-sectional study which focused on children in preschool establishments. It consisted on an oral examination of 393 children and a data collection through a questionnaire completed by the parents. The ANOVA test and the Pearson chi-square test were used to assess the relationship between the prevalence of ECC and the different characteristics of the sample.` **RESULTS** `The prevalence of ECC in this sample was 49.9% and the mean dmf score was 1.42. This survey showed a statistically significant relationship between the prevalence of ECC and the sweet consumption frequency (p=0.025), tooth brushing frequency (p=0.05) and mother's education

level ( $p=0.039$ ).` **CONCLUSIONS`** `The best way to reduce the prevalence of ECC seems to be the prevention by educating parents about the importance of primary dentition for an optimal child development.

**P 111 Full-mouth rehabilitation of generalised hypoplastic type of Amelogenesis Imperfecta (AI): A Case report**

Leban T\*, Grguras Lestan N

Department of Paediatric and Preventive Dentistry, Faculty of Medicine, University of Ljubljana, Slovenia

**INTRODUCTION`** `Amelogenesis imperfecta (AI) represents a heterogeneous group of inherited enamel defects. In patients with severe types of AI, treatment plans are often challenging. According to guidelines, to preserve dental tissues and prevent sensibility temporary restorative treatment is recommended until the permanent teeth fully erupt.` **BACKGROUND`** `A 6-year-old boy was referred due to severe dental hypersensitivity and functional discomfort. Extremely thin enamel was observed on his yellowish permanent teeth, while on deciduous teeth enamel had normal thickness and appearance. Generalised hypoplastic type of AI with open bite was diagnosed.` **CASE REPORT(S)`** `In the patient with mixed dentition, comprehensive rehabilitation with a digital CAD/CAM technique was performed. Individual teeth were restored according to the time of their eruption, starting with the first permanent molars. With a digital intraoral scan and wax-up, information was obtained that made it possible to plan the desired final appearance of the teeth. On all four first permanent molars, zirconia crowns were placed (0.5 mm thick). The incisor teeth were built-up with composite, using a labial silicone index as a guide. Later on, crowns were placed also over the canines and premolars. Due to the need for prior treatment for malocclusion, these teeth were covered with temporary composite crowns.` **FOLLOW UP`** `Since his teeth have been restored, the boy no longer reports dental hypersensitivity or discomfort.` **CONCLUSIONS`** `In patients with generalised hypoplastic AI, timely and comprehensive restorations with CAD/CAM ensures efficient functional and aesthetic rehabilitation.

**P 112 Parental views of the frenulotomy service in Torbay, South-West England**

Lau K, Heming M\*

Torbay and South Devon NHS Trust, United Kingdom

**AIM`** `Ankyloglossia is known to result in poor feeding and maternal nipple pain due to short or tight lingual frenum attachment near the tongue tip. Frenulotomy can be conducted for infants with the intention of reducing these issues and their consequential additional stress to parents. This service is provided by the hospital's midwifery team, and more complex cases are seen by the maxillofacial team. Aim: to identify users' views of the maxillofacial tongue tie service.` **METHODS`** `Frenulotomy in Torbay Hospital's maxillofacial department is conducted by an Oral Surgery specialist and specialised dental nurses. Views of parents attending this clinic were collected through a postal questionnaire sent out and returned between October 2018 to January 2020 following their infants' frenulotomy procedure ( $n=54$ ). Data were collected on: breastfeeding and bottle-feeding improvement following treatment; presence of noted feeding problems; if they would recommend this procedure; and their own comments.` **RESULTS`** `The majority of parents (85%) would recommend this service. Most experienced improvement in breastfeeding (91%) and bottle feeding (73%), and 74% of parents experienced no issues following treatment. Analysis of parents' comments revealed they felt less stressed following the procedure (26%), and felt acknowledged and well-cared by the tongue tie team (28%). Generally parents were highly positive of the service.` **CONCLUSIONS`** `Despite having limited evidence for consistent positive effects on infant breastfeeding, the frenulotomy service has shown to be greatly valued among parents. Weighing the risks of this safe and simple procedure against the aforementioned benefits highlights the importance of continuing this service in the maxillofacial department.

**P 113 Clinical application of digital space maintainer fabricated by polyetherketoneketone for premature loss of deciduous teeth**

Ji K\*, Lu W, Wu G

Nanjing Stomatological Hospital, Medical School of Nanjing University, Nanjing, People's Republic of China

**AIM`** `The purpose of this study was to investigate the clinical effect of polyetherketoneketone (PEKK) digital space maintainer for early loss of deciduous teeth.` **METHODS`** `Five children with unilateral loss of either first or second molars were enrolled from our hospital in accordance with the inclusion criteria. After the

enrollment of patients, their digital intraoral impressions were obtained by using an intraoral scanning system, and imported directly into 3Shape Dental Design software system. Space maintainer (band with loop) device was designed by CAD software, and manufactured by the PEKK blocks. The digital space maintainer was adjusted first on the definitive cast and then intraorally, and cemented on the abutment teeth. **RESULTS** The digital space maintainers fabricated by PEKK for deciduous premature loss in five children were 75% lighter than the conventional one. The design and fabrication process only took 1 hour and thus could be delivered within the same day. The intraoral scans were consistent with the abutment teeth. **CONCLUSIONS** The digital space maintainer fabricated by PEKK could shorten patients' waiting time, which could be completed on the same day, and improved the comfort of the children. The suitability of space maintainer was improved by the digital workflow and fabricated by PEKK. The digital space maintainer was fabricated with no metal with improved aesthetics. There was a good clinical application prospect for digital space maintainer fabricated by PEKK for premature loss of deciduous teeth.

**P 114 Anecdotal symptoms associated with teething and their management**

Drysdale D\*

GOSH/Eastman, United Kingdom

**AIM** 1. Review the current evidence for the most commonly discussed anecdotal symptoms i.e. drooling, nappy rash, fever and pain. 2. Outline the evidence based management of the most widely accepted anecdotal teething symptoms. 3. Review the strength of the current evidence on managing the most widely accepted anecdotal symptoms associated with teething. **METHODS** A literature search was first used to investigate all the available information on the anecdotal symptoms associated with teething. A PECO format was used to search for the clinical effectiveness of various remedies used to alleviate teething pain/irritation. The quality of evidence was then determined using the GRADE assessment. **RESULTS** 24 articles were found, of which 23 articles were excluded. The 1 article included was a non-randomised controlled trial. Physically rubbing the gingiva with a teething ring was the most clinically effective method for managing teething pain. The GRADE process rated the quality of the pain-relieving effect very low. **CONCLUSIONS** 1. The only accepted anecdotal symptom of teething is pain/irritation of the gingiva. 2. The only clinically proven strategy for the pain/irritation associated with teething is physically rubbing the gingiva. 3. There is no evidence that pharmacological remedies work, this includes the use of paracetamol and ibuprofen. 4. The use of lidocaine containing gels should be actively discouraged, due to the risk of Methemoglobinemia.

**P 115 Assessment of polymorphisms in the eruption sequence of permanent teeth in a group of Romanian children**

Mihalas E, Vasilca-Gavrila L, Balan A\*, Sirghe A, Savin C

Grigore T. Popa University of Medicine and Pharmacy Iasi, Romania

**AIM** To assess the eruption patterns and the variations in the sequence of eruption of permanent teeth in a group of children aged 5-13 years from the North-East Region of Romania. **METHODS** The study was conducted on a group of children who were presented at the Iasi Pediatric Dentistry Clinic following predetermined inclusion criteria. Data were collected from clinical charts and processed using the SPSS 20.0 program. **RESULTS** At the maxilla, globally, the eruption pattern was first premolar - second premolar - canine, and at the mandible canine - first premolar - second premolar. For girls, mandibular first premolar, maxillary canine, maxillary and mandibular second premolar erupted earlier compared to boys. The eruption age of the maxillary first premolar was delayed in girls. Considering the classical sequence of permanent teeth eruption, the mandibular second premolar erupted earlier in comparison with the maxillary canine in girls, while in boys, the mandibular canine erupted later and the maxillary first premolar earlier. **CONCLUSIONS** Our study found differences in the eruption sequence in girls and boys, but in order to extend the results to the total population of Romania and to compare them with international similar studies, it is necessary to carry out the evaluation in the other regions of the country.



**P 116 Prevalence of loss of first permanent molars in children aged 7-14 years in hospital setting, in New Delhi, India**

Kumar G\*

Maulana Azad Institute of Dental Sciences, New Delhi, India

**AIM** `To evaluate the prevalence of loss of first permanent molars among 7-14 years of children`  
**METHODS** `All the children reporting to the OPD of Department of Pedodontics and Preventive Dentistry, MAIDS, New Delhi, India for various dental problems were examined. Missing permanent first molars and those indicated for extraction due to caries were recorded. In addition, the sequelae like deviation of the adjacent teeth, supra eruption of opposite teeth and path diversion of unerupted adjacent teeth seen through radiographs were also recorded`  
**RESULTS** `Study is going on and result will be expected soon`  
**CONCLUSIONS** `study is going on`

**P 117 Concerns over aesthetics lead to treatment for sleep apnoea in children**

Kouakou V\*

COP, France

**AIM** `Determine the prevalence of sleep apnoea affecting a group of children between the ages of 3 and 6 years old who come for treatment for maloccluded teeth, primarily for aesthetic reasons. We can work out and treat the causes of dental malocclusions, which are, in fact, only proof of disorders linked, above all to oro-facial growth deficit and to deficiencies in growth and development in general`  
**METHODS** `A sample of 107 patients aged between 3 and 6 years old over a period of 13 months. The results of the polysomnography taken before and after treatment show the correlation between a renewed increase in height and weight. This allows the patients to overcome their deficiency in bone growth and to once again meet the average on the growth centile curve chart in the health record booklets`  
**RESULTS** `The data was analysed using PPE software – info 6.0 87.5% of the children who have dental malocclusions present with an anomaly in transversal bone growth, and of these, 68.3% have mixed breathing and 64.9% present with an AHI 5.`  
**CONCLUSIONS** `Dental malocclusion with a transverse dental anomaly can be linked to sleep apnoea.`

**P 118 Comparison of development rates of palatine and buccal roots in permanent maxillary molars**

Papruzhenka T\*, Yushkevich K

Belarusian State Medical University, Belarus

**AIM** `Compare the development rates of palatine and buccal roots in permanent maxillary molars using cone-beam computed tomography (CBCT).`  
**METHODS** `A total archival 72 CBCT images (Galileos CBCT, Sirona Dental Systems Inc., Germany) of intact teeth 17, 27 were collected from 43 patients age 13,0 to 15,9. The population was split into 6 subgroups by six-month time interval. Using Sirona software (Dental Sirona, Sidexis 4), density level of apical part of each root in three planes (tangential, transversal and axial) was recorded in Hounsfield unit (HU) values; the arithmetic mean of three measurements was used for analysis. The Wilcoxon – Mann – Whitney test was applied for statistical analysis.`  
**RESULTS** `At the age of 13,0 to 15,9, the mean density (Me [min...max] HU) of the apical parts of the roots increased from 1272 [1050...1630] HU to 1631 [1480...1804] HU (p 0.01). In each subgroup, the values for the medial buccal roots and distal buccal roots were close (p 0.5) and noticeably exceeded the values for the palatine root before the age of 14,9 (in subgroups #1, 2, 3 and 4  $\Delta$ Me = 119 ÷ 184 HU, p 0.01). At 15yo and older, the differences decreased to insignificant values.`  
**CONCLUSIONS** `In children age 13,0 to 14,9 the development of buccal roots in teeth 17, 27 significantly outpaces the development of the palatal root.`

**P 119 Spontaneous correction of an open-bite using orthodontic habit breaker appliance: case report**

Alawami A\*

Armed Forces Hospital, Dhahran, Kingdom of Saudi Arabia

**INTRODUCTION** `Thumb sucking habit is common in infants and young children. It usually stops as the child becomes a toddler, leaving behind little or no effect on the primary dentition. However, if the habit continues to an older age, while the permanent dentition is established, it can contribute to development of malocclusion, most common of which is anterior open-bite.`  
**BACKGROUND** `A variety of techniques are`



known to help cessation of thumb sucking habit. These include: advice, parents' support, long sleeve pyjamas, application of aversive taste to the thumb, and provision of orthodontic appliance to interfere with the habit. Orthodontic appliances are generally feasible in growing patients and may aid in spontaneous closure of dental origin anterior open-bite` `CASE REPORT(S)` `An 8-year-olds female patient presented to the clinic with an open-bite and grossly carious first permanent molars (FPMs). Dental history revealed persistent thumb-sucking habit since infancy with poor oral hygiene and dietary habit. TREATMENT: FPMs were first temporized and used as abutments for the orthodontic appliance for habit cessation. Palatal crib appliance was used for six months with monthly follow-up. Following cessation of the habit, FPMs were extracted under local anaesthesia at the ideal dental age.` `FOLLOW UP` `Three years review confirmed cessation of the habit, spontaneous closure of the anterior open-bite, and eruption of all second permanent molars in the position of the FPMs.` `CONCLUSIONS` `Orthodontic intervention is effective for the cessation of thumb sucking habit. When the intervention occurs early, it could prevent complicated orthodontic problems and/or treatment.

**P 120 Correlation between Body Mass Index and Severe Early Childhood Caries in a group of preschool children in Targu Mures, Romania**

Stoica OE\*, Bica CI, Esian D, Stoica AM

University of Medicine and Pharmacy, Science and Technology 'George Emil Palade' Targu Mures, Romania

**AIM`** `This study aims to assess the correlation between body weight status and caries experience in preschool children with Severe Early Childhood Caries (S-ECC), aged 3 to 5 years, in Targu Mures, Romania.`

**METHODS`** `A descriptive analytical cross-sectional study was enrolled on 147 healthy preschool children recruited from the kindergartens of different socio-economical parts of Targu Mures, Romania. The Anthropometric measurements, height and weight were evaluated and BMIs were calculated by entering the recorded data into the CDC on-line Child and Teen BMI Percentile Calculator. Dental status was analysed at the Department of Pediatric Dentistry in Targu Mures, using decayed, missing and filled tooth index (dmft). A structured questionnaire was completed by the children's parents or caregivers, collecting informations about socio-demographic status, dietary habits and oral hygiene.` **RESULTS`** `The mean BMI of our studied population was  $16.48 \pm 2.53$ ; 23.80% of the participants were overweight and 9.8% underweight. The mean dmft value was  $4.31 \pm 3.25$  ; 21.7% were diagnosed with S-ECC with a mean dmft value of  $9.12 \pm 4.89$ , from which 65.6% were overweight, 28.12% were in the normal weight category, 6.25% underweight and 5.1% had height deficiency. In caries free children, the mean BMI was  $15.24 \pm 2.21$ , with 19.71% overweight and 11.42% underweight. Significantly more children with S-ECC were classified as overweight when compared to caries-free children ( $p = 0.022$ ) and had significantly higher mean BMI z-scores than caries-free children ( $0.89 \pm 1.29$  vs.  $0.23 \pm 1.32$ ).` **CONCLUSIONS`** `The findings of this study demonstrated that there was a statistically significant association between Severe Early Childhood Caries and BMI.

**P 121 The management of hyperdivergent Class II growth with Eruption Guidance Appliance: a case report**

Pellegrino G\*, Pellegrino GS, Fioretti L, Pellegrino M

Private practitioner, Italy

**INTRODUCTION`** `The treatment of Classes II at an early age always requires a careful evaluation. The ideal treatment of this type of malocclusions is during the pubertal peak. Furthermore, an hyperdivergent growth pattern in Classes II can conduct to a good occlusion with aligned teeth, but a poor aesthetic. Though, it is necessary to avoid treatment in an advanced stage to correct the excess of growth in vertical dimension.`

**BACKGROUND`** `The use of Eruption Guidance Appliances (EGA) is suitable to treat hyperdivergent Class II cases, during the pubertal peak growth.` **CASE REPORT(S)`** `The considered patient started the therapy at 7.2 years, during the terminal phase of early mixed dentition. He presented a Dental Class II on the left side, an edge to edge relation on the right side, an Overjet of 6mm and an Overbite of 2mm. The midline was deviated to the left (3mm). According with the cephalometric analysis, the following values were measured: ANB  $7.1^\circ$  and SN-GoGn  $36.4^\circ$ . A perioral muscle tension was observed. The therapy was carried out using only EGA (LM-Activator) with an increased posterior thickness. A sequence of 3 LM-Activator with progressive size and only night-time use was adopted. The therapy ended after 3 years.` **FOLLOW UP`** `After 1.5 years of follow-up, a further skeletal improvement (ANB:  $4^\circ$ , SN-GoGn:  $33.5^\circ$ ), the absence of muscle tension

and a better occlusion were observed. **CONCLUSIONS** The use of EGA in hyperdivergent class II treatment allows a normalization of muscular function and a dentoalveolar growth control, preventing the worsening of a long-face structure and improving aesthetics.

**P 122 Clinical and microbiological periodontal health parameters in children with different dentition-stages**

Schueler IM\*, Glotzbach I, Eick S, Heinrich-Weltzien R

Section of Preventive and Pediatric Dentistry, Department of Orthodontics, Jena University Hospital, Germany

**AIM** This study aimed to analyze the presence of periodontal pathogenic bacteria in children during different dentition-stages. **METHODS** 131 systemically healthy children and adolescents aged 0 to 15 years were included and divided into four groups according to the dentition stages: pre-dentate, primary dentition (PrimD), mixed dentition (MixD) and permanent dentition (PermD). Dental plaque and periodontal health were assessed by Plaque Index, Periodontal Screening Index and Bleeding on Probing. Periodontal pathogenic bacteria in the sulcus fluid and from the back of the tongue were analyzed with the semi-quantitative test kit micro-IDent®plus 11. Dental caries was assessed according to the WHO standard. Data regarding oral healthcare behavior was collected by questionnaire. Statistical analysis was performed by SPSS. **RESULTS** Gingivitis was diagnosed in 64.0% of the children. Periodontitis was not present. Children with MixD and PermD had significantly more gingival bleeding after probing than children with PrimD ( $p < 0.001$ ), higher bacterial load and number of species. Nearly all dentate children (99.0%) had at least one of the 11 pathogens. Porphyromonas gingivalis was not detected. Pathogens of the green and red complex appeared more frequently from the MixD-stage onwards. The most common species was Fusobacterium nucleatum, identified at tongue and sulcus (45.8% and 93.0% respectively) and as the only species in pre-dentates (9.7%). Colonization with Eikenella corrodens was significantly associated with increased clinical signs of inflammation. **CONCLUSIONS** Oral colonization with periodontal pathogenic bacteria occurs in early childhood and increases with the eruption of permanent teeth. Eikenella corrodens might be a predictor for an increased risk of periodontal disease.

**P 123 Current aspects in the recovery of oral cavity functions during mixed dentition**

Iodan Dumitru AD\*, Kozma A, Lackner A, Radu F, Radu RE

Titu Maiorescu University Faculty of Dental Medicine Bucharest, Romania

**AIM** The objective of the study was to analyze a phenomenon that is more and more common in dental practice, i.e. the simultaneous presence of both the temporary tooth and the successor tooth on the arch. **METHODS** The study was conducted over a two years (1.01.2018-31.12.2019) of the authors practice in Romania. From the total number of patients, we selected and studied those who presented in the oral cavity both their temporary teeth and their successor teeth. In addition to their recording in the oral cavity, where appropriate, the temporary teeth extraction was used to place the definitive ones so that the functions of the dental-maxillary apparatus would not be altered. **RESULTS** 508 children with different pathologies in the oral cavity level were evaluated, of whom 209 children (41,14%) presented both temporary and definitive successor teeth in the oral cavity. There were no significant differences between the two sexes. In the majority of cases, the temporary teeth and the definitive teeth were not in the same plane so that on the archesline were the temporary ones and the permanent ones had an ectopic position; the temporary teeth had unreabsorbed roots and the final teeth had a defective position. **CONCLUSIONS** Presence of both the definitive teeth and the temporal teeth on the arches leads to malocclusions that, if not corrected, the entire oral cavity will be damaged.

**P 124 PBMT for the management of recurrent aphthous stomatitis in children: clinical effectiveness and parental satisfaction**

Majorana A\*, Amadori F, Veneri F, Drago V, Bardellini E

University of Brescia, Italy

**AIM** This study aims to evaluate the effectiveness of the photobiomodulation therapy (PBMT) in the treatment of minor recurrent aphthous stomatitis (MiRAS) in children, in terms of pain relief, lesion size reduction and the parental satisfaction of the therapy. **METHODS** This randomized controlled study was carried out on 60 children with clinical diagnosis of MiRAS. Patients were randomized into two groups: group

A receiving laser therapy and group B receiving sham therapy (placebo). Laser therapy (diode laser,  $\lambda$ : 645 nm) was administered on day 1 (T0) for three consecutive days. Patients were evaluated also on day 4 (T1), on day 7 (T2) and on day 10 (T3). Oral aphthous lesions size was assessed through a periodontal probe to measure the diameter length (mm); pain was evaluated through the Visual Analogue Scale (VAS); parental satisfaction was assessed through a questionnaire. **RESULTS** The difference in the reduction of ulcers diameters between the two groups resulted statistically significant at T1 and at T2 ( $p < 0.05$ ). A statistically significant difference in pain reduction between two groups was found at T1 ( $p < 0.05$ ). No statistically significant difference between the two groups of parents was found as concerns the parental acceptance of the procedure and the discomfort for the need of multiple appointments. **CONCLUSIONS** PBMT is to be considered effective in the treatment of MiRAS in children and well-accepted by the parents of the children themselves.

**P 125 Generalized gingival enlargement in adolescent, an early sign of child granulomatosis: a case report**

Lagarde M\*, Sophie DM, Yulia P, Fadel B, Dursun E  
Paediatric Dentistry, France

**INTRODUCTION** Localized or generalized gingival enlargement, with inflammatory or fibrous aspect, may have systemic or local etiologies, which should be identified. This gingival disease may sometimes be symptomatic and cause an aesthetic injury, which often leads to seek medical advices. **BACKGROUND** Chely, 15 years old, with no medical history, was referred by his orthodontist. Clinical examination revealed generalized gingival enlargement, which mainly affected anterior areas, and locally (tooth 13 and 23) presented a pathological leaf-like aspect. **CASE REPORT(S)** Patient's proper plaque control and periodontal debridement were implemented. Six months after, a gingivectomy was however indicated. Three weeks after, a recurrence led us to perform a biopsy on the most suspect site. The latter revealed epithelioid and giant-cellular granulomas, which are the pathognomonic sign of granulomatous diseases. **FOLLOW UP** Three months later, the occurrence of Miescher granulomatous macrocheilitis, oriented the diagnosis to Crohn's disease or Melkerson-Rosenthal syndrome. However, medical investigations reported no signs of these pathologies for the moment. Chely returned to an aesthetic gingival aspect. A monitoring every 3 months was established. **CONCLUSIONS** Gingival diseases can be the early sign of general diseases, especially when they are persistent. A biopsy should then be performed.

**P 126 The relationship between level of melatonin in saliva and state of oral health**

Mielnik-Blaszczak M\*, Pietrak J, Maslanko M, Janusz S, Tkacz-Ciebiaera I  
Department of Paediatric Dentistry, Medical University of Lublin, Poland

**AIM** The aim of the study was to determine the relationship between the level of melatonin in saliva and the state of oral health and the frequency of the caries. **METHODS** The study included 88 Polish children and teenagers of both sexes. The average age of the patients is  $12.97 \pm 2.97$  years. There were 44 people in each group. The study group were children and young people with 4 or more caries cavities, while the control group were their coevals who didn't have any cavities. All patients had an oral examination. Saliva sample was tested in the laboratory. **RESULTS** 1. There is high frequency and intensity of dental caries in a group of children and teenagers with higher level of melatonin. 2. The intensity of tooth decay in the group of patient with lower level of melatonin in saliva was significantly higher than the intensity of caries in the control group. 3. There is a higher number of DMFT and dmft and the components the number of DMFT (dmft): D (d), M (m), F (f) in patients with lower level of melatonin in saliva compared to patients formed the control group. **CONCLUSIONS** 1. A group of children and teenagers with very low level of melatonin should be included in a group of increased risk of oral diseases. 2. The state of mouth health is largely dependent on the level of melatonin in saliva.

**P 127 10 years of lip swelling-what have you missed?**

Gallacher NA\*, Botha E, Revington P  
University Hospitals Bristol NHS Foundation Trust, United Kingdom

**INTRODUCTION** We aim to highlight the importance of awareness of vascular malformations within the oral cavity; ensuring patients receive timely referrals and treatment. **BACKGROUND** We present the unusual case of a 16-year-old female diagnosed with a single phlebolith associated with a vascular

malformation affecting the upper lip. The patient was referred to Bristol Dental Hospital (BDH) following a ten-year history of intermittent swelling. **CASE REPORT(S)** Phleboliths arise due to trauma or stasis of blood in a vessel. They can be associated with vascular malformations, due to the tortuous nature of blood vessels causing stasis within the lumen. Following vessel damage, a thrombus occurs initiating the repair process. If this calcifies, a phlebolith forms. Within the oral and maxillofacial region, phleboliths arise commonly in males, 51.72% than females 48.28%. This patient was referred to BDH following a ten-year history of a fluctuant swelling affecting her upper lip, for duration of 24-48 hours but recently lasting for one week. The patient noticed the swelling increased in size when emotional, and was concerned regarding the aesthetics. Differential diagnoses included orofacial granulomatosis and angiodeoma. **FOLLOW UP** A diagnosis of vascular malformation containing a phlebolith was confirmed following ultrasound and MRI scans. Treatment options for such lesions include surgical excision, endovascular embolisation or surveillance. **CONCLUSIONS** Vascular malformations of the head and neck can lead to significant disfigurement. Early diagnosis is essential. When creating a treatment plan, plain films are useful in identifying a phlebolith but further imaging is required to identify the extent of the lesion.

**P 128 Child compliance in the initial management of an odontogenic keratocyst: A case report**  
Iqbal A\*, Badr M, McClean L  
University Dental Hospital of Manchester, United Kingdom

**INTRODUCTION** Odontogenic Keratocyst (OKC) is a benign cystic lesion of developmental origin representing approximately 2% to 11% of all jaw cysts. Over 70% of OKCs occur in the mandible and commonly affect the younger population. OKCs are known for demonstrating locally destructive behaviour and exhibiting a high recurrence rate. **BACKGROUND** A 14 year old female patient from Romania was referred to the paediatric department at Manchester Dental Hospital from her general dental practitioner for extraction of all carious first permanent molars under inhalation sedation due to repeated swellings in the lower jaw. **CASE REPORT(S)** Clinical and radiographic assessment revealed a large multilocular radiolucent lesion in the mandible. Aspiration of the cystic contents and an incisional biopsy confirmed the presence of an OKC. Initial management involved marsupialisation of the lesion, provision of an acrylic resin obturator to maintain patency of the created surgical window for future decompression, extraction of an impacted lower left canine and investigation for Gorlin-Goltz Syndrome. **FOLLOW UP** Initial follow up showed some evidence of osseous consolidation of the lesion. However, continued poor patient compliance with obturator wear, irrigation of the cystic cavity and attendance to review appointments lead to subsequent closure of the surgical window. This resulted in continued growth of the cystic cavity and the need for further surgical management. **CONCLUSIONS** This case demonstrates poor patient compliance may lead to failure of marsupialisation as effective management of an OKC; barriers possibly consisting of age, language and access to services.

**P 129 Oral rehabilitation of a child with maxillectomy**  
Gocmen P, Cerciler IH\*, Kasimoglu Y, Balik A, Aren G  
Department of Pediatric Dentistry, Faculty of Dentistry, University of Istanbul, Turkey

**INTRODUCTION** Obturators are prosthesis used to replace maxillary tissues that are congenitally missing or removed by trauma or tumor ablative surgery. They contribute to the patient in terms of improving function, aesthetics, phonation, and psychology. **BACKGROUND** This case report describes oral rehabilitation of a child who has undergone maxillectomy due to juvenile trabecular ossified fibroma. **CASE REPORT(S)** A 13-year-old male patient referred to the paediatric dentistry clinic with a complaint of pain during mastication. Intra-oral examination showed that the patient was edentulous on the right side of the maxilla starting from the midline. His medical history revealed that he had an operation where his right maxilla was excised completely. The pain reported from the child was caused by the eruption of second permanent molars according to the radiographic and clinical examination. Panoramic radiography also revealed unerupted premolars due to supernumerary teeth. The patient was referred to department of oralmaxillofacial surgery for the extraction of impacted supernumerary teeth. The patient was treated interdisciplinary with the department of prosthodontics. The child and his parents were satisfied with the final result. This treatment has allowed the patient to return to a functional quality of life. **FOLLOW UP** The prosthesis was evaluated for proper functioning during 24-month follow-up period. **CONCLUSIONS**



Defects after maxillectomy need prosthetic rehabilitation. Obturator prosthesis improves speech, deglutition and psychological well-being of the patients.

**P 130 A rare case report of necrotizing gingivostomatitis in a 16-year-old female**

Papanakou S\*, Gizani S, Chrysomali E, Fregkoglou A, Kotsonis K

Department of Paediatric Dentistry, Dental School, National and Kapodistrian University of Athens, Greece

**INTRODUCTION** Necrotizing Ulcerative Gingivitis (NUG), Necrotizing Ulcerative Periodontitis (NUP) and Necrotizing Stomatitis (NS) represent different stages of a continuous clinical spectrum of bacterial infection, collectively termed Necrotizing Gingivostomatitis (NGS). Immunosuppression due to either topical or systemic causes (most commonly HIV-infection) is the main predisposing factor for NGS. **BACKGROUND** NGS is rare, but young adults are most likely to be affected. **CASE REPORT(S)** A 16-year-old, otherwise healthy, female, smoker patient was hospitalized in the Children's Athens Hospital for malaise, high fever and painful oral lesions of 1-week duration. Clinically, extensive necrotic ulcers on the gingiva (including interdental papillae), palate, buccal and lip mucosa were observed. A provisional diagnosis of NGS was rendered and a course of antibiotics (metronidazole 500mg x3/day) as well as chlorhexidine and oxygen peroxide mouthwashes were administered. A thorough laboratory investigation, including anti-HIV/EBV/CMV/HSV/ HBs/HBc/HCV antibodies, and fungal species (PCR technique) were also ordered. Re-evaluation 4 days later showed partial resolution of the lesions, remission of fever while all tests were normal. One week later total remission of signs and symptoms was recorded. **FOLLOW UP** The patient remains free of relapse two and a half years later. **CONCLUSIONS** NGS is a rare bacterial infection and is mostly diagnosed clinically. Although it may affect young healthy individuals, an underlying systemic cause (mainly HIV infection) must be ruled out.

**P 131 Dentigerous cysts in children: management techniques illustrated by cases.**

Shore E\*, Leith R, O'Connell A

Division of Public and Child Dental Health, Dublin Dental University Hospital, Ireland

**INTRODUCTION** Dentigerous cysts develop in association with the crown of an unerupted tooth. They may be developmental or inflammatory in origin, and rarely occur in children. Males are more commonly affected than females. Management options include enucleation or marsupialisation. **BACKGROUND** Two cases of dentigerous cysts in children are described, with differing management approaches. **CASE REPORT(S)** Case 1: A six-year-old male attended with four-month history of asymptomatic bony swelling on the right side of the mandible. The mandibular right first primary molar had previously been extracted due to caries. Incisional biopsy confirmed the diagnosis of an inflamed dentigerous cyst, which was subsequently marsupialised under general anaesthesia. Case 2: A four-year-old male presented with painful fluctuant swelling of unknown duration on the left side of the mandible. All four first primary molars were previously extracted due to caries. The lesion was enucleated under general anaesthesia. The associated developing mandibular left first premolar was mobile and associated with cystic tissue. It was extracted during cyst enucleation. Histological analysis diagnosed an inflamed dentigerous cyst. **FOLLOW UP** Both cases exhibited normal healing two years post-operatively. There was normal premolar eruption post-marsupialisation in Case 1. **CONCLUSIONS** Dentigerous cysts, though rare, may present in a paediatric population. Chronic inflammation in a primary tooth may stimulate formation of inflammatory dentigerous cysts, such as those described in these cases. Management of dentigerous cysts should endeavour to preserve the developing permanent successor, where possible.

**P 132 Oral Squamous Cell Carcinoma in a child; a rare entity that should always be considered**

Mc Carra C\*, FitzGerald K, Barry C

Division of Public and Child Dental Health, Dublin Dental University Hospital, Lincoln Place, Dublin 2, Ireland

**INTRODUCTION** Oral Squamous Cell Carcinoma (OSCC) is rare in children. (Llewellyn et al., 2001). An increasing incidence of OSCC in younger age groups has been reported (Iamaroon et al., 2004, Tettamanti et al., 2012). **BACKGROUND** A presentation of OSCC in an 11 year old child is discussed. **CASE REPORT(S)** A previously healthy 11 year old girl was referred to a dental school/hospital regarding a hard swelling in the lower left first premolar area. Initial impression was of acute apical abscess associated with 75 which was



then extracted. Review at one week revealed persistent pain and swelling. The area was biopsied. Results suggested a well-differentiated keratinising squamous cell carcinoma (SCC). A subsequent deeper biopsy to exclude pseudoepitheliomatous hyperplasia was conducted and was diagnostic of SCC left mandible (pT2N0). Management involved segmental resection of left mandible and fibula flap reconstruction by the maxillofacial team. **FOLLOW UP** At one month review, the graft area and donor site showed good healing. At four months, treatment planning for dental rehabilitation was conducted. The graft site showed full healing with some bulky tissue. A removable prosthesis is planned to restore function and aesthetics prior to definitive implant placement. **CONCLUSIONS** In contrast to the adult population, there is a decreased expectation of oral malignancy in children (Sidell et al., 2009). This, in conjunction with histological uncertainty, may lead to challenges in diagnosis (Stolk-Liefferink et al., 2008). Although a rare entity, SCC does occur in children and should be included in the differential diagnosis when considering unresolved or difficult to explain swellings in the mouth.

**P 133 Management of a mandibular dentigerous cyst in a 10-years-old child: case report**

Shehab El-Din DN\*, Azab M  
Future University in Cairo, Egypt

**INTRODUCTION** The frequency of dentigerous cysts in children has been reported to be low, yet they are considered to be the most commonly encountered cysts in children. They are related to the crown of an unerupted tooth, enclosing the tooth bud or even displacing it. An inflamed dentigerous cyst involving the successor may be found in relation to a non-vital overlying deciduous tooth, resembling the features of a radicular cyst. **BACKGROUND** Management of dentigerous cysts is either by total enucleation or marsupialization. The marsupialization approach is usually preferred in pediatric patients since the treatment in such cases aims to conserve the un-erupted permanent successors whenever possible. **CASE REPORT(S)** A 10 years old male patient reported to the department of pediatric dentistry, Future University, Cairo, complaining of pain and an extra-oral swelling related to mandibular right buccal region. Clinical examination revealed the presence of hard bony swelling with buccal cortical plate expansion related to grossly decayed primary molars. Orthopantomograph and a computed tomography (CT) scan revealed unilocular well-defined lesion with considerable displacement of the tooth buds of permanent successors. Treatment plan included extraction of the decayed primary molars and marsupialization of the cystic cavity. **FOLLOW UP** Follow-up period of 16 months showed healing and new bone formation, also the erupting teeth have attained a more favorable position. **CONCLUSIONS** Dentigerous cysts may expand causing local tissue destruction and present with several consequences, hence early diagnosis and management prove to be very important. Marsupialization is a successful technique for the management of dentigerous cysts in pediatric patients.

**P 134 A case of oral Graft-versus-Host-Disease and drug induced gingival hyperplasia requiring systemic management**

Sanghvi RM\*, Cook RJ, Chaudhary M  
Specialty Registrar in Paediatric Dentistry, Paediatric Dental Department, Guy's and St Thomas' NHS Foundation Trust, United Kingdom

**INTRODUCTION** This report describes a paediatric patient with Graft-versus-Host-Disease (GvHD) and drug induced gingival hyperplasia with a history of B-cell acute lymphoblastic leukaemia treated with peripheral haemopoietic stem cell transplant. **BACKGROUND** Management of oral GvHD is tailored to symptom severity, and in severe cases such as this, liaising with the bone marrow (BMT) transplant team for an altered immunosuppression regime was key. **CASE REPORT(S)** A 7-year-old boy was referred to the joint paediatric-oral medicine clinic from the BMT clinic due to oral ulceration and inflammation to which topical steroid treatment was ineffective. Examination revealed multiple, extensive areas of hyperplastic tissue, particularly on the tongue, which in character appeared granulomatous. Generalised erythematous hyperplastic gingiva was also evident. A diagnosis of oral GvHD and ciclosporin induced gingival hyperplasia was made based on medical history and clinical findings. Due to the extent of ulceration, inflammation and previous ineffective topical treatment, a systemic approach to management had to be considered. The BMT team was contacted and an altered immunosuppression regime was suggested to facilitate control of the patient's oral symptoms. **FOLLOW UP** Following a reduction in ciclosporin dose and initiation of tacrolimus, at 6-month follow up the patient's oral symptoms were significantly improved. **CONCLUSIONS**

GvHD is an uncommon presentation in children and can result in significant morbidity. This case demonstrates oral GvHD with superimposed ciclosporin induced gingival hyperplasia and potential ciclosporin exacerbated oral ulceration. It demonstrates the importance of multidisciplinary input and need for prompt escalation of treatment to alter systemic medications in cases where topical medicaments are ineffective.

**P 135 Oral clinical features of children affected by facial clefts: A comparison between surgical protocols**

Guagnano R\*, Romano F, Pepe E, Defabianis P

Department of Biomedical Sciences and Human Oncology Dental School Section of Paediatric Dentistry University of Turin, Italy

**AIM** `To investigate if there is an association between dental anomalies and defects and the type of cleft, sex, ethnicity and different surgical protocols for the correction of the cleft.` **METHODS** `64 children with cleft lip and palate, 10 with cleft palate and 11 with lip and alveolus cleft were evaluated. 61 children were submitted to a delayed palate plastic at a mean age of 4,3 years and 21 were submitted to an early palate periosteal plastic at 7,2 months . All patients were visited by a single operator and the number of dental cavities was registered using dmft/DMFT indexes and enamel defects in permanent teeth were registered using AINE index. To assess dental abnormalities a panoramic radiograph was examined.` **RESULTS** `A total of 58% of the patients presented a tooth rotation and a delayed surgical approach is associated with an higher number of rotations. Tooth agenesis interested the 42% of the patients and it was more frequent among BCLP patients and Asians. An early surgical approach is associated with a higher caires index in primary dentition and a more severe degree of enamel defects in permanent dentition. The 30% of the patients presented a supranumerary tooth and this was more frequent among lip and palate cleft.` **CONCLUSIONS** `From the present study an early surgical approach seems to have a detrimental effect on subsequent dental development in primary and in permanent dentition.

**P 136 The Oral Hygiene Status of New Patients referred by Community Dentists for Orthodontic treatment**

Williams A\*

Cwm Taf Health Board, Wales, United Kingdom

**AIM** `The aim of this retrospective audit was to determine the number of new orthodontic patients being rejected for orthodontic treatment in Kier Hardie and Pontypridd community clinics due to sub-optimal oral hygiene.` **METHODS** `The clinical notes of two community orthodontists' new patients' clinics, between January 2019-July 2019, were assessed to determine the number of orthodontic patients that were being rejected for treatment because of suboptimal oral hygiene. Exclusion criteria included patients referred for opinions on first permanent molars with poor prognosis and patients who had no comments on their oral hygiene status.` **RESULTS** `139 new orthodontic patients were examined between the 1st of January and the 31st of July 2019, 28% of these patients did not have optimal oral hygiene to start orthodontic treatment.` **CONCLUSIONS** `The findings from the audit revealed that 100% of patients referred to orthodontics with good to excellent oral hygiene status was not being achieved. Community dentists need to be clear on the acceptable standard of oral hygiene needed before an orthodontic referral can be made.

**P 137 Use of a fixed habit-breaking appliance to resolve a 9mm anterior open bite (AOB); a case report.**

Crossan E\*, FitzGerald K

Dublin Dental University Hospital, Ireland

**INTRODUCTION** `Prolonged thumb-sucking can have significant consequences on both skeletal and dental development. There are many treatment options for managing a thumb-sucking habit such as; bitter-tasting nail varnish, thumb guards, elbow guard, and oral appliances. (Borrie et al., 2015)` **BACKGROUND** `AOB resolution following thumb-sucking cessation.` **CASE REPORT(S)** `A 10 year-old girl, who was adopted at 18 weeks old, from Vietnam, presented to a postgraduate paediatric dentistry clinic complaining her 'upper and lower front teeth didn't meet'. A thorough history revealed persistent thumb-sucking, particularly when anxious and while sleeping. The patient was embarrassed by the habit, and wanted to stop. Clinical examination revealed a 9mm anterior open bite (AOB). Patient preparation was important with the proposal

of an appliance presented in a favourable, non-threatening manner rather than a punishment for an 'undesirable' habit. The patient chose to engage in the treatment which was key for its success. A Nance-like appliance with palatal cribs was fabricated and worn successfully. **FOLLOW UP** After one year, the AOB had completely resolved. After 2 years, she had sustained the habit cessation and had a 2mm overbite. **CONCLUSIONS** Habit-breaking appliances may be a useful treatment modality. If the habit is not adequately addressed before adolescence, combined orthodontic-orthognathic management may be required, particularly in severe cases, to resolve the AOB. This option is considerably more invasive, expensive (Borrie et al., 2013), cannot be fully undertaken until growth is completed and has a high-rate of relapse. (van Sickels et al., 2012) This case demonstrates the substantial potential effectiveness and the acceptability of a patient-led habit-breaking appliance.

**P 138 QIP- Basic Periodontal Examination (BPE) recording in orthodontic new patient clinics in NHS Lanarkshire**

McCann A\*  
NHS Lanarkshire, United Kingdom

**AIM** To improve the recording of basic periodontal examinations (BPE) during orthodontic new patient clinics to 80% by March 2020. **METHODS** As a quality improvement project we implanted PDSA (Plan, Do, Study, Act) cycles to allow frequent data collection with the changes implemented throughout. The changes implemented included: 1. Generic new patient assessment form to be used across all clinics 2. Staff training 3. Verbal reminder from nurse completing the form to the clinician completing the assessment 4. BPE table to be included in outpatient correspondence 5. Staff training **RESULTS** Overall there was an improvement in BPE recordings across the three hospitals. Initially 41.6% of patients attending the new patient clinic had a BPE completed. Some of the cycles have achieved over the aim of 80% however this was not consistently maintained. It is encouraging to note that when a change had been implemented it resulted in an improvement from the last date collection. **CONCLUSIONS** The importance of BPE recording has been highlighted to clinicians during this project. Whilst we have achieved an increase in BPE recording ideally we should be completing this for every patient. It allows the clinician to assess the suitability of the candidate for orthodontic treatment and can be used as a motivational tool for the patient to improve oral hygiene

**P 139 Identifying the incidence of the malocclusion predisposing factors and signs in the primary dentition**

Kosyreva T\*, Belfer M  
Peoples' Friendship University of Russia, Russian Federation

**AIM** To investigate the incidence of the malocclusion predisposing factors and signs in the primary dentition among the preschoolers in Moscow. **METHODS** A total of 1014 toddlers from eight kindergartens in Moscow city were surveyed. Oral examination of all toddlers was conducted by trained dentists to investigate the prevalence of predisposing factors and to analyze the most common risk signs of future disturbances in occlusion in preschoolers. A self-designed questionnaire was used to find out the bad oral habits and genetic predisposing factors of malocclusion of the children. The gamma correlation method has been applied for the statistics. A P-value of less than 0, 05 was considered statistically significant. **RESULTS** Among the 1014 preschoolers examined, 844 had the risk signs of future malocclusion, so their incidence in deciduous dentition was 83.23%. Unilateral crossbite and the midline deviation were the most common predisposing signs and their prevalence among 844 preschoolers was 58.41% (493 kids). Bad habits and genetic factors were always associated with oral signs of future malocclusion, and there was a higher statistical difference in the incidence of malocclusion signs among tested children with bad oral habits than with genetic predisposition. **CONCLUSIONS** The incidence of malocclusion predisposing factors in preschoolers in Moscow is high. The early identification of risk signs of future disturbances in occlusion and bad habits prevention is the main task of health givers, especially pediatric dentists and orthodontists. It is important to improve the awareness of home oral care and regular dental visits among parents and toddlers.

**P 140 Sleep disordered breathing in children and adolescents seeking pediatric dental care**

Abdalla MA\*, AlHalabi M, Kowash M, Hussein I, Salami A  
 Mohammed Bin Rashid University of Medicine and Health Sciences, United Arab Emirates

**AIM** `To evaluate the prevalence of positive or potential sleep disordered breathing (SDB) in children seeking pediatric dental care` **METHODS** `The sample included 103 healthy children between the ages of 6 and 16. High risk of SDB was assessed using the Pediatric Sleep Questionnaire (PSQ), a validated instrument that consists of 22 questions, and high risk is defined as positive answers to 33% or more of the questions answered` **RESULTS** `In this sample, high-risk status on the PSQ was not related with sex, age, or race. The percentage of patients who were screened as high risk was 4.2% (95% confidence interval, 3.4%-7.6%)` **CONCLUSIONS** `The results of this study suggest that approximately 3% to 7% of children and adolescents seeking pediatric dental care may be at significant risk for some form of SDB. Screening for the high risk of SDB in pediatric dentistry settings is practical and feasible; with the proper screening tool, high-risk children can be identified and referred for further follow-up testing`

**P 141 Early treatment of pseudo Class III malocclusion**

Schroe SC\*, Nai Chung Tong TA, Krijnen J, Hesse D, Bonifacio CC  
 Academic Center for Dentistry Amsterdam, The Netherlands

**INTRODUCTION** `Pseudo Class III malocclusion is characterized by an anterior crossbite, retroclination of upper incisors, a skeletal Class I relationship and no family history of a skeletal Class III relationship.` **BACKGROUND** `This case report describes the orthodontic treatment carried out in a young patient with a pseudo Class III malocclusion.` **CASE REPORT(S)** `A 4-year old male of East-Asian descent with an anterior crossbite was referred to the department of Paediatric Dentistry of the Academic Center for Dentistry Amsterdam. After cephalometric analysis, he was diagnosed with a pseudo Class III malocclusion. Because the cooperation and motivation of the patient were appropriate, a removable maxillary appliance was used to correct the anterior crossbite. The removable appliance was designed with an acrylic plate with Adams clasps on all four upper deciduous molars, a labial arch, posterior bite-planes and a Bertoni screw. Patients instruction were given to wear the appliance every day and night, except during eating. The patient was in active treatment for 9 months; with visits every 2 weeks to activate the appliance. Once an adequate overjet and overbite were achieved, a retention period of 3 months was executed.` **FOLLOW UP** `Periodic evaluation of maxillomandibular growth and occlusion, although relapse in this situation is not expected.` **CONCLUSIONS** `Pseudo Class III malocclusion in young patients can be corrected with a simple and fast procedure. Early diagnose from the pediatric dentist and early correction is important to provide a more favorable environment for growth and to avoid development of a true skeletal Class III.`

**P 142 Evaluation of dental and skeletal effects of functional appliances associated with skeletal maturation of cervical vertebrae**

Ferrer Colomar M\*, Diaz Gonzalez L, Garcia Villa C, Maura Solivellas I, Guinot Jimeno F  
 Universitat Internacional de Catalunya (UIC), Spain

**AIM** `To evaluate dental and skeletal effects of orthodontic functional appliances associated with skeletal maturation stage.` **METHODS** `A retrospective population study of 47 patients evaluated over a period of 2 and a half years was carried out at HM Nens Barcelona. Sander plates were used for at least one year and, at the time of placement, the patients presented a skeletal class II according to Ricketts' cephalometric analysis. Using the same analysis, evolution of point A, inclination of the upper and lower incisors and facial convexity were recorded from the initial cephalograms and those taken upon completion of functional therapy. These variables were related to the skeletal maturation stage using Lamparski's analysis. The patients' parents gave their informed consent. Statistical analysis was performed using the Shapiro-Wilk, T-student, ANOVA and multiple comparisons tests, where a result of p 0.05 was considered statistically significant.` **RESULTS** `No statistically significant differences were observed among skeletal maturation stages, in point A, the inclination of the maxillary incisors or facial convexity (p value 0.05). However, statistically significant differences were noted in the position of the mandibular incisors, before, after and across groups when the functional appliance was placed in stage 1 (p = 0.000), 2 (p = 0.04) or 5 (p = 0.048).` **CONCLUSIONS** `Most of the changes produced by functional appliances occurred in early stages of`



development before the peak of growth (cervical stages 1 and 2), both dental and skeletal, with stage 2 showing major changes.

**P 143 An alternative for the correction of anterior crossbite - Case Report**

Lopes LB\*, Kizi G, Barata RG, Ventura I  
Instituto Universitario Egas Moniz, Portugal

**INTRODUCTION** `Anterior crossbite refers to maloccluding resulting from buccal position of the mandibular anterior teeth in relationship to the maxillary anterior teeth. It can be differentiated into skeletal and dental crossbite. An early correction is advised to prevent dental skeletal and periodontal repercussions.`

**BACKGROUND** `A different and comfortable approach, without the use of any orthodontic appliances is described, by means of the resin composite build-ups. This increase in vertical dimension allows forward movement and buccal crown inclination of the maxillary teeth, in contrast to the opposing mandibular teeth that show posterior repositioning and lingual crown inclination.`

**CASE REPORT(S)** `A 7-year-old female patient presented to Egas Moniz University Clinic (Egas Moniz Health Sciences Institute), at the Paediatric Dentistry consultation, where it was observed mixed dentition, no active caries, anterior crossbite but not posterior crossbite. Without evidence of Class III skeletal pattern, having not performed any orthodontic treatment till that moment. Bilateral build-ups with conventional composite on the lower second deciduous molars were performed, creating an iatrogenic open bite. After 2 months the anterior permanent teeth move to their normal position. Stand out that no effects on the vertical dimension on the face and it was only reported some discomfort during mastication on the first five days.`

**FOLLOW UP** `After 1 year of follow-up, the case remains stable and without any complaints.`

**CONCLUSIONS** `This simple and different approach creates an anterior open bite that allows in the mixed dentition a spontaneous movement, with a minimum level of compliance required by the patient.`

**P 144 Orthodontic management of impacted tooth by modified Nance appliance : Case reports**

Choi N\*  
Department of Pediatric Dentistry, College of Dentistry, Chonnam National University, South Korea

**INTRODUCTION** `Impacted teeth cause not only functional and esthetic problems but also root resorption of the adjacent teeth, requiring immediate treatment.`

**BACKGROUND** `This case report presents treatment procedures of impacted teeth using Moon's appliance, a modified form of Nance appliance. It is a new type of fixed orthodontic appliance that facilitates convenient exchange of retraction wires by attaching a bracket on the resin button of the Nance holding arch.`

**CASE REPORT(S)** `In three patients, a maxillary left central incisor with horizontal impaction, a maxillary canine located between the central and lateral incisors, and a maxillary first molar with mesial impaction were detected and diagnosed with panoramic radiographs and dental CT images. Surgical opening was performed, and a button for traction was attached to the surface of the tooth. Moon's appliance was designed and applied. TMA wire was used for retraction and ligated with a ligature wire on a standard bracket of the appliance. Force between 50 gm and 100 gm was applied. Apically positioned flap was performed in a case with little attached gingiva.`

**FOLLOW UP** `In all three cases, orthodontic traction was successfully performed. There was little to no sign of root resorption, periapical lesion, or gingival recession.`

**CONCLUSIONS** `Orthodontic traction of the impacted tooth was successfully performed using Moon's appliance, requiring little cooperation from the patient. Usage of the appliance enabled application of a light and constant force in the dental arch. It could also reduce the hassle of removing the entire device to change the direction and extent of force.`

**P 145 Ectopic eruption of first permanent molar: Case reports**

Katechi V\*, Liatsi A, Tagkalaki A, Vadiakas G, Gizani S  
Paediatric Dentistry Department, National and Kapodistrian University of Athens, Dental School, Greece

**INTRODUCTION** `Ectopic eruption of a permanent tooth involves abnormal resorption of a portion or the whole adjacent primary tooth.`

**BACKGROUND** `Among the most commonly ectopically erupted teeth are the permanent first molars. These teeth appear to deviate from normal eruptive pathways and become 'locked' behind the distal aspect of the second primary molar. There are two types of ectopic eruption:



reversible and irreversible. A diagnosis of ectopic eruption is usually made on the basis of combined clinical and radiographic findings.` `CASE REPORT(S)` `A 7-year-old girl presented to our clinic with a broken #55. After clinical examination both #16 and #26 revealed ectopic eruption. Extraction and space regain was chosen for #16 while #26 erupted after using Brass wire. An 8-year-old boy came to our clinic. After clinical and radiographic examination #16 was "locked" behind #55 and had never erupted. Extraction and space regain was the chosen treatment. Two 7-year-old girls referred to our clinic. After clinical examination #16 was "locked" under #55. Brass wire in the first case and a Halterman device in the second one were used.` `FOLLOW UP` `After one year, no further complications have been noted.` `CONCLUSIONS` `Early intervention is very important for the development of proper occlusion. Depending on the severity of the impaction of PFMs, several treatment modalities have been reported which often aim to apply interproximal wedging for minor impaction and distal tipping of the ectopic molar for severe cases. If second primary molar cannot be maintained extraction and space regain or maintain is the only choice.

**P 146 Effect of an anesthetic chewing gum on the initial pain or discomfort from orthodontic elastomeric separator placement**

Abu Al-Melh M\*

Kuwait University Faculty of Dentistry, Kuwait

**AIM`** `The aim of this study was to investigate the effect of a formulated anesthetic chewing gum (ACG) on the initial pain/discomfort resulting from the placement of orthodontic separators.` `METHODS` `The preparation of ACG formulation was investigated using food and drug administration (FDA)-certified ingredients. Sixty subjects were recruited and randomly allocated to three groups: (1) ACG, (2) chewing gum (CG) without anesthetics or (3) control (no CG) group. All subjects received an orthodontic elastomeric separator that was placed between the maxillary right or left first molar and second premolar. For all groups, the registration of pain/discomfort experienced immediately after separator placement (0 hour), then after 1, 4, and 8 hours was carried out using the visual analog scale.` `RESULTS` `Regarding the pain/discomfort perception, there was a statistically significant difference (p value 0.0001) between the three groups (ACG, CG, and controls) at each of the three-time points (1, 4 and 8 hours). There were no harms reported by both groups except for temporary mild muscle soreness from gum chewing that was reported by four subjects from the ACG group and two subjects from the CG group.` `CONCLUSIONS` `The ACG can significantly decrease and eliminate the initial pain/discomfort resulting from the placement of the orthodontic elastomeric separators. Furthermore, the ACG may decrease the need for a systemic analgesic.

**P 147 Extraction of significantly compromised first permanent molar followed by orthodontic treatment. Report of five cases.**

Panagiotou E\*, Liatsi A, Mylonopoulou M, Sifakakis I, Gizani S

National and Kapodistrian University of Athens, Faculty of Dentistry, Department of Pediatric Dentistry, Greece

**INTRODUCTION`** `A considerable number of caries is found on first permanent molars (FPM) in children 12 to 15 years old.` `BACKGROUND` `Enforced extraction of compromised first permanent molars followed by orthodontic treatment at five cases of patients over the age of 10.` `CASE REPORT(S)` `In an 18 years old female with severe decayed FPM, class I, posterior crossbite, extraction of all FPM were carried out and fixed appliances were placed (Case 1). In Case 2, a 15 years old female with previous loss of #46, severe decayed #16, class II, significant crowding, had #16,26,34 extracted and fixed appliances. Case 3: In an 18 years old female with compromised #16,26, class II occlusion, severe crowding, anterior open bite, #16,26 were extracted and fixed appliances were placed. Similar treatment was carried out in a 14 years old female (Case 4) with previous loss of #16, 36, excessive decay #26, class II, posterior crossbite and anterior open bite. In an 11 years old male with class III (Case 5), #26,16 being extracted two years ago, monitoring of the favor eruption of #17,27 and future orthodontic management were carried out.` `FOLLOW UP` `All patients were under orthodontic treatment for minimum of thirty months.` `CONCLUSIONS` `Every case of compromised FPM is unique and should be examined by a paediatric and an orthodontic specialist. The prognosis of the restoration longevity, the type of occlusion and the level of the tooth development should be considered when it comes to treatment plan.

**OPD 1.148 Management of root resorption of lateral incisors under a joint paediatric and orthodontic care**

**Chau Y\*, Monk A, Seshu M, Jarad F, Lee S**

University of Liverpool Dental Hospital, United Kingdom

**INTRODUCTION** `Teeth undergoing root resorption are often deemed as having a poor long term prognosis and treatment often requires extractions.` **BACKGROUND** `These three cases demonstrate a joint Paediatric and Orthodontic approach for the management of root resorption of lateral incisors.` **CASE REPORT(S)** `Case 1 presented with root resorption of the upper lateral incisors whilst the upper canines were erupting. The patient underwent a course of fixed appliances whilst the upper lateral incisors remained in situ. There was no progression of root resorption of the lateral incisors. These teeth had short roots but were aligned into position, they were vital and non-mobile. Case 2 presented with root resorption of the upper right lateral incisor caused by the erupting ectopic upper right canine. The upper right canine was surgically exposed and a gold chain was attached to the tooth. The upper lateral incisor was no longer in the path of eruption of the canine. The upper lateral incisor was root filled once the canine was fully erupted. No orthodontic intervention was required. Case 3 presented with root resorption of the upper lateral incisor caused by an impacted canine. More than half of the root was resorbed. The upper lateral incisor was extracted and the canine was aligned in lateral incisor position.` **FOLLOW UP** `.` **CONCLUSIONS** `These cases highlighted the different treatment modalities used to treat root resorption of upper lateral incisors complicated by malocclusion, ectopic and impacted teeth. It demonstrates that a multidisciplinary approach is useful in treatment planning for these complex cases.

**P 149 Alternative appliances for correcting severe ectopic eruption of first permanent molars**

Vadiakas G\*, Giannoukou E, Birbou E, Triantafyllou T

Dental School, National and Kapodistrian University of Athens, Greece

**INTRODUCTION** `Ectopic eruption of first permanent molars describes the deviation of the tooth from its normal eruption path resulting in a locked position distally to the second primary molar. The aim of the abstract is to present the correction of ectopic eruption of first permanent molars using different orthodontic appliances in school aged children.` **BACKGROUND** `The prevalence of ectopic eruption of first permanent molars varies between 2-6%, however, it occurs 25 times more often in the maxilla compared to the mandible. The severity of the ectopic eruption ranges from mild to very severe and both local factors and genetic background are implicated.` **CASE REPORT(S)** `A 7-year old boy with an ectopically erupting mandibular right first permanent molar was referred for correcting its position in the dental arch. Clinical and radiographic examination revealed severe ectopic eruption of #46 initiating resorption of the second primary molar. Correction was achieved with a fixed appliance using tooth #85 as anchorage and elastic forces to move #46 distally. A 6-year-old girl was referred for management of a maxillary first permanent molar erupting in an ectopic position. Orthodontic treatment was initiated by using a spring designed to deliver distal forces to the permanent molar.` **FOLLOW UP** `Both children were followed until full eruption of permanent molars that were initially erupting ectopically.` **CONCLUSIONS** `Orthodontic correction of severe eruption of first permanent molars is possible, provided that the diagnosis is set early enough to avoid extensive resorption of the adjacent second primary molar.

**P 150 Aggressive periodontitis in the primary dentition: A Case report**

Arnon-Tzadok L\*, Blumer S, Peretz B

Department of Pediatric Dentistry, School of Dental Medicine, Tel Aviv University, Tel Aviv, Israel

**INTRODUCTION** `The Prevalence of Periodontitis in multiple teeth among children is 0.2%-0.5%. The etiology is usually unknown. The rate of destruction is 3-4 times faster in children.` **BACKGROUND** `Current modalities for managing periodontal disease in children and adolescents include antibiotic therapy in combination with non-surgical and/or surgical therapy.` **CASE REPORT(S)** `A 6-year-old girl was referred to the department with a random finding of severe bilateral bone loss surrounding first primary molars, resulting in tooth mobility, periodontal pockets of 8 mm and spontaneous exfoliation of tooth 54. Detailed

medical history was taken and she was referred to a bone metabolism clinic for further evaluation. Under GA, due to lack of cooperation, a full periodontal chart, microbial testing and bitewings revealed deterioration, so teeth 74,75,84,85,64,65 were extracted. Soft tissue attached to the extracted teeth were sent to biopsy. Thorough oral prophylaxis and root planning were performed. Systemic antibiotics was prescribed. **FOLLOW UP** In the 3-day follow up, the sockets seemed to heal well, the patient was eating regularly and had no discomfort. In the 3-month follow-up all periodontal pockets surrounding first permanent molars measured up to 3 mm. **CONCLUSIONS** There is no clear protocol to treat periodontal disease in the primary dentition. The main goal of periodontal therapy in children is to prevent damage to the permanent dentition. Collaboration with other disciplines: periodontics, microbiology is needed, to determine the best approach in achieving periodontal health for children with periodontal disease.

**P 151 Quality of life of the children living in the epidemic fluorosis district**

Kiselnikova L\*, Kiriya S, Zueva T, Bulannikov A

Department of Pediatric Dentistry Moscow State University of Medicine and Dentistry named after A.I. Evdokimov, Russian Federation

**AIM** to study how dental fluorosis severity affects the quality of life of the children living in the endemic fluorosis district, Moscow region, Russia. **METHODS** 47 children aged 12 years living in the endemic fluorosis district were examined and asked to fill in the CPQ questionnaire to measure the quality of life. Using Spearman's rank correlation coefficient (r) the correlation between dental fluorosis severity of permanent teeth (Dean) and the answers to the questions were analyzed. **RESULTS** the children showed high prevalence of fluorosis in permanent teeth, at the same time 14,89% of them had doubtful fluorosis, 17,02% - very mild, 21,28% - mild, 10,64% - moderate (Dean), no destructive or severe form was found out. However, the caries prevalence was 65,96% and the DMFT index showed the caries intensity of 2,17. The correlation analysis showed the direct moderate correlation between dental fluorosis severity and the quality of life of children aged 12 years ( $r=0,430$ ,  $P0,05$ ). The strongest correlation was found out in the paragraphs of social well-being ( $r=0,534$ ,  $P0,001$ ) and emotional well-being ( $r=0,610$ ,  $P0,001$ ). **CONCLUSIONS** fluorosis in permanent teeth of children has a certain effect on both the quality of life of a child on the whole and on its components.

**P 152 A three cycle audit on periodontal screening amongst children within the Community Dental Service (CDS)**

Murthy VE\*, Gillespie J, Franklin E

Cwm Taf Morganwg University Health Board, United Kingdom

**AIM** To assess compliance with periodontal screening within the CDS and compliance with regards to other components within BSPD's Simplified Basic Periodontal Examination (SBPE) guidance, such as appropriate management based on SBPE scores and completion of an SBPE prior to orthodontic referral. **METHODS** Approval was sought from the Audit Committee of the UHB. A total of 180 patient's attending new and review appointments were audited during each cycle of this audit from September 2017 to January 2020. The Clinician's audited were of varying levels of experience and were audited at various different locations within the CDS. Data was obtained from Patient Electronic Dental Records (PEDRs) and was analysed using descriptive statistics. **RESULTS** A 13% improvement was made over the course of this audit with regards to overall compliance. Overall compliance at the end of cycle 3 was 75%. An average cycle-on-cycle improvement of over 12% was observed in the 7-11 age group. At the end of this audit, over 80% off the sample had appropriate management based on SBPE scores. Over 80% had an SBPE completed prior to orthodontic referral. Quality improvement measures implemented over the course of this audit included the introduction of laminated cue cards to all clinics within the CDS, Education and Training to staff and introduction of an SBPE section within the recommended template used to record PEDRs during examinations. **CONCLUSIONS** There has been a sizeable improvement in periodontal screening within the CDS and it is expected that the measures implemented further improve compliance.

**P 153 Can we reduce the risk of missed dental appointments by managing children's dental anxiety more pro-actively?**

Rodd H\*, Graham A, Campbell F, Knapp R, Zaitoun H  
School of Clinical Dentistry, University of Sheffield, United Kingdom

**AIM** `To determine whether a pre-operative letter and communication aid, Message to Dentist (MTD), designed to reduce children's dental anxiety, could also improve attendance rates to a new patient assessment visit.` **METHODS** `All new patients referred for an assessment (13th-24th January, 2020), in our hospital paediatric dentistry clinic, were sent a hard copy MTD and introductory letter six-weeks prior to their appointment. The MTD included two sections, one for parents providing suggestions of ways they could help their child feel less worried. It also included a section for children to: assess their dental anxiety and anticipatory pain (scale 1-10); record what they would/would not like to happen; provide tips to help them cope with treatment and ideas for a reward. A record was kept of every child who was not brought (WNB) (i.e. missed/ cancelled appointments) during this two-week period and the WNB rate was compared with the same two-week period in 2019.` **RESULTS** `Data were obtained for 178 new patients. These children had a mean age of 8.3 years (range=3-16 years). A third (34%) of referral letters specifically stated that the child was anxious/pre-cooperative and 9% of patients had previously received dental treatment under general anaesthesia. Children's mean self-rated anxiety score was 4.9 (SD=3.06; range=0-10). Nearly half (44.8%) reported the MTD had made them feel less worried. The overall WNB rate for a new patient appointment in 2020 was 14%, half that recorded for 2019 (WNB rate=31%; n=30/94).` **CONCLUSIONS** `Sending children a pre-visit communication aid appears to improve attendance.

**P 154 An audit to assess medical history recording for new patients in a Paediatric Dental Department**

Patel K, Selby-Bennett C, Johnson A\*  
Department of Paediatric Dentistry, Eastman Dental Hospital, University College Hospital, London, UK, United Kingdom

**AIM** `To assess compliance with medical history checking on the electronic health recording system (EHRS) at new patient consultations (NPC). The gold standard used was GDC Standards for the dental team which states 100% of patients should have their medical history reviewed at NPC.` **METHODS** `Patients seen for NPC between 1st April and 31st May 2019 were identified retrospectively via EHRS. Information regarding medical history recorded from clinical records, logged on a Microsoft Excel® database and analysed.` **RESULTS** `149 (63.1%) out of 236 patients had their medical conditions recorded and 9 patients (3.8%) had no evidence their medical conditions had been checked. For 78 patients (33.1%), it was unclear whether their medical conditions had been recorded at NPC as they had since been reviewed at recall appointments. 199 patients (84.3%) had their medication list reviewed, with 37 (15.7%) not being checked at all. 230 patients (97.5%) had their allergy status recorded, with 6 (2.5%) not being checked at all. Only 126 (53.4%) patients had all aspects of their medical history recorded. It was unclear for 78 patients (33.1%) whether the complete medical history was recorded at time of NPC.` **CONCLUSIONS** `The standard was partially met with a need to further improve our medical history record keeping identified. The findings were shared with staff members and highlighted the importance of recording medical history to allow efficient transfer of care and as an integral component of good governance.

**P 155 Mini Mouth Care Matters: Improving oral health in paediatric inpatients in East Kent Hospital University NHS Trust**

Lau K\*  
Torbay and South Devon NHS Trust, United Kingdom

**AIM** `Mini Mouth Care Matters (Mini MCM) is a national initiative to improve oral health in paediatric hospital inpatients in the UK. Obvious dental decay is experienced by a third of 5-year-olds in England. Emergency hospital admissions can negatively impact patients' usual dental routines, and in turn, poor oral health can impact required emergency hospital treatment. This aims to assess the effectiveness of Mini MCM in East Kent Hospitals University NHS Trust (EKHUFT).` **METHODS** `This prospective audit assessed twenty records each of nursing staff views, patient perspectives, and clinical records of mouth care and tool provision in the paediatric departments of EKHUFT. A second audit cycle was repeated six months later following



application of Mini MCM, consisting of in-house training and assessment tool use. **RESULTS** The baseline audit revealed 0% of records were kept for mouth care assessment and provision, and 57% of nursing staff felt there were difficulties providing mouth care. Following training and use of an assessment tool, an improvement in record keeping (75%) and nursing views on difficulties with mouth care provision (32%) were noted. **CONCLUSIONS** Challenges within the wider healthcare system can act as a barrier for staff to promote good oral health, and making every point of contact count. Although Mini MCM is relatively new, it has showed a positive impact and aided initiation of a mouth care policy in EKHUFT. Further audit cycles can reveal the long-term impact of Mini MCM.

**P 156 Therapeutic education and early childhood caries : effects of the first french oral health program**

Marquillier T, Delfosse C\*, Catteau C, Trentesaux T

Paediatric Dentistry Department, Faculty of Dentistry, Lille Hospital, Lille, France

**AIM** The objective of the study is to assess the effects of a therapeutic education program for children with early childhood caries (ECC) and their familial environment. **METHODS** 13 children with ECC, aged 3 to 7, and their parents followed an overall educational program including an educational diagnosis followed by four workshops. During the child's first visit and at the end of educational care, the following data were recorded: cognitive skills on carious disease and eating habits, oral hygiene skills and quality of life rated by parents, dmft and plaque index. The number of emergency appointments, the feeling of the perceived benefit for the family and the parents' satisfaction score were also evaluated. **RESULTS** The patients were seen on average 2 years after their first visit. Cognitive skills in carious disease and eating habits, as well as technical skills in oral hygiene, have improved significantly. Stabilisation of the dmft and plaque index was observed. No emergency visit was recorded. Parents reported positive benefits for the family and increased quality of life for the child. They reported substantial satisfaction with their care. **CONCLUSIONS** Developing a structured educational program adapted to the needs of children with ECC and their familial environment is necessary to optimise the management of this chronic disease.

**P 157 Monitoring parental satisfaction regarding dental services in private paediatric dental clinic**

Tsiantou D\*

Private practice, Greece

**AIM** The aim of the study is to evaluate parents' satisfaction regarding dental staff, dental clinic and dental services, as well as behavior management techniques' acceptance. **METHODS** The study was held in a private Pediatric Dental Clinic, in Thessaloniki, Greece in a 2-week period. A questionnaire was distributed to native speaking parents whose children received preventive and restorative treatment. The questionnaire was consisted of questions about demographic data, satisfaction of dental staff, dental services and behavior management techniques. **RESULTS** 183 questionnaires out of 195 were returned completed (response rate: 93,8%). The parents' and patients' mean age was 39, 7 years and 7,6 years, respectively. The average level of overall satisfaction was high ("very satisfied"). When parents felt that the dentist spent more time with them, they were more satisfied with the received dental quality, the dental staff's politeness and appearance, and the dentist's scientific knowledge ( $p=0.001$ ). Overall, parents accepted more easily the Parental Presence/Absence as a behavior management technique than Voice Control, although the big majority refused both of them, as well as general anesthesia. The main complaint was the long waiting time in booking appointment with their doctor (40.1%) and therefore they seemed to be dissatisfied when another dentist provided them treatment (32.5%). **CONCLUSIONS** Parental satisfaction in a pediatric dental clinic depends on many factors including the decoration, the dental staff's behavior and the techniques of behavior management. A long waiting time for booking an appointment is the main complaint.

**P 158 Probing for perfect periodontal outcomes**

Shankland M\*, O'Leary F

Glasgow Dental Hospital & School, United Kingdom

**AIM** To increase recording of simplified BPEs in compliant children. To standardise the management of periodontal conditions in paediatric patients **METHODS** British Society of Periodontology and British Society of Paediatric Dentistry guidelines on screening and management of periodontal conditions in



children, outline simplified BPE as the method of choice to reach a provisional diagnosis of periodontal health or disease for children aged 7- 18. Screening periodontal health within Glasgow Dental Hospital Paediatric Department should be carried out for all New Patient Assessments (NPA). A pilot study sampling 14 compliant patients from a (NPA) in October 2019 found that only 50% of patients had documented BPEs. From 5 patients with BPE codes of 1 or more, only 1 had the findings informed to the referring Dentist. The remaining 6 did not have oral health promotion as part of their treatment. Changes were made in the department and an aim to increase compliance with BPEs was enforced. Anticipated drivers to improve compliance are:

- Standardise WHO 621 BPE probe availability
- Dental Nurses to reminding clinicians
- Visual prompts on clinic

**RESULTS** Following initial data collection it is evident that compliance is improving. After initial implementations, an increase in compliance of BPE recording has been noted, results fail to achieve the original aim.

**CONCLUSIONS** BPEs continue to be an underutilised screening tool. It is important that we appreciate BPEs in a fully comprehensive examination and treatment plan. As a department we are striving to further improve our compliance and eventually develop a standardised paediatric periodontal pathway.

**P 159 A study of factors involved in planning care pathways. A mixed method study.**

Abdullah E\*, Greenhalgh J, Drummond B, Tahmassebi J

Paediatric Dentistry Department, School of Dentistry, University of Leeds, United Kingdom

**AIM** To understand factors affecting paediatric dentists' decisions on planning care pathways for children with dental caries.

**METHODS** The study was carried out in two phases: I quantitative and II qualitative. I. a retrospectively refined cohort study was carried out reviewing 172 clinical records from a three-month period. SPSS 23 software was used and Multinomial Logistic Regression Analysis carried out. II. Stratified purposive sampling was applied. Thirteen participants, aged 5-9 years were seen by three paediatric dentists. The consultation conversation was audio-recorded. The researcher separately interviewed the consultant and the family regarding the planned care pathway. Interviews were audio-recorded and transcribed. Thematic analysis of qualitative data was carried out using Nvivo 12 software

**RESULTS** I. No gender differences were found. 60% of the children were aged between 4 and 7 years (mean = 6.5,  $\pm$  2.8SD); 61% were from the most deprivation. 57% of GA care pathways agreed between referring dentists and consultants. II. Eleven cases were tracked individually and analysed. The main themes detected in planning a care pathway for dental caries management are 1- Urgency of care. 2- Timeframe to deliver treatment. 3- Child behaviour assessment. 4- Parent wishes.

**CONCLUSIONS** The process of planning a care pathway for children with dental caries is complex. It involves multiple factors that influence paediatric dentists to decide on a care pathway.

**P 160 30 years of children's dental programme in Osakidetza, Basque Health Service**

Urberuaga Erce M\*, Izaguirre Mendikute I, Izaguirre Urberuaga A, Rodriguez Menacho D, Castano Se'iquer A

Basque Health Service, Spain

**AIM** The aim of this health politics programme is that children grow up in good health and in that way the CAO index will get reduced.

**METHODS** In 1990 the Basque Government implemented a dental assistance service for children. They carried out the fluoridation of the water, which covers the 75% of the population, and they started a good quality system of dental assistance for children. The basis of the programme is to ensure a basic dental assistance of the children's population between seven and fifteen years. This service includes regular check ups, sealing of fissures, holes, and Endodontic treatments. The temporary detection treatments and orthodontical treatments excluded. A board of general practitioner dentists have been formed, the majority of whom are dentists of the private sector who have been employed for that aim, together with dentists of the public sector.

**RESULTS** In the epidemiological research of 1988, 17% of the fourteen year old children's teeth were free from caries in their permanent dentition. In the research of 2018, 74% of the children of this age were free from caries.

**CONCLUSIONS** The dental health of our children has remarkably improved in the last thirty years, and this has been a direct consequence of the proper assistance.

**P 161 Children's view of the Mandarin version of a cognitive behavioural therapy (CBT) resource: A qualitative study**

Marshman Z, Wang M\*  
National Yang Ming University, Taiwan

**AIM** `To explore Taiwanese children's perspectives on the Mandarin version of a cognitive behavioural therapy (CBT) resource called 'Your Teeth You Are In Control' and ways it could be improved.` **METHODS** `Qualitative interviews were conducted with 15 children aged 9-12 years with varying levels of dental anxiety from a paediatric dentistry clinic. Interviews were recorded and transcripts coded. The content was organized using thematic analysis.` **RESULTS** `Three themes emerged: facilitation of communication, provision of coping strategies and content validity. Children felt the resource aided communication between them and the dentist, particularly in the initiation of conversations about dental anxiety. Children were then able to develop their own coping strategies based on the suggestions in the resources and their discussions with their parents and dentist. While these strategies were successful for some children, those with severe dental anxiety felt that while their ability to cope with treatment was improved, the use of the resources was insufficient to fully allow them to accept treatment readily. Finally, in terms of the content validity for Taiwanese children some of the younger children found the burden of reading too much and there were difficulties with the meaning of some words being lost in translation.` **CONCLUSIONS** `The Mandarin version of the CBT resources helped children to better understand and deal with their anxiety, particularly those with mild to moderate dental anxiety. Further refinement of the wording of the Taiwanese version is required following their use with this first group of dentally anxious children.

**P 162 Association between parent-child attachment, caries experience and dental plaque in children and adolescents in Germany**

Hadid H\*  
University of Greifswald, Germany

**AIM** `The aim of this study was to examine the potential associations between parent-child attachment quality, dental caries and oral health in children and adolescents.` **METHODS** `A cross-sectional study was conducted with 200 children and parents who were divided into two age groups: 9 years old and  $\geq 9$  years old. In the first group (9 years old, N=100) only the parents answered the validated self-reported version of the Postpartum Bonding Questionnaire (PBQ) and the Maternal Postnatal Attachment Scale (MPAS), Whereas in the second group ( $\geq 9$  years, N=100) only the child or adolescent completed the parent's part of the Inventory of Parent and Peer Attachment (IPPA). At the same appointment, oral health parameters of the child were also assessed.` **RESULTS** `There is an evidence that attachment quality between the child and his caregiver has a significant negative correlation with dmft/DMFT levels in children 9 years old ( $r = -0.46$ ;  $P=0.000$ ) and in children  $\geq 9$  years old ( $r = -0.52$ ;  $P=0.000$ ). After model adjustment this association remained significant between API index and attachment quality in both age groups (9 years old, coefficient:  $-2.939$ ; 95% CI:  $-4.051, -1.827$ ) ( $\geq 9$  years old, coefficient:  $-1.572$  95% CI:  $-2.532, -0.613$ ), while dmft/DMFT remained significantly associated only in children  $\geq 9$  years old (coefficient:  $-0.052$ ; 95% CI:  $-0.140, 0.036$ ).` **CONCLUSIONS** `High quality of parent-child attachment has led to optimal oral hygiene, less dental decay and healthy gingiva. Findings support previous researches adopting attachment as a framework to understand oral health life style.

**P 163 The etiology and prevalence of MIH and HSPM in children aged 8-12 year-old in a specific region-A preliminary study**

Alkis M\*, Ezberci S  
Usak University, Faculty of Dentistry, Department of Pediatric Dentistry, Usak, Turkey

**AIM** `Molar-incisor hypomineralization(MIH) is defined as a qualitative developmental disorder of the enamel of systemic origin of one or more first permanent molars where the incisors are affected or unaffected. Same condition has been observed in second primary molars and called as hypomineralized second primary molars(HSPM). Although there is no definite conclusion about the etiology, multifactorial causes including genetics has been identified . The aim of this study was to investigate the incidence and etiology of MIH and HSPM in patients aged 8-12 years who educated in 3 chosen public schools in center of Usak city.` **METHODS** `A 35-item questionnaire was administered to the 287 children's parents; which

contains disorders during pregnancy, premature birth or the child's diseases such as upper respiratory tract, febrile diseases or chicken-pox until the age of 4 years. In the oral examination, defects on the molars/incisors were recorded by scoring. The data were analyzed by Chi-square and Spearman's rho tests. **RESULTS** In our study; MIH prevalence was 24,4% and White-creamy demarcated opacities had the highest rate. HSPM rate was 3,5%. Positive correlation between MIH and HSPM was found. While MIH and HSPM were not significantly related with tonsillitis, pharyngitis, asthma or febril diseases; chicken pox seems to have an influence on defects. Also there was a significant correlation with gestational hypertension. **CONCLUSIONS** MIH has recently been considered as a major clinical problem in many European countries. The prevalence, severity, and treatment needs of children should be monitored and followed. Families and children should be adequately informed.

**P 164 The quality and acceptance of bitewing radiographs regarding the type of film holder: a randomised clinical trial.**

Van Acker JW\*, Jaquet W, Martens LC

Department of Paediatric Dentistry, PaeCoMeDiS Research Cluster, Ghent University, Ghent, Belgium

**AIM** To compare the quality and comfort of bitewing radiographs taken in children, for different film holders. **METHODS** Four types of film holders (Rinn-set, Emmenix, Snap-A-Ray, and Kwik-bite) were used randomly in patients (4-10 years old). Patient age, gender, and prior experience as well as left- or righthandedness and experience level of the trained practitioner were registered. Comfort according to the practitioner and the patient was measured on a five-level categorical and Faces VAS scale respectively. The quality was measured by two observers for seven categories (horizontal overlap of the approximal surfaces, vertical distortion, horizontal, vertical and diagonal positioning, cone cuts, artefacts). Descriptive analyses and Generalized Linear Mixed Models taking into account the patient effect were performed. **RESULTS** In 71 children 136 radiographs were taken (30 Emmenix, 32 Rinn-set, 18 Snap-A-Ray, 56 Kwik-Bite). Intra and inter-rater reliabilities were moderate to very good (Gwet's AC1= 0.52-1 and Gwet's AC1= 0.55-0.87). At least one quality parameter was unacceptable for 30% of the radiographs. For horizontal positioning and horizontal overlap, the experience of the practitioner resulted in significantly higher quality ( $p=0.000$ ;  $p=0.007$ ). For vertical distortion, the type of film holder played a significant role ( $p=0.003$ ). **CONCLUSIONS** The quality of the radiographs did not achieve the aim of a maximum of 10% unacceptable radiographs. The type of film holder did affect the image quality but not the comfort for the patient. The higher experience of the practitioner resulted in better horizontal positioning and less horizontal overlap of the bitewing radiographs.

**P 165 The impact of Oral Health Status on the Oral Health Related Quality of Life of Adolescents with Type I Diabetes Mellitus**

AlMutairi FF\*, Pani SC

Department of Preventive Dental Sciences, Riyadh Elm University, Riyadh, Kingdom of Saudi Arabia

**AIM** The aim of this study was to assess the impact of oral health status on the oral health-related quality of life (OHRQOL) of children between 12-15 years with type 1 diabetes mellitus (IDDM) in Saudi Arabia and compare these findings to age and gender-matched medically fit children. **METHODS** A total of 40 children aged between 12 to 15 years with (IDDM) group presenting to the pediatric endocrinology clinic of the KSMC, Riyadh were age and gender matched to a control group of children reporting for a routine dental check up at the dental clinics of the REU. The oral health of all children was recorded using WHO examination criteria. Parental perception of the OHRQoL was recorded using the validated Arabic version of the short form child oral health impact profile – short form (COHIP-19). The independent samples t-test was used to compare the DMFT, Gingival index and COHIP19 domains of the two groups. **RESULTS** Individuals with IDDM had higher Gingival Index and DMFT scores however the differences were not statistically significant. The IDDM group showed higher COHIP scores across all domains. However, the differences were only statistically significant for the oral health domain ( $p=0.003$ ). **CONCLUSIONS** Children with IDDM had better oral health both in terms of dental caries and gingival status when compared to their age-matched controls. However, they had significantly higher oral health domains and suggest a poorer overall OHRQoL in children with IDDM.

**P 166 Pediatric dentists use of the Hall technique in the United States.**

Gonzalez CD\*, Hodgson BD, Singh M, Okunseri C

Division of Pediatric Dentistry, Marquette University School of Dentistry, Milwaukee WI, USA

**AIM** `To assess pediatric dentists' knowledge, attitudes and current use of the Hall Technique Pre-formed Metal Crowns (HTPMC's) in the United States.` **METHODS** `An electronic questionnaire built on a previous national survey administered in the United Kingdom with consent to participate was emailed to pediatric dentists who are active members the American Academy of Pediatric Dentistry. Descriptive and multivariate analyses were done to identify associated factors with use of technique` **RESULTS** `The number of pediatric dentists who completed the survey was 587 (9%), 78.8% were diplomats of the American Board of Pediatric Dentistry, males 51.8%, and non-Hispanic white 76.5%. Five hundred fifty-six (96%) reported that they were familiar with HTPMCs while 222 (39%) currently use HTPMCs. Majority (57.2%) of those reporting that they used HTPMCs have been using them for two years or less. Dental practices with a larger percentage of Medicaid patients were more likely to use HTPMCs (P=0.0003). The percentage of dentists using HTPMCs was higher for academic intramural, community or public health practice compared to private or hospital-based groups (P=0.0044). The three most frequently answers for not using HTPMCs were concerns with eruption interference (n=203), high occlusion (n=164), and pulp necrosis (n=160). Male dentists at suburban and urban locations reported using HTPMCs less frequently than female dentists (P=0.0111) in rural areas` **CONCLUSIONS** `HTPMC's were used by less than half of the respondents and almost all were familiar with the technique. Females, practices with larger Medicaid populations, rural, academic, community, and public health practices being more likely to use the technique.

**P 167 The effect of tea on surface loss of the dental enamel under erosive challenge in vitro**

Al Shezawi M\*, O'Sullivan E, Toumba K, Wood S, Strafford S

University of Leeds, United Kingdom

**AIM** `Previous studies have shown that some natural and chemical products in tea may have anti-erosive effects. Substances such as polyphenol found in green tea act as a matrix metalloproteinase inhibitor reducing the degradation of dentine. However, there are limited studies evaluated the effect of tea on dental enamel surface loss. The aim was to investigate the effect of black and green tea on the surface loss of dental enamel under erosive challenge in vitro.` **METHODS** `A total of 150 bovine enamel slabs were subjected to a pH-cycling experiment with erosive challenges and randomly assigned to 5 treatment groups: black tea ( $\approx$  5.0 ppm F), green tea ( $\approx$  5.0 ppm F), black tea with milk, black tea with citric acid 1.0%-pH(3.6) and fluoride-free water (negative control). Over 28 days of the pH cycling period, the slabs were exposed to five times for 2 minutes periods of the erosive challenge with 0.3%-2.6 pH citric acid, and three times for 10 minutes in one of the treatment solutions daily. Throughout the pH-cycling period, the slabs were stored in artificial saliva, in an incubator at 37°C. The enamel slabs were analysed with the Profilometer to measure the amount of surface loss at days 7, 14, 21 and 28 of the pH cycling period.` **RESULTS** `Data will be analysed using ANOVA test statistical approach.` **CONCLUSIONS** `will be completed by the time of the conference.

**P 168 Dental erosive wear in primary teeth among Norwegian 5-year-old children**

Tvilde BN, Virtanen JI, Bletsa A, Graue A, Skeie MS\*

Department of Clinical Dentistry, University of Bergen. Center for Oral Health Services and Research, Mid-Norway (tkMidt), Trondheim, Norway

**AIM** `To estimate the prevalence of dental erosive wear among Norwegian 5-year-olds and to investigate associations between background factors and the condition.` **METHODS** `Dental examination was offered to 387 children in five Public Dental Service clinics in Bergen, Norway. The parents responded to items about children's dental hygiene- and drinking habits, type of beverage container, diet, and other habits, also about their own age, educational level and country of origin. Background variables were explored for possible association with outcome status of being worst affected with dental erosive wear (19.4%, n=75). Statistic tools were chi-squared-statistics and logistic regression (Odds Ratios with 95% Confidence Interval (CI)).` **RESULTS** `Dental erosive wear was found in approximately 80 % of the children (by SEPRS and by adopted diagnostic instrument (78.5 % vs 79.8 %)). Maxillary anterior teeth were affected in 13.9 % (n = 54), and cuppings in molars in 79.3 % (n = 307). Both grinding teeth during day and/or night and being a boy were significantly related to outcome status being worst affected with dental erosive wear (ORs: 1.87, CI: 1.07-



3.25), 1.76, CI: 1.05-2.96, respectively).` **CONCLUSIONS`** `Dental erosive wear was widespread. Grinding and being a boy were associated with being worst affected by dental erosive wear.

**P 169 Molar Incisor Hypomineralization (MIH) and dental caries association in schoolchildren in the city of Macapá, Amapá, Brazil**

Gradella CF\*, Muricy Neto L, Pastana ID, Carvalho RD, Oliveira LB  
SLMandic, Brazil

**AIM`** `The main target of this study was to assess the MIH prevalence in schoolchildren and second, to investigate whether MIH was associated to dental caries and socio-demographic variables.` **METHODS`** `A cross-sectional study was carried out in 1.155 children aged 8 to 10 years old, coming from public schools in Macapá, Brazil. Calibrated dental examiners performed the children's oral examination for MIH using EAPD criteria. Caries experience was evaluated by the DMFT index. Parents answered a questionnaire regarding socio-demographic aspects. Poisson regression was used to determine associations between the variables.` **RESULTS`** `The prevalence of MIH in first permanent molars was 31.6% and most of the children (86.6%) had dental caries experience. Younger schoolchildren are 1.44 (95% CI: 1.05-1.99) times more prone to present MIH in the first permanent molar (p0.05). Schoolchildren from lower-income families are 1.32 (95% CI: 1.01-1.74) times more likely to present MIH in the first permanent molar (p 0.05). Schoolchildren who brush their teeth less than three times a day are 1.91 (95% CI: 1.24-2.93) times more likely to have caries compared to those who brush at least three times (p0.05). Schoolchildren' parents who reported not having used any dental service are 1.62 (1.02-2.58) times more likely to have caries than private service users (p0.05).` **CONCLUSIONS`** `It was concluded that the MIH prevalence and dental caries in Brazilian school children was high. There is no association between MIH and dental caries. Nonetheless age, income, brushing frequency and access to dental treatment were associated with dental caries.

**P 170 Iatrogenic Damage to the Enamel Caused by Laser**

Usta G, Ziylan D\*, Kasimoglu Y, Aren G  
Department of Pedodontics, Faculty of Dentistry, University of Istanbul, Turkey

**INTRODUCTION`** `Dental lasers are very useful when it comes to pediatric dentistry. Treating a child with laser for oral procedure is beneficial as it is less fearful to the child.` **BACKGROUND`** `An unerupted tooth can be exposed with using Er,Cr:YSGG. It has advantage of no pain and bleeding. Despite many advantages of lasers, wrong applications might have some adverse effects.` **CASE REPORT(S)`** `A girl, aged 8 years reported to our clinic with a complaint of unerupted upper central incisors. Examination revealed presence of thickened soft tissue reached the occlusal level. The patient was referred to oral surgery for the exposure of her unerupted central incisors. It was decided to use laser due to reduced pain and discomfort during the operation. After using topical anesthesia, the Waterlase MD Er,Cr:YSGG laser (2789-nm wavelength, Biolase Technology, Irvine, CA) was applied with 2.00W and 45Hz. The surgery was completed in three minutes without any pain or bleeding. After 1 week, 2/3 of the teeth were erupted, but white opaque spots were noticed on the incisal edges of the enamel. It was concluded that the demineralization were caused by improper application of the laser. The parent was informed about the lesions. Fluoride varnish application was advised.` **FOLLOW UP`** `Fluoride varnish was applied three times within 7-10 days. After 1 month, the patient and the parent were satisfied with the final result.` **CONCLUSIONS`** `The laser must be used carefully on the tissues to minimise the possibility of iatrogenic damage, improve the quality of laser cuts and efficiency.

**P 171 Assessment of Sleep and Health-Related Quality of Life in 3- to 10-year-old Children**

Angelhoff C, Johansson P, Svensson E, Sundell A\*  
Department of Paediatric Dentistry, Institute for Postgraduate Dental Education, Jonkoping.  
Centre of Oral Health, School of Health Sciences, Jonkoping University, Sweden

**AIM`** `To test validity and reliability of a Swedish version of the Pediatric Insomnia Severity Index (PISI) and describe sleep and health related quality of life (HRQoL) in healthy children.` **METHODS`** `The English version of the PISI was translated into Swedish, translated backwards, and agreed upon before use. Parents of healthy 3–10 year old children filled out the PISI and the generic HRQoL instrument KIDSCREEN-27 two times. Exploratory and confirmatory factor analyses for baseline and test-retest, structural equation modelling, and correlations between the PISI and KIDSCREEN-27 were performed. Non-parametric tests were



used. **RESULTS** Parents of 160 children filled out the questionnaires twice. Confirmative factor analysis of the PISI found two correlated factors: sleep onset problems (SOP) and sleep maintenance problems (SMP). The PISI had substantial construct and test-retest reliability. The PISI factors influenced all KIDSCREEN-27 dimensions. SOP was significantly correlated with poor psychological wellbeing ( $p = 0.05$ ,  $\rho = -0.16$ ), and SMP was significantly correlated with poor psychological well-being ( $p = 0.05$ ,  $\rho = -0.21$ ), poor school environment ( $p = 0.01$ ,  $\rho = -0.29$ ), and poor social support and peers ( $p = 0.05$ ,  $\rho = -0.19$ ). **CONCLUSIONS** Sleep problems are correlated with poor psychological wellbeing, poor school performance, and poor social support and peer relation. The Swedish version of the PISI is applicable for screening sleep problems and is a useful aid in dialogues with families about sleep. It is also relevant in research and for evaluation of treatment.

**P 172 Physically forced during dental treatment: Children's perspective**

Aarvik RS\*, Svendsen EJ, Agdal ML

Institute of Health and Society, Faculty of Medicine, University of Oslo and. Oral Health Centre of Expertise in Western Norway, Vestland, Bergen, Norway

**AIM** To be restraint during health care treatments in childhood can be experienced as traumatic. In what extent does it occur in modern pediatric dentistry? Children's perspective of being held still against their will have never been studied within dentistry. **METHODS** This is a cross sectional questionnaire study. An electronic survey about experience with use of restraint during dental treatment was sent to all 9- and 17-years olds in one of Norway's biggest counties. Statistical analysis (Chi-square test) are performed using SPSS 26.0.0.1. **RESULTS** The study invited 13013 persons and the response rate was 43%. Approximately 5% reported that they felt forced to do dental treatment without being able to refuse and 6% reported that they have felt deceived by the dentist after dental treatment. A total of 4% of all respondents experienced to be physically held still during dental treatment with equal distribution between genders. Of them, 44% experienced to be held several times. The group that had experienced physical restraint was statistically significant ( $p < 0.05$ ) more afraid of dental treatment than the ones never been held. Restraint most often occurred in the age group of 5-9 years. In most cases, children experienced to be held when the dentist said that the treatment was mandatory (67%) and when they tried to leave the dental chair (51%). **CONCLUSIONS** Children report experience with restraint during dental treatment, and experience with restraint is a predictor for developing dental anxiety.

**P 173 Knowledge of Children's Oral Health in Young Adults: what do they know about looking after their future child's teeth?**

Huguet H, Barrow S\*, Holt R, Jamieson N

Leeds Dental Institute, United Kingdom

**AIM** To explore 16-18 year old's knowledge of children's oral health according to:- Gender- Age- Previous childcare experience- Previous experience of working/studying in a dental setting- Personal oral health behaviours **METHODS** We surveyed 16-18 year olds using a 3-part questionnaire exploring:- Social factors- Participant's personal oral hygiene- Knowledge of maintaining children's oral health Questions in section 2 and 3 were based on government guidelines. The survey was distributed to 178 schools around Leeds by email and through 3 social media platforms, following ethical approval from the Leeds School of Dentistry's Student Ethics Committee. **RESULTS** There was a lack of knowledge of: toothpaste quantity, fluoride concentration, "spit don't rinse" and independent brushing age. Knowledge was associated with personal oral hygiene and age. Statistical analyses were undertaken using SPSS statistical programme ( $p = 0.05$ ). **CONCLUSIONS** Caries, a preventable disease, is the second most common reason for child admission for general anaesthetic. Toothache is associated with missing school and its impact on quality of life for children and parents can be substantial. However, there is no formal education for parents about preventing decay despite their key role in managing their children's oral hygiene. Our research shows there is a significant lack of knowledge of children's oral health within young prospective parents. More research is needed to find whether interventions to improve parental knowledge could reduce childhood caries.

**P 174 Prevalence of dental caries over decades. Estonian example.**

Olak J\*, Nommela R, Sinijarv M, Saag M, Runnel R  
University of Tartu, Institute of Dentistry, Estonia

**AIM** `To assess the prevalence of dental caries among 3-, 6- and 12-year-old children in 2018 and compare the obtained results with previous studies in Estonia.` **METHODS** `Dental examination was carried out at kindergartens and schools over Estonia in 2018. 1313 children took part in the study. To analyze the efficiency of caries preventive measures current dental health data were compared with earlier results in Estonia` **RESULTS** `The prevalence of dental caries has decreased among 3-year-olds from 44% in 2001 to 29% in 2018 and dmft index has reduced from 1.6 to 1.1. Unfortunately, the dmft+DMFT index among 5-6-year-olds children is the same as 50 years ago: in 1968, it was 4.2 and 4.1 in 2018. The prevalence of dental caries among 12-year-olds was 84% in 2001 and 72% in 2018. DMFT index decreased from 2.1 at 2001 to 1.4 in 2018.` **CONCLUSIONS** `Children's dental health has improved but oral health education among the population should be more active, especially for the target-group of 5-6-year-olds and their parents. Intensive prevention dental diseases helped to improve project was started for children in kindergartens and schools in 2012 parallel to a special training program for teachers all over Estonia.

**P 175 Use of nitrous oxide inhalation sedation in dental office – preliminary report**

Farcasiu C\*, Tanase M, Stanciu I, Munteanu A, Farcasiu A  
Carol Davila University of Medicine and Pharmacy, Bucharest, Romania

**AIM** `To evaluate the addressability, the effectiveness and the behavioural impact of nitrous oxide inhalation sedation (NOIS) on children attending a private dental office from Bucharest.` **METHODS** `Data was collected over a six-months period for patients attending a specialist in paediatric dentistry. Data was available for 130 patients (63 boys) of which 30 (16 boys) were treated under NOIS. Overall behaviour was assessed by the dentist providing NOIS using the Frankl scale. The following data were collected: age, gender, medical history, number of NOIS sessions, type of dental procedure. Number, type and distribution of treatments performed under NOIS were assessed according to children's age and gender.` **RESULTS** `Dental procedures were performed under NOIS for 23% of the patients. Mean age of the children treated under NOIS ( $6.62 \pm 2.18$  yrs) was 9 months younger than the rest of the sample ( $p=0.077$ ). Only 2 patients (6,66%) had a diagnosed general disease (autism). Successful NOIS sessions were registered for 80% of the patients. Most of the patients underwent 1 or 2 NOIS administrations but there were 3 children (10%) with 6 NOIS sessions. A mean number of 3.10 dental procedures were performed in a mean number of 2.60 NOIS sessions. Efficiency of successful sessions was significantly higher ( $p=0.004$ ). The procedures comprised treatment of uncomplicated caries (41.94%), complicated caries (27.95%) and extractions (17.94%).` **CONCLUSIONS** `Conscious sedation is effective both for young and fearful patients and for special needs patients. Present preliminary report shows a less widespread use of NOIS compared to similar literature data.

**P 176 Molecular biomarkers in children with chronic kidney disease in parotid saliva**

Mamedov A, Morozova N\*, Morozova O, Chugaeva U, Ivannikova K  
I.M. Sechenov First Moscow State Medical University (Sechenov University), Russian Federation

**AIM** `To investigate the concentration of biomarkers of inflammation IL-8, IL-18 MCP-1, TGF- $\beta$  and hypoxia VEGF in parotid saliva in children with chronic kidney disease (CKD).` **METHODS** `29 saliva samples were examined (11 children with CKD and 18 control group). The study included children aged 5 to 14 with chronic kidney disease, the control was somatically healthy 6- to 13-year-old children. Concentrations of IL-18, IL-8, VEGF, MCP-1 and TGF- $\beta$  were measured by ELISA. Parotid saliva samples were obtained before treatment of the disease in the morning one hour before meal or 3 hours after. To assess statistically discernible differences from control, we used Mann-Whitney.` **RESULTS** `In patients with CKD we observed an increase biomarkers of inflammation (MCP-1, IL-8, IL-18), angiogenesis (VEGF) and fibrosis (TGF- $\beta$ 1) in parotid saliva:  $p$  vs control 0.05 for all,  $p$  for group comparison 0.05 for all except VEGF.` **CONCLUSIONS** `The ability to determine the level of markers in saliva makes it possible to use this method in the future to monitor treatment efficiency and the degree of progression of CKD.

**P 177 Correlation of new mothers' oral health habits and knowledge about dental care of their children with their children's oral health**

Anagnostou F\*, Chalvatzoglou E, Boka V, Arhakis A, Kotsanos N

Department of Paediatric Dentistry, School of Dentistry, School of Health Sciences, Aristotle University of Thessaloniki, Greece

**AIM** `To test the hypothesis that new mothers' oral health habits and oral care related knowledge of their children have an effect on their offsprings' oral health.` **METHODS** `A three section questionnaire (demographics, mothers' oral health habits, child's oral care knowledge) designed by the authors, was filled out by 70 mothers who accompanied their preschool children visiting a University Paediatric Dentistry Clinic for the first time. Children's dmfs and gingival bleeding index (GBI) were recorded by a trained paediatric dentist. Statistical analysis of interrelations was through SPSS 23.0 and correlations were estimated using Analysis of Variance (ANOVA).` **RESULTS** `The 31-35 year-old age group (38,6%) and the higher education graduate (38,6%) mothers outnumbered the other respective groups. Regular dental visits (not at arising problem) stated 35.7%, while 48,6% were unaware of potential impact of maternal oral health on child's oral health. Mean children's dmfs was 5.0 (2-6 years old) and the mean GBI 9.1%. The dmfs was significantly lower when mothers were of higher education ( $p < 0.01$ ) and when they believed that their toddlers/preschoolers should start having their teeth brushed at a younger age ( $p = 0.024$ ). Both GBI ( $p = 0.023$ ) and dmfs ( $p < 0.01$ ) were lower when mothers belonged in the higher family income group.` **CONCLUSIONS** `There is room for improvement in mothers' oral health knowledge and attitudes. Both their oral health literacy and their socio-economic status influence their child's oral health.

**P 178 Indirect composite resin onlays in children. An esthetic alternative for severely damaged permanent molars: Report of three cases**

Markouli EA\*, Tagkalaki K, Liatsi A, Kretsi M, Gizani S

National and Kapodistrian University of Athens, Dental School, Greece

**INTRODUCTION** `The treatment of choice for severely damaged permanent molars (PMs) in young children with high caries risk, is often stainless steel crowns(SSC) due to their longevity. Nevertheless, the esthetic appearance is compromised.` **BACKGROUND** `Indirect resin composite (IRC) onlays have been also introduced in young patients due to their optimal aesthetics and good adhesive technology. The IRC onlays procedure aims to cover the lost tooth structure with minimal further tooth preparation. On the other hand, it is a technique sensitive procedure which requires co-operative children.` **CASE REPORT(S)** `Severely damaged first PMs in 3 healthy adolescents, aged 11-14 years old, were treated in the Postgraduate Clinic of Paediatric Dentistry, Athens (NKUA). 2/3 teeth were non-vital, one had a composite resin restoration with secondary caries and crown fracture while another one had a compromised extensive amalgam restoration due to MIH. IRC onlays were selected as treatment, based on extensive tooth structure loss and missing cusps. Minimum tooth preparation of the teeth dictated by carious involvement was carried out. Poly vinyl siloxane elastomeric impressions were made and eugenol free restorations were used for temporization. The IRCs were fabricated in the lab and cemented with a dual-cure resin cement. Occlusal adjustments were optionally accomplished.` **FOLLOW UP** `At 12 and 24 months recall, clinical examination confirmed excellent clinical performance.` **CONCLUSIONS** `Aesthetic treatment of extensively destroyed PMs presents a clinical challenge to paediatric dentists due to few available alternatives. IRCs appear to be an acceptable method for the restoration of these teeth, when carefully selected.

**P 179 Management of infraoccluded primary molars. Report of three cases.**

Pavlou A\*, Gourtsoyianni S, Liatsi A, Papanakou S, Gizani S

Paediatric Dentistry Department, National and Kapodistrian University of Athens, Dental School, Greece

**INTRODUCTION** `Infraocclusion is a clinical term describing a tooth located below the occlusal plane and is classified as mild, moderate or severe according to the distance from interproximal contact point. Infraoccluded primary teeth can cause several occlusal disturbances. Management depends mainly on the presence/absence of the permanent successor, the onset (early/late) and rate (slow/fast) of infraocclusion, the time of diagnosis (early/late) as well as the type and degree of malocclusion.` **BACKGROUND** `On the lack of evidence-based generally accepted guidelines, in the present cases we used the 'Treatment decision-

making model for infraoccluded primary molars with successors' as proposed by Ekim and Hatibovic-Kofman (2001). Although a more conservative approach was finally chosen. **CASE REPORT(S)** All cases were treated in the Postgraduate Clinic of Paediatric Dentistry, NKUA. Case 1: 8 years old female, severe infraoccluded #75 (early onset/low progression). Management: lingual arch to prevent mesial tipping of #36 and monitoring of #75. Case 2: 7 years old male, mild infraoccluded #84, severe infraoccluded #54 (early onset/early diagnosis). Management: built-up of #54 and monitoring of #84. Case 3: 9 years old male, severe infraoccluded #55 (early onset/late diagnosis), mesial tipping #16. Management: space regaining (Hawley appliance), extraction of #55 and space maintenance (Nance appliance). In all cases, permanent successors were present. **FOLLOW UP** After one year, no further complications have been noted. **CONCLUSIONS** Early detection of infraoccluded deciduous molars is the key to avoiding occlusal discrepancies. After careful evaluation, a conservative approach can lead to uncomplicated long-standing results based on special individualized considerations.

**P 180 Diagnose of the hypersensitivity of MIH molars under nitrous oxide and/or a local anesthetic using EPT**

Doueiri MS\*, Elhennawy K, Jost-Brinkmann P  
Charite, Germany

**AIM** Sedation of hypersensitive MIH molars with nitrous oxide (N<sub>2</sub>O) or a local anesthetic (LA) is often not sufficient for placement of children stainless-steel crowns. This pilot study uses EPT (electric pulp tester) to test whether hypersensitivity can be detected and controlled by combining N<sub>2</sub>O and LA. **METHODS** Twenty-five patients, age 7-11 years with severe MIH (EAPD criteria) received stainless-steel crowns using nitrous oxide (Sedaflow®, Biewer Medical, Koblenz) and LA (Ultracain® D-S forte, SANOFI, Frankfurt am Main). First, MIH molars were screened for sensitivity using EPT (Elements™ diagnostic unit, Kerr, Biberach). The patients informed as soon as they felt a tingling sensation during the screening, and an individual sensitivity value between 0-80 was documented for each tested tooth showed on the EPT device. Afterwards, either N<sub>2</sub>O (14 patients) or LA (11 patients) was administered, followed by another EPT measurement. Lastly, final EPT measurements following the combination of nitrous oxide and LA were recorded. **RESULTS** All affected molars with MIH showed 25 (hypersensitive) EPT value. The molars initially sedated with N<sub>2</sub>O had an average range of 51 and those with LA 49. Despite the sedation, patients still felt pain before the treatment. However, the combination of N<sub>2</sub>O and LA measured 80 on the EPT, allowing painless procedures. **CONCLUSIONS** The hypersensitivity of MIH teeth can be determined using the EPT device. The treatment of hypersensitive MIH molars by sedation with nitrous oxide alone or with a local anesthesia alone proved not to be sufficient.

**P 181 Third cycle audit of follow-up of patients not brought (WNB) to their appointment in a Paediatric Dental Department.**

Selby-Bennett C\*, Patel K, Johnson A  
Paediatric Dentistry Department, The Eastman Dental Hospital, United Kingdom

**AIM** Missed appointments affect treatment outcomes, impact financially and may represent a safeguarding issue hence follow up is essential. Following 2 previous cycles, standards were only partially met. Aim 100% of patients WNB followed up. **METHODS** All patients seen from 1st April to 30th April 2019 identified retrospectively via the electronic health recording system (EHRS). This included different appointment types. Records evaluated, information transferred to database and data analysed. **RESULTS** 157 (22.1%) patients out of 710 were not brought (WNB) to their appointments at the EDH paediatric dentistry department. Highest WNB was 27.3% for follow-up and review appointments and 14.5% for Inhalation sedation treatments. There was 100% attendance in general anaesthesia. For WNB; 115 were rebooked, 35 discharged, however 7 patients were lost to follow-up. Of these 3 were new patients, 3 were follow-ups and 1 was inhalation sedation treatment. 122 (77.7%) of the patients that were not brought were telephoned. All patients discharged were sent a letter. All Safeguarding concerns were followed up. **CONCLUSIONS** Standard was not fully met yet but there was an improvement in the follow-up pathway. Overall, 7 out of 710 patients lost to follow-up is low. The results have been shared and a 4th cycle audit is planned.



**P 182 Acute Rheumatic Fever and Rheumatic Heart Disease: The implications on dental health**

Quach H\*

Glasgow Dental Hospital & School, United Kingdom

**INTRODUCTION** Acute rheumatic fever (ARF) is an inflammatory disorder caused by an autoimmune response to group A streptococcus bacterium. Rheumatic heart disease (RHD) is the condition caused by ARF. This response leads to long term damage to the heart valves. Although rare in developed countries, there are approximately 0.5 million new cases of ARF each year and around 300,000 of these patients will acquire RHD.

**BACKGROUND** This report follows a 7-year old girl who developed ARF in September 2019. She then rapidly developed RHD leading to moderate mitral regurgitation, mild mitral stenosis and mild aortic stenosis. She is taking furosemide, spironolactone and penicillin V.

**CASE REPORT(S)** The patient was referred by her cardiologist to the Paediatric dental department following diagnosis of RHD. On examination, the patient has caries in six primary teeth: 54, 55, 64, 65, 74, 84. To prevent delay to cardiac surgery, she is listed urgently for comprehensive dental care under general anaesthetic. All carious teeth are extracted and remaining primary molars and first permanent molars are fissure sealed.

**FOLLOW UP** Due to the increased risk of recurrent caries, the patient is kept on a three month recall within the department. She continues to receive treatment from her cardiologist.

**CONCLUSIONS** Paediatric dentists should be aware of the implications of ARF on child dental health. Many of these children will develop RHD. It is vitally important that these children remain caries free to prevent the devastating effects of infective endocarditis.

**P 183 Bruxism in modern man**

Matijevic S\*

University of Montenegro, Faculty of Medicine Podgorica, Study Program Dentistry, Montenegro

**AIM** Bruxism involves contraction of masticatory muscles and rhythmical teeth grinding. This results in the abrasion of teeth i.e. excessive wear of hard tooth substance. The aim of this study is to show that the abrasion has existed for as long as mankind.

**METHODS** The clinical examination involved 10 patients with severe abrasion due to bruxism. All of them were treated with fixed prosthetic supplement either in upper or lower jaw depending on position of remaining teeth. After that soft splints were fitted to the upper jaw in 7 patients and to lower jaw in 3 patients.

**RESULTS** Fitting splints proved to be very useful because there was no teeth abrasion in the opposite jaw and in addition the craniomandibular dysfunction was reduced.

**CONCLUSIONS** Although bruxism is considered dysfunction of psychogenic or idiopathic origin, timely fitted splints can give good results and prevent abrasion of teeth that can very often almost reach the neck of the tooth. Patients wore splints i.e. silicone impressions at night in order to prevent extremely heavy abrasion resulted from contraction of masticatory muscles.

**P 184 Correlation between dental and osseous maturity in school children**

Andjelic J\*

Montenegro

**AIM** Dental and osseous maturity does not have to be matched but it is expected to be consistent. When the standard deviation of difference varies  $\pm 2$  from the mean we talk about early or late dentition. The aim of this study is to examine correlation between dental age and growth and development indicators such as body height, body mass, head and chest circumference.

**METHODS** The study included 60 children aged 8-14 years. Dental age was assessed by a combination of two methods: monitoring the dentition phases and stages of mineralization of teeth observed in radiographs according to Demirijan.

**RESULTS** Statistical analysis of data led to the conclusion that there was a statistically significant correlation between dental and osseous maturity in examined children ( $p < 0,001$ ).

**CONCLUSIONS** A familiarity with these parameters is very important in order to determine the best time to do orthodontic treatment. Although there are some individual variations, prepubertal growth acceleration in girls occurs on average about two years earlier than in boys. The best treatment results of orthodontic anomalies are obtained in the period of adolescence, i.e. transitional period between juvenile and adult life.

**P 185 Does the psychoprophylaxis matter in children nowadays?**

Buriankova A\*, Navarova L, Vasakova J

Departement of Paediatric Dentistry, Dental School of Medicine, General Teaching Hospital, 1st Faculty of Medicine, Charles University, Czech Republic

**AIM** `The aim of the study was to assess and to analyze dental student's opinion using psychoprophylactic methods in paediatric dentistry.` **METHODS** `A questionnaire was developed to evaluate student's attitude towards children treatment. Most of the used psychoprophylactic methods (tell-show-do, distraction, voice-control, positive reinforcement, stop sign) were transformed to sentences instead of using the term of method. The set of questions (15 were closed, 1 was open) was given to 146 students (21.9 % male, 78.1 % female) in 1st (26.1 %), 2nd (31.5%), 4th (10.9%) and 5th (31.5%) grade. Students were asked about their agreement with using it. Chi-square test at the significance level of 5 % was used to test the variables. The participation in the research was anonymous and voluntary.` **RESULTS** `Female students prefer school aged children, male students have no clear preferences. Younger students /compared to older one disagree with using voice control 85.7% / 62.9%, wouldn't let the child participate on the treatment 45.2% / 16.1%, wouldn't let the child pick up the position 89.3% / 95.2%, would prefer harmless language 72.6% / 85.5% and tell-show-do 91.7% / 96.8%. The willingness of using distraction rises with theoretical knowledge about treatment (45.2 % / 87.1 % for video, 58.3% / 71% for music). There is no statistical significance ( $p = 0.18$ ) between student's expectancy of length of children's treatment and students with and without theoretical knowledge.` **CONCLUSIONS** `There is a statistical difference between students with and without theoretical knowledge in using psychoprophylactic methods.

**P 186 The abrasiveness of toothpaste in Permanent Teeth**

Nazer FW\*, Wong F, Gillam D

Queen Mary University, United Kingdom

**AIM** `To investigate and compare the abrasiveness of selective toothpastes of low, medium and high Relative Dentine Abrasivity values RDA in tooth surface loss` **METHODS** `A human premolar, free of visual enamel defects mesial surface (MS) and distal surface (DS) was selected. The tooth was embedded in acrylic resin with both surfaces exposed. Baseline scans were taken using X-ray Microtomography (XMT) and Non-contact Profilometry (NCP) techniques before abrasion technique. An automatic brushing machine was used to simulate repeated toothbrushing. The tooth was securely fixed on the platform to immobilise it during brushing. Toothbrushing was implemented using a flat medium textured filaments toothbrush and 1mL of low RDA toothpaste in 200 grams load on top of the toothbrush. 20,000 brushing cycles were performed on MS and DS. After every 2000 cycles, the tooth was washed with runny water and a change of 1mL of toothpaste was added to insure that there was sufficient amount of toothpaste all the time during the experiment. A second profilometry scan was obtained to compare enamel loss following abrasion evaluation` **RESULTS** `Initial results revealed enamel surface loss on MS and DS after abrasion evaluation. The mean roughness average decreased after abrasion, (27.05 Mm to 26.51 Mm) and (37.9 Mm to 27.4Mm) for MS and DS respectively. The mean difference is 0.55Mm and 10.5Mm of MS and DS respectively` **CONCLUSIONS** `The results would therefore suggest that increased enamel surface loss will be noted with higher toothpaste abrasivity. Full results will be presented in the Conference.

**P 187 Recently delivered mothers' oral hygiene practices during pregnancy and knowledge of their children's oral hygiene**

Chalvatzoglou E\*, Anagnostou F, Boka V, Arhakis A, Kotsanos N

Department of Paediatric Dentistry, Dental School, Aristotle University of Thessaloniki, Greece

**AIM** `The aim of this study was to assess recently delivered mothers' oral hygiene practices during pregnancy and their oral health-related knowledge, attitudes and behaviour regarding their children` **METHODS** `100 recently delivered mothers in public obstetric-gynecological clinics in Thessaloniki, Greece, completed a self-administered questionnaire consisted of 3 parts: demographic data, mothers' oral hygiene practices during pregnancy and their knowledge regarding their children's dental hygiene. Statistical analysis of interrelations was performed with SPSS 23.0` **RESULTS** `92.2% were married, 65.6% were younger than 35 years old, 40.0% were of higher education and 37,8% had a low annual income. 38.9% stated regular annual dental visit, 55.6% didn't visit the dentist and 77.8% didn't change their oral hygiene habits during

their latest pregnancy. 49% were unaware of carries vertical transmission. Regarding child's oral health knowledge, 37.8% would initiate oral hygiene by the eruption of the child's first tooth and 12% thought that a child should have the first dental visit by the age of one. 80% and 50% of the mothers were unaware that prolonged nocturnal breast or bottle feeding respectively could cause carries. Highly educated mothers believed that children should brush their teeth at a younger age. Mothers who didn't alter their oral hygiene during pregnancy were not aware of carries vertical transmission` **CONCLUSIONS`** `The majority of recently delivered mothers lack adequate oral health knowledge for themselves and their children. Relevant guidelines should be disseminated in a simplified manner at delivery centers regarding oral hygiene for pregnant women and oral care of their future young children

**P 188 Sedation efficacy of 0.3 0.5 mg/kg oral midazolam for 3-6 year-old uncooperative children undergoing dental treatment**

Hasanbeygi L\*

Khorramabad University of Medical Sciences, Khorramabad, Iran

**AIM`** `Midazolam with variable dosages has been used to induce sedation in pediatric dentistry. The aim of this study was to compare the efficacy of two dosages of oral midazolam for conscious sedation of children undergoing dental treatment.` **METHODS`** `In this randomized crossover double blind clinical trial, 20 healthy children (ASA I) aged three to six years with definitely negative Frankl behavioral rating scale were evaluated. Half of the children received 0.5mg/kg oral midazolam plus 1mg/kg hydroxyzine (A) orally in the first session and 0.3mg/kg oral midazolam plus 1mg/kg hydroxyzine (B) in the next session. The other half received the drugs on a reverse order. Sedation degree by Houpt sedation rating scale, heart rate and level of SpO2 were assessed at the beginning and after 15 and 30 minutes. The data were analyzed using SPSS 19 and Wilcoxon Signed Rank and McNemar's tests.` **RESULTS`** `The results showed that although administration of 0.5mg/kg oral midazolam was slightly superior to 0.3mg/kg oral midazolam in terms of sedation efficacy, the differences were not significant (P0.05). The difference in treatment success was not significant either (P0.05). Heart rate, oxygen saturation (SpO2) and respiratory rate were within the normal range and did not show a significant change (P0.05).\_6` **CONCLUSIONS`** `The overall success rate of the two drug combinations namely 0.5mg/kg oral midazolam plus hydroxyzine and 0.3mg/kg oral midazolam plus hydroxyzine was not significantly different for management of pediatric patients.

**P 189 The view of the parents of children with bleeding disorder on dental care provided for children**

Tomazevic T\*, Ivanic P, Kitanovski L, Faganel Kotnik B

Department of Paediatric and Preventive Dentistry, University Medical Centre Ljubljana, Slovenia

**AIM`** `The aim of the survey was to identify the parental perceived barriers to dental care for children with bleeding disorders (BD).` **METHODS`** `A letter of invitation with an included internet link to an online questionnaire was distributed to 106 parents through the National Haemophilia registry, where all Slovenian children with BD are registered. The questionnaire detailed child's oral health status and perceived barriers to dental care.` **RESULTS`** `Only 18 parents answered the questionnaire. Due to low parental response rate the analysis would not give the requisite answer on barriers to dental care. Anyhow, 14 children have been at the dentist office in the last 6 months, 13 parents stated that they were entirely satisfied with their dentist and that their child was properly treated, while 2 parents stated that they were not satisfied with the dentist because the dentist did not provide enough information. Twelve parents felt that their child should be treated by specialist of paediatric dentistry or a dentist additionally trained to treat children with BD. Nine parents felt that the oral health of their child was good, while the others stated that it was moderate or bad.` **CONCLUSIONS`** `The first barrier that was encountered was unresponsiveness of parents of children with BDs and this fact needs to be further explored. Although the obtained limited data can't be conclusive, we believe that oral health is of minor importance to the parents of children with BDs and that more resources should be employed to change this misconception.

**P 190 Prevention and treatment of oral disease in medically compromised children.**

Veleganova VK\*

Medical University Plovdiv, Faculty of Dental Medicine, Department Pediatric Dentistry, Bulgaria

**AIM** `To determine the dental health status of medically compromised children, who were hospitalized and referred for dental consultation.` **METHODS** `The medical and oral health status of children, who were referred by various Departments of Pediatric Clinic in Medical University- Plovdiv for dental consultation were studied retrospectively.` **RESULTS** `Common dental problem include alterations in soft- tissue color and texture, poor oral hygiene, mucositis, structural defects in enamel and dentin, plus delayed eruption of the dentition.` **CONCLUSIONS** `There is identified gap in the literature, research- based or otherwise relating to oral care for children in the hospital.

**P 191 Childhood anxiety disorders and their impact on oral health**

Gamen AC\*, Taraboanta I, Adumitroaie A, Balan A, Toma V

University of Medicine and Pharmacy Grigore T. Popa, Romania

**AIM** `The aim of this study was to evaluate the oral health status of young patients with certain anxiety disorders. In the oral cavity, the most important changes are salivary glands hypofunctions, bruxism, carious lesions, periodontal and TMJ disorders.` **METHODS** `The present study was carried on 40 patients hospitalized in the Psychiatric Institute Socola, Iași, Romania between April and August 2019. Their distribution according to psychiatric status was as follows: 11- panic disorder, 9 - specific phobias, 8 - post-traumatic stress disorder, 4 - obsessive compulsive disorder and 8 - generalized anxiety, aged between 7 and 17 years old, their average age being 12 years. For collecting data, patient observation sheets were investigated and for the psychiatric evaluation of the patients, the Hamilton Anxiety Scale (HAM-A) was used.` **RESULTS** `Following the evaluation of 40 patients it was found that 95% of them presented at least one associated oral pathology (hyposalivation, xerostomia, bruxism, algo- disfunctional syndrome of the temporomandibular joint or carious lesions). Hyposalivation and xerostomy appear in 70% of them (n=28) and regarding bruxism, it appears in 65% of patients (n=26). Patients also presented carious lesions (n=34) and 15% of them had an algo-disfunctional syndrome in the TMJ (n=6).` **CONCLUSIONS** `It appears that the oral health is closely linked to the psychiatric status, influenced by the nature of the psychiatric disorders, the type of medication and the poor oral hygiene. Patients with psychiatric disorders present an increased risk of developing dental diseases and they need an individual treatment plan.

**P 192 Comparative evaluation of salivary constituents and oral health status in children with Down's syndrome of Wardha District**

Bane SP\*

A-419, Janata Nagar, Tardeo, Mumbai, India

**AIM** `To evaluate and correlate salivary constituents and oral health status in children with Down's syndrome.` **METHODS** `75 children aged 4–14 years were included. The control group consisted of 25 healthy children. The study group consisting of children with Down's syndrome was divided into Group I consisting of 25 institutionalized children and Group II consisting of 25 noninstitutionalized children. Caries score and oral hygiene status of each child were calculated. Unstimulated saliva was collected from each child, and salivary levels of sodium, potassium, calcium, magnesium, phosphorus, and zinc were evaluated.` **RESULTS** `Lowest decayed, missing, and filled teeth scores were found in noninstitutionalized Down's syndrome children and highest oral hygiene index-simplified scores were found among institutionalized Down's syndrome children. Levels of sodium ions were highest in the control group; magnesium levels were highest in institutionalized group of children with Down's syndrome, whereas potassium, calcium, phosphorus, and zinc levels were highest among noninstitutionalized group of children with Down's syndrome. Salivary calcium showed a significant negative correlation with dental caries.` **CONCLUSIONS** `Salivary calcium and zinc play a protective role against dental caries. Increased dietary calcium and zinc with education regarding oral hygiene practices may improve overall oral health among children.



**P 193 Caries experience in primary teeth of children diagnosed with Down syndrome in comparison to healthy pediatric patients**

Discepolo K\*, Chandwani ND

Boston Children's Hospital, Harvard School of Dental Medicine, USA

**AIM** `To describe if 25 percent of Down syndrome subjects experience 80 percent of cavities as is observed in healthy controls.` **METHODS** `This evaluation of Down syndrome caries experience is designed as a retrospective descriptive study of continuous variables using a cross sectional approach with case controls. Subjects were identified through the electronic medical record systems. The study group consists of a random sample of Down syndrome dental patients and a random selection of healthy controls. Each control group individual was age, gender, socio-economic background, and location matched to an individual in the study group. Patients ranged in age from 2 year to age 17.9 years, were from diverse backgrounds and were excluded if there were comorbidities. Measures of centrality (mean, mode, and median) and histograms were calculated. Cumulative percent distribution of the total dmfs (primary tooth: decayed, missing, filled surface) and cumulative percent distribution of the total population were investigated. A zero-inflated negative binomial (ZINB) model was used to analyze and compare dmfs rates of subjects.` **RESULTS** `Pending` **CONCLUSIONS** `Down syndrome primary tooth decay rates are comparable to healthy control's decay rates. Both study and control groups exhibited the same decay experience, specifically 25 percent of Down syndrome patients experienced 80 percent of decay, as is common in the healthy population.

**P 194 Oral microbiota in children with dystrophic epidermolysis bullosa**

Poberezhnaya AA\*, Korolenkova MV, Dmitrieva NA

Central Research Institute of Dentistry and Maxillofacial Surgery, Russian Federation

**AIM** `The aim of the study was to assess oral microbiota in children with dystrophic epidermolysis bullosa (DEB) in comparison with age-matched controls.` **METHODS** `The study comprised 84 children with DEB aged 1.5-16 years and 30 healthy aged-matched controls. Oral mucosa secretion was collected with sterile cotton swabs in transport medium, cultivated on diagnostic media and assessed after 24, 36 and 48 h of incubation under 37°. Oral microbiota species were identified by MicroScan Walk Away microbiome analyzing system.` **RESULTS** `DEB samples showed reduced diversity of species in comparison with oral microbiota of normal controls. Increased abundance of Staphylococci spp was revealed in DEB patients. Typical for normal oral mucosa Neisseria spp. and Streptococci spp. in DEB patients were "substituted" by Candida albicans (42.8 vs. 21.4% in controls), Staphylococcus aureus (22.6 vs. 1.8% in controls), Enterobacter cloacae (8.3 vs. 3.6%) and Pseudomonas spp (7.1 vs 0.0%). The Staphylococci and Pseudomonas spp were revealed significantly more often after the age of three.` **CONCLUSIONS** `DEB microbiota significantly differs from normal controls. Increased abundance of relatively non-typical oral microbiota in DEB patients is probably associated with local immunity insufficiency but may also be seen as pathogenic link in oral fibrosis as inoculation of oral wounds maintains chronic inflammation. Specific antimicrobial therapy with bacteriophages may be proposed as oral fibrosis prevention in DEB patients.

**P 195 Effect of medium of instructions on oral hygiene of children with hearing impairment.**

Deshpande MA\*

Sharad Pawar Dental College, Datta Meghe Institute of Medical Sciences, India

**AIM** `To compare impact of oral hygiene instructions given via sign language and validated customized oral health educational skit video on oral hygiene status of children with hearing impairment (CHI).` **METHODS** `This interventional type of study was carried out across CHI schools of Maharashtra, India. Prior to commencement of the study, the investigator attended 3 months long certified training program for learning the Indian Sign Language (ISL) from a registered institution. 204 CHI, within age group of 6-13 years, were divided into 2 groups: customized video modeling (<https://youtu.be/Orxxwf3PMSc>) (group A) and sign language (group B). A questionnaire was designed to gather information about the routine oral hygiene practices of CHI via the ISL. Baseline gingival and plaque index scores were recorded. And oral hygiene instructions were given on a daily basis. Reassessment was done after the completion of interventions and after 4 weeks.` **RESULTS** `Post-intervention plaque scores between group A and group B were 0.12±0.22 and 0.07±0.22 respectively and the difference was statistically insignificant (p=0.330). Post-intervention gingival index scores in group A and group B were 0.03±0.12 and 0.04±0.12 respectively and the difference

was statistically insignificant ( $p=0.669$ ). Statistical analysis: Unpaired t-tests were performed ( $P0.05$ ) to determine if significant differences exist between the two groups.` **CONCLUSIONS`** `Sign language and validated customised video modelling both have been proved to positively influence oral hygiene status of CHI. Video modeling via sign language can be effectively used in developing countries to improvise oral hygiene of masses at zero additional costs.

**P 196 Dental treatment under general anaesthesia in children and youth with and without disability**

Zidere A\*, Svaza J, Viduskalne I  
Institute of Stomatology, Riga Stradins University, Latvia

**AIM`** `To compare dental treatment needs in patients with and without disability who underwent treatment under general anaesthesia (GA).` **METHODS`** `A retrospective chart review of patients who underwent dental treatment under GA from January 2018 until end of December 2018 at the Paediatric Dentistry Unit day care service for secondary and tertiary referrals. Statistical significance was assessed with Student's t test.` **RESULTS`** `1258 patients underwent dental treatment under GA during this period with the median age of 5 (range: 2-18). In majority of cases dental treatment under GA was due to noncompliance or dentophobia and in 17% (219 /1258) attributable to physical or intellectual disability. There was a repeat treatment under the GA in 199 cases including 47% (94/199) in those with any kind of disability. A higher medium number of dental crowns ( $1.412 \pm 1.665$ ) and pulpitis treatment ( $1.988 \pm 1.742$ ) were done in noncompliant/ dentophobic patients than in patients with disability,  $0.652 \pm 1.458$  and  $0.963 \pm 1.602$  respectively, ( $p0.001$ ). There was no statistically significant difference observed between the two groups concerning fillings and extractions ( $p=0.064$ ,  $p=0.219$ ). There were no major complications requiring inpatient stay observed.` **CONCLUSIONS`** `This study demonstrates that the patients with physical or intellectual disability have had less complicated dental treatment needs. Further study on impact of dental hygiene and diet in these two groups should be considered.

**P 197 EMPOWER Project: Oral health training for paediatric speech and language therapists treating special needs children with dysphagia.**

Keddie MN\*, Kandiah T  
Paediatric Dentistry Department, East Surrey Hospital, Surrey and Sussex Healthcare Trust, United Kingdom

**AIM`** `To train paediatric speech and language therapists (pSALT) to utilise the EMPOWER toothbrushing tool to deliver better oral care to children with dysphagia. Pupils with unsafe swallows are known to be at risk of aspiration pneumonia. It is imperative oral hygiene is maintained in this group.` **METHODS`** `10 baseline oral health surveys were undertaken to assess current knowledge and practices amongst pSALT working in special needs primary schools in Surrey. Development of a practical toothbrushing guide and delivery of an oral health workshop was followed by comparison of 10 follow-up questionnaires to ascertain knowledge acquisition following training.` **RESULTS`** `Baseline knowledge was variable among participants and overall confidence was low. 100% were not confident recognising basic oral pathology nor advising on appropriate toothpastes for pupils. 90% of participants reported mouth care was important for general health, yet 80% stated they had never received any form of oral health training, nor were 50% able to state any links between poor oral health and general health. Post-training scores significantly increased across the board. 100% were now able to demonstrate appropriate toothbrushing technique, correct fluoride concentrations as well as basic oral preventive advice. Moreover, 100% now felt confident in recognising common pathology and referring when appropriate.` **CONCLUSIONS`** `The authors identified there is a need for training and regular refresher courses for pSALT. A formalised curriculum and training through our EMPOWER Project will deliver consistent benefit to the overall health and educational progress of special needs pupils.

**P 198 Interdisciplinary management of a child with sickle cell disease and severe early childhood caries**

Leske AM\*, Greenway A, Hallett KB  
Melbourne Dental School, The University of Melbourne, Australia

**INTRODUCTION`** `Sickle cell disease (SCD) is a group of autosomal recessive haemoglobinopathies, which are the most common inherited disorders of the blood. SCD is characterised by vaso-occlusion and

haemolytic anaemia, leading to a variety of acute and chronic events that can involve almost every organ in the human body. Affected patients are susceptible to significant peri-operative complications if surgical procedures, including dental surgery, are not meticulously executed. **BACKGROUND** A three-year-old girl with SCD was referred to The Royal Children's Hospital Melbourne Department of Dentistry for management of severe early childhood caries (S-ECC). **CASE REPORT(S)** This report describes the complex peri-operative management of a young SCD patient needing comprehensive oral rehabilitation under general anaesthesia, including requirements for blood transfusion, fluid maintenance, temperature regulation and oxygenation for surgical management of S-ECC. The patient received preformed metal crowns on restorable primary molars, resin-based composite strip crowns on maxillary primary incisors and extraction of unrestorable teeth with adjunctive intensive preventive care. **FOLLOW UP** Meticulous interdisciplinary planning allowed successful completion of dental surgery without peri-operative complications. The patient has been reviewed over an eighteen-month period with a demonstrated reduction in caries risk. **CONCLUSIONS** With increased international travel of populations in which SCD is prevalent, and reductions in childhood mortality, dental practitioners worldwide should be aware of the pathophysiology of SCD and implications for dental management. This report highlights ambiguities in the literature regarding peri-operative management of SCD patients, stressing the need for better understanding to both reduce caries risk and enhance peri-operative safety of such patients.

**P 199 Oral health status and oral habits in a sample of mentally disable children**

Munteanu A\*, Kritikou K, Vinereanu A, Stanciu I, Farcasiu C  
Carol Davila University, Bucharest, Romania

**AIM** To evaluate the oral health status and oral habits in a sample of Romanian mentally disabled children. **METHODS** Retrospective cross-sectional study on a sample of 75 children (51 boys, 24 girls) aged between 5-17 years (mean age= 10.81±2.85 years) from a school for special needs children, Bucharest (Romania). Dental and periodontal status, presence of sealants and children's home oral care routine were recorded. Prevalence index (Ip), restorative index (RI), caries experience indexes (DMF-T/S, dmf-t/s) and plaque index (PI) by SilnessLoe were evaluated according to gender, age and intellectual disability (MID=mild, MoID=moderate, SID=severe). Data were statistically analyzed using SPSS 20.0 (p<0.05). **RESULTS** a) Ip= 92% (90.2% boys, 95.8% girls), (IpMID= 100%; IpMoID= 92.3%; IpSID= 87.5%); b) for the entire sample, DMF-T=4.32; DMF-S=6.22; dmf-t=3.53; dmf-s=7.87, the differences being non-statistically significant according to gender and intellectual disability; c) RI= 3.1%, d) 5.3% of the subjects had treated caries and 2.6% had sealants; e) PI=1.48 (PIMID=1.16; PIMoID=1.35; PISID=1.34; NS); f) 60% of the children had gingivitis; g) 85.33% of schoolchildren were brushing their own teeth, using regular toothbrushes; h) none of the subjects has used fluoride gels. **CONCLUSIONS** Oral health of mentally disabled children was poor, regardless of the intellectual disability degree. It is necessary both to improve the access of patients with special needs to dental treatments and to apply specific preventive programs, adapted to mentally challenged people's abilities.

**P 200 Oral health of children with intellectual disabilities living in care institutions**

Mazecaite-Vaitilaviciene L\*, Aleksejuniene J, Puriene A  
Vilnius University Hospital Zalgiris Clinic, Lithuania

**AIM** To evaluate the oral health of Lithuanian children with intellectual disabilities living in care institutions **METHODS** 172 children (102 boys/70 girls) with intellectual disabilities residing in four child-care institutions were examined. The clinical examination included visual assessments of dental plaque and caries experience (dmft/DMFT a total number of decayed, missing and filled teeth) in children's permanent and deciduous dentitions. Other variables were: children's level of intellectual disability, ability to examine them clinically, their tooth brushing, dental visit frequency and barriers to daily oral care. **RESULTS** Of all children, 17(9.9%) were with mild, 54(31.7%) with moderate and 101(58.7%) were with a severe level of intellectual disability. Half of the children could be fully clinically examined. Of all, 61(37.2%) had little and 103(62.8%) had a substantial amount of visible plaque. 92.3 % of children had their teeth cleaned or cleaned themselves, 7.7% didn't have any cleaning. The majority (59.3%) had their teeth brushed twice daily. The main reason for the dental visit was a regular dental check-up (69.9%), 27.9% experienced dental pain in the last year and 56.2% had barriers to oral care with common barriers being a child's misbehavior, disability,

inability to spit and bleeding gums. The mean (sd) of the dmft/DMFT in children with mild/moderate was 1.5 (2.5) and with a severe disability, it was 1.9 (3.7), but this difference was not significant. No significant differences were found among children's caries experience, their disability, and dental plaque levels`

**CONCLUSIONS`** `Oral health and cleanliness of children with intellectual disabilities were poor.

**P 201 Toothbrushing in offspring with autism spectrum disorders: a national survey of parental perceptions**

Teste M, Marty M, Valera M, Cunha Soares F, Noirrit Esclassan E\*

University Toulouse III, Toulouse, France; CHU Toulouse, Pediatric Dentistry Unit, Toulouse, France

**AIM`** `To evaluate the difficulties encountered by parents in maintaining oral hygiene in autistic children and the solutions they find to facilitate this daily act.` **METHODS`** `A questionnaire conducted via Google Form was sent to French families through 301 associations of parents having autistic children. It included closed and open questions about characteristics of the child and oral health at home. For the quantitative analysis, logistic regression was used. Thematic analysis of the open answers used NVivo software (QDR International, Cambridge, MA, USA).` **RESULTS`** `This study included 756 offspring, having a mean age of 14.9 ( $\pm$ 8.1) years. Girls with autism spectrum disorders (ASD) were 1.7 (CI95%:1.1-2.8) times more likely to have toothbrushing difficulties than boys. Non-verbal patients (OR:3.2; CI95%:2.2-4.9), syndromic patients (OR:2.8; CI95%:1.4-5.2), patients using pictograms (OR:1.6; CI95%:1.1-2.4), and younger children (OR:1.1; CI95%:1.1-1.2) were significantly more likely to encounter difficulties in tolerating toothbrushing. The qualitative analysis showed that parents used three main ways to facilitate toothbrushing: planning (with timer, brushing calendar or a previous mouth desensitization), modeling (with family model or visual tools) and making it enjoyable (through music, games, electric toothbrush, reinforcement, and/or the way they introduced toothpaste). 79% of parents did not feel sufficiently informed about the different oral hygiene prevention tools and techniques for their ASD children and would like to receive teaching in the daily management of oral hygiene.` **CONCLUSIONS`** `Dental professionals should support and work with parents of ASD offspring to find the most appropriate tools and methods to make toothbrushing a routine.

**P 202 A study of the outpatient under general anesthesia at dental clinic for the disabled in dental hospital, Gwang-ju, South Korea**

An H\*, Choi N

Department of Pediatric Dentistry, School of Dentistry, Chonnam National University, South Korea

**AIM`** `The purpose of this study is to analyze the outpatient general anesthesia patients who visited Dental Hospital, Gwang-ju, South Korea from July 2008 to April 2019 and provide data for establishing an outpatient anesthesia management system for more comfortable and efficient use by patients with disabilities who cannot receive routine dental care.` **METHODS`** `This study was performed on patients who underwent outpatient surgery under general anesthesia at the dental clinic for the disabled at Dental Hospital, Gwang-ju, South Korea from January 2011 to April 2019. A total of 417 patients were treated with a total of 851 dental treatments for outpatients under general anesthesia.` **RESULTS`** `In this study, the most frequent age group in this study is twenties (56.0%). The male (67.9%) was more than female (32.1%). The Most common disability was intellectual disability (46.4%), followed by physical disability (22.0%), brain lesions (15.3%), and autism (12.0%). Treatment received by the patient was dental caries treatment (39.6%), followed by extraction (11.5%).` **CONCLUSIONS`** `The Dental treatment under general anesthesia has many advantages over dental treatment using multiple sedation methods, including reduced mental and economic burden on patients and caregivers.

**P 203 Use of BDA Case Mix tool for clarification of paediatric patient complexity.**

McCarthy C\*, FitzGerald K

Crumlin Children's Hospital, Dublin, Ireland

**AIM`** `To ascertain the complexity of patients requiring general anaesthetic for dental treatment.` **METHODS`** `We screened 50 patients between the ages of 3 to 15 years who were evaluated using the case mix tool developed by the BDA. This model identifies six criteria to measure the level of patient complexity; ability to communicate, ability to co-operate, medical status, oral risk factors, access to oral care and legal and ethical barriers to care. Each of the criteria is measured on a 4- point scale where 0 represents healthy



child and categories A, B and C representing increasing levels of complexity. The weighted scores are then combined to give an overall complexity score for each patient. **RESULTS** A total of 54% of patients received the highest band of “extreme complexity”. 42% were considered of “severe complexity” while 2% received “moderate complexity”. No patient was considered “standard” or of “some complexity”. All 50 patients who were treated with general anaesthetic received the highest grade for “Ability to co-operate”. **CONCLUSIONS** The case mix tool is a reliable way of ascertaining patient complexity, taking into account a range of factors applicable to the provision of dental treatment. It provides clarification on the treatment needs of patients here in Crumlin Children’s Hospital and accurately indicates the requirement for sufficient provision of treatment for these medically complex patients.

**P 204 Restoration of an upper anterior tooth in an adolescent with autism spectrum disorder – a student case report**

Diekamp M\*, Jenter L, Prof. Dr. Schulte AG, Dr. Schmidt P

Dental School, Witten/Herdecke University, Witten, Germany, Germany

**INTRODUCTION** Special behavior attitudes of persons with autism spectrum disorder (ASD) are a challenge for the provision of dental care. Part of the education of undergraduate students studying dentistry in Witten/Herdecke University (WHU) is to teach these special aspects. This case report describes the successful preparation and performance of a front tooth restoration in an adolescent patient with ASD.

**BACKGROUND** In May 2018, a 15-year-old boy with early childhood autism presented in the Department for Special Care Dentistry of WHU because his tooth 11 had suffered from a dental trauma. Based on the clinical and radiographical examination an uncomplicated enamel-dentin-fracture was diagnosed. Due to the early childhood autism only a social but not a verbal interaction was possible.

**CASE REPORT(S)** The provision of dental care started with several short appointments in the WHU Dental School in the presence of a care-giver. The aim of this procedure was to desensitize the patient and make him familiar with the dental setting. As soon as the intraoral examination was possible, the restorative treatment followed in wake state by applying elements of a modified behavior management. The adhesive restoration comprised multiple composite layers and was carried out in October 2019 by a dental student who was in his 5th year. The student was supervised by a dentist working in the Department for Special Care Dentistry.

**FOLLOW UP** Since then, the patient has returned for regular controls several times. **CONCLUSIONS** Undergraduate dental students can be educated successfully to treat patients with ASD.

**P 205 Signs and symbols do they deliver? Introducing Makaton into a Community Dental setting.**

Callow M\*, Patel A

Whittington Health Community Dental Service, United Kingdom

**AIM** To introduce Makaton into dental appointments for Special Needs Paediatric Patients within the Whittington Health Community Dental Service.

**METHODS** Makaton is a language programme consisting of signs, symbols and speech that can be used to aid communication. A questionnaire to 50 clinical staff revealed current use of Makaton to be 0%. 18% (n=9) were aware of the programme but unfamiliar with its use. One member of staff obtained a formal Makaton qualification. Training was subsequently arranged for staff comprising of signs and symbols that could be used in the clinical setting. Makaton visual support tools, including flash cards and ‘now and next’ boards for visual scheduling were also introduced for use during appointments. Local guidelines and protocols were created for Makaton use within the service.

**RESULTS** 90% (n=45) of staff felt the Makaton training provided was relevant to their clinical practice. 76% (n=38) felt that Makaton was beneficial to their patients, with feedback of improving communication during appointments. 67% (n=4) of parents of Special Needs Patients found that when dentists used Makaton it increased both their child's communication and co-operation. Following its introduction 8% (n=4) of staff have requested formal training. 6% (n=3) of staff requested patient handouts to complement its use within the surgery.

**CONCLUSIONS** The next stage of the project is to increase the number of staff obtaining formal qualifications, with the aim of becoming accredited as a ‘Makaton Friendly’ Organisation. Further research into dentist’s confidence using Makaton and its effectiveness in improving co-operation with Special Needs Patients is needed.

**P 206 NORA (Non-Operating Room Anesthesia) with Propofol for dental treatments in uncooperative paediatric patients: experimental study.**

Papa C\*, Quaraniello M, Sangianantoni G, Ingenito A, Ferrazzano GF  
Department of Neuroscience, Reproductive and Oral Sciences, School of Dentistry, University of Naples, Federico II, Italy

**AIM** `The primary goal was to evaluate whether moderate sedation using Propofol (hypnotic anesthetic) would result in comfortable working conditions for patients with special needs. The secondary outcome was related to patient safety, considering adverse events and side effects.` **METHODS** `109 children, aged  $\geq 4$  years, were recruited. All patients received 1,5-4 mg/kg/h of intravenous Propofol up to the desired sedation level. The patients should be sleepy, but awoken to the mild nociceptive stimulus. During dental procedures, the following data were collected: success/failure, adverse events, side effects, number of teeth treated, type of dental procedure performed. Data were statistically analyzed.` **RESULTS** `The overall success rate was 96.7%. There was no correlation between success and age, gender, health state, weight, respectively. Adverse events occurred in 33.3% of cases. There was a statistically significant correlation between adverse events and age, health state, weight, respectively, but not between adverse events and gender. The side effects occurred in 6.4 % of cases. There was no statistically significant correlation between side effects and age, gender, health state, weight, respectively. The average number of teeth treated for each dental session was  $3.28 \pm 2.63$ . There was no statistically significant correlation between adverse events/side effects and number of teeth treated. There was a statistically significant correlation between adverse events and type of dental treatments.` **CONCLUSIONS** `Intravenous sedation with Propofol can be used to obtain moderate sedation and to perform dental treatments in phobic and special needs patients with minimal side effects.

**P 207 Orofacial therapy with oral stimulation plates by Castillo-Morales in a girl with infantile brain damage**

Goedicke-Padligur G\*, Schmidt P, Schulte AG  
Department for Special Care Dentistry, Dental School, Witten/Herdecke University, Witten, Germany

**INTRODUCTION** `Children with infantile brain damage suffer from impaired functions of orofacial muscles, sensitivity of the oral mucosa, swallowing reflex, closure of mouth and lateral movement of the tongue. This case report describes the successful therapy of a child with infantile brain damage with the aid of oral stimulation plates.` **BACKGROUND** `About 30 years ago Castillo-Morales described the successful application of a stimulation therapy in children with Down Syndrome. Clinical experience showed that this therapy can also be applied in children exhibiting a hypertonic tongue.` **CASE REPORT(S)** `A 10-year-old girl with infantile brain damage presented in January 2018 in our department. The medical history comprised linguistic and mental retardation, body coordination problems and PEG feeding. In the oral cavity excessive reflexes, increased salivation, infantile swallowing pattern, tongue protrusion and reduced lateral movement of the tongue were observed. In March 2018, two oral stimulation plates with dorso-lateral stimulation elements (one on the right and one on the left side) were produced to improve these impaired functions. The patient was asked to wear the plates alternatively twice a day for 30 Minutes each.` **FOLLOW UP** `In December 2018 and August 2019 the stimulation plates had to be re-produced due to growth of the jaw. The last examination was in February 2020.` **CONCLUSIONS** `Because of this therapy distinct reductions in the girl's hypersalivation was observed. In addition, for the parents brushing teeth of her child became much easier. It is recommended to try this therapy more often in children with infantile brain damage or cerebral palsy.

**P 208 The assessment of the urgent referral system within the Public Dental Service (PDS), Dumfries Dental Centre**

O'Driscoll JA\*  
Dumfries Dental Centre/Dumfries and Galloway Royal Infirmary Hospital Public Dental Service, Orthodontic and Maxillofacial Dept. NHS Dumfries and Galloway, Ireland

**AIM** `To assess whether or not referrals, which have been deemed urgent by clinical lead, met the set urgent referral criteria. Upon assessment by PDS dentist, have the patients met set criteria and if patients have not met criteria, have they been managed appropriately within PDS i.e. placed on routine special care waiting

list?' **METHODS** 'The categories of patients, which the PDS considers prioritizing patient assessment for, were specifically defined. Fifty patients, whose incoming urgent referrals had been accepted as being urgent by clinical lead 15.01.19-02.09.19, were assessed retrospectively. Each individual's incoming referral, their notes/medical histories and subsequent management within PDS were analysed in depth. R4 was used as patient data collection base.' **RESULTS** 'From the data collected the results were as follows: 1. 49/50 were correctly accepted as meeting the set criteria for 'urgent referrals'. 2. 47/50 met the set criteria upon examination in PDS. 3. Of the 3 that did not meet set criteria, 1/3 were appropriately managed within PDS i.e. placed on routine special care waiting list.' **CONCLUSIONS** 'Although the above results highlight the excellent work by PDS' clinical lead, there is still confusion amongst referrers as to what classifies as being an urgent referral. Equally, there is also confusion amongst PDS dentists as to the management of patients who do not meet set criteria. Those patients who have been referred inaccurately/inappropriately managed within PDS, has resulted in valuable appointment time being wasted and patients in need of genuine urgent treatment are having treatment delayed (likely possibility of pain/infection spreading)

**P 209 Primary juvenile Sjogren syndrome in a child- case report**

Iraqi R, Kharouba J\*, Peretz B, Blumer S

Department of Pediatric Dentistry, Tel Aviv University, Faculty of Medicine, School of Dental Medicine, Israel

**INTRODUCTION** 'Sjögren Syndrome is a chronic, inflammatory, autoimmune disease characterized by progressive lymphocytic and plasma cell infiltration of the exocrine glands, especially salivary and lacrimal, with potential for systemic manifestations. It is rare in children and predominantly affects middle-age women with classic symptoms of dry eyes (keratoconjunctivitis sicca) and dry mouth (xerostomia).' **BACKGROUND** 'A Girl submitted to our clinic in Tel-Aviv university, diagnosed with Primary Juvenile Sjogren syndrome at the age of 9, presented with Recurrent parotid gland enlargement and behavior management problems in dental treatments.' **CASE REPORT(S)** 'A 12-years old girl with Primary Juvenile Sjogren syndrome, dental anxiety, bad oral hygiene, chronic gingivitis, DMFT=12, viscous saliva, with complain of tooth sensitivity from brushing. Plaque nit was prescribed, Went through sialendoscopy under general anesthesia, ambulatory dental treatments with the aid of nitrous oxide, saliva test, rigorous oral hygiene management, a cross period of one year, that included restorative and endodontic settings. Through this year the child had recurrent parotitis' **FOLLOW UP** 'One year follow up that included periodical visits, oral hygiene management, fluoride application and gingival scaling. The child was advised to avoid coffee and tea because of their diuretic action, drinking 8-10 glasses of water per day, using a fluoride rinse and toothpaste that contain CCP-ACP.' **CONCLUSIONS** 'Primary Juvenile Sjogren Syndrome is a very rare entity in children, that leads to diverse clinical oral manifestations, that all should be dealt with rigorous dental home and dental treatments.'

**P 210 Ectodermal Dysplasia treated with implants- case report**

Iraqi R\*, Peretz B, Blumer S

Department of Pediatric Dentistry, Tel Aviv University, Faculty of Medicine, School of Dental Medicine, Israel

**INTRODUCTION** 'Ectodermal Dysplasia (ED) is a heterogeneous group of disorders characterized by a constellation of findings involving defects of two or more of the following: teeth, skin, and appendageal structures, including hair, nails, and eccrine and sebaceous glands, with an estimated incidence of 3.5 in 10,000 individuals.' **BACKGROUND** 'A boy of consanguineous parents diagnosed with Ectodermal Dysplasia and anodontia, admitted to our clinic after he had received 4 dental implants under general anesthesia at the age of 9 years old, 2 in anterior area of the upper jaw, and another 2 in the lower jaw, because of flappy ridge that made it difficult for retention of previous complete dentures.' **CASE REPORT(S)** 'A 10-years old boy with Ectodermal Dysplasia, cleft palate, delay in mental development, ADHD and dental anxiety, went through a series of ambulatory dental treatments with nitrous oxide for a period of one year, that included behavior management, multiple impressions, customized abutments in the lower jaw because of submerged implants, for full dentures in the upper and lower jaw.' **FOLLOW UP** 'One and a half year of follow up that included periodical visits, oral hygiene instructions for handling the dentures, adjustment of the dentures for more comfort. Although the child complains of continuous discomfort around the gingiva of the lower right abutment.' **CONCLUSIONS** 'Anodontia puts the child through social, speaking and eating

problems, continuous dental visits that can include surgery, difficulties and discomfort, that not always give the child the best results.

**P 211 A double- man syndrome (48, XXYY) diagnosed in a 10-year old boy**

Merglova V\*, Polendova D, Vohradská P, Baborska L

Dentistry Department, Charles University, Faculty of Medicine in Pilsen and University Hospital, Czech Republic

**INTRODUCTION** `The 48, XXYY syndrome is a rare sex chromosome aneuploidy condition characterized by a presence of two extra X and Y chromosomes. This syndrome is clinically manifested later in life with developmental delays, learning disabilities, behavioral problems, delayed or incomplete puberty and dental anomalies.` **BACKGROUND** `A 10 year-old boy was reported to the Dentistry Department of Faculty Hospital in Pilsen, Czech Republic for management of multiple carious teeth and for dental anxiety. Delayed development, learning difficulties and behavioral problems were present` **CASE REPORT(S)** `Clinical examination showed minor dysmorphic facial features, incomplete dentition, multiple carious lesions and gingivitis. The panoramic radiograph revealed taurodontism of all first permanent molars, agenesis of the second lower premolars, conical clinical crowns of permanent upper lateral incisors and impaction of the upper left permanent canine. Due to these findings genetic examination was made and the karyotype revealed the aneuploidy.` **FOLLOW UP** `24 months follow-up is reported.` **CONCLUSIONS** `Patients with 48, XXYY syndrome require multidisciplinary treatment. Dental management can be complicated by behavioral difficulties. Supported by a grant from the Ministry of Health of the Czech Republic – Conceptual Development of Research Organization Faculty Hospital in Pilsen – FNPI, 00669806.

**P 212 Replacement of unerupted frontal maxillary teeth with partial denture of a boy in mixed dentition with Hajdu-Cheney Syndrome**

Cilensek M\*, Ris Koler T, Berce B, Kosem R

Department of Paediatric and Preventive Dentistry, University Medical Centre Ljubljana, Slovenia

**INTRODUCTION** `Hajdu–Cheney syndrome (HCS) is a rare autosomal dominant skeletal disorder with distinctive facial features, osteoporosis and progressive focal bone destruction (acro-osteolysis).` **BACKGROUND** `This case report describes replacement of unerupted frontal maxillary teeth with partial denture in mixed dentition of a boy, diagnosed with HCS by mutational analysis.` **CASE REPORT(S)** `11-year-old boy suffering from severe osteoporosis treated with bisphosphonates, chronic kidney disease stage 5 and osteolysis of distal phalanges of all fingers was referred to our department in 2016. Examination revealed surgically corrected palatoschisis, retrognathic maxilla with frontal open bite and unerupted teeth 12, 11, 21, 22, 25 and 42. Due to missing teeth in his upper jaw, he experienced speech difficulties, accompanied by a low self-esteem. To improve his appearance, speech, mastication and overall quality of life, he was provided with removable partial maxillary denture with metal cast.` **FOLLOW UP** `In a period of 1 week, he became well-adjusted to his prosthesis. At 1-month recall, the patient had no complaints and significant improvements in his appearance and speech were noted. However, some occlusal adjustments were needed. At 3- and 6-month follow-up, the appliance was found to remain stable, with no gingival irritation. Subsequent follow-up appointments were scheduled every 6 months. After 2 years, a new appliance had to be made due to eruption of tooth 25.` **CONCLUSIONS** `Partial denture seems to be a successful treatment option in case of unerupted teeth in children and adolescents with HCS, where orthodontic treatment could result in bone and/or root resorption.

**P 213 Interdisciplinary interaction in the diagnosis and treating children with Behcet's disease**

Papinen DA\*, Skakodub AA, Rymar VP, Bagatyrova AB, Farrakhova KR

Department of Pediatric Dentistry and Orthodontics of Sechenov University, Moscow, Russian Federation

**AIM** `To increase the level of diagnosis and treatment of BD in children by interdisciplinary interaction of dentists, pediatricians and rheumatologists.` **METHODS** `We took 9 children with BD for clinical supervision and treatment, aged 8-16 years. A thorough history was taken and the main provoking factors revealed: frequent sore throats, herpetic diseases, digestive diseases. The timing of the appearance of the primary diagnostic sign of CHRS and joining of subsequent clinical signs were found. A biopsy of the affected tissues of the mucous membrane was taken.` **RESULTS** `In the biopsy it was revealed: the presence of vasculitis:



in the capillary walls infiltration by lymphocytes, plasma cells, monocytes, neutrophils, the presence of intravascular conglomerates from neutrophils, the presence of endothelial proliferation, narrowing or obliteration of the vessel. Laboratory studies revealed: the presence of anemia, an increase in ESR, the appearance of rheumatoid parameters, immunological parameters: a decrease in the total number of T-lymphocytes and T-helpers, an increase in certain classes of immunoglobulins (especially IgA), chemotactic activity of neutrophils. **CONCLUSIONS** 1. Behcet's disease in children is not well understood, and therefore late diagnosis of the disease is noted. 2. For 3-4 years, the disease proceeds as an incomplete Behcet syndrome, proceeding as a chronic recurrent aphthous stomatitis (CHRAS), which is the first diagnostic symptom of the disease. 3. Complex treatment of Behcet's disease is prescribed, depending on the immunological activity of the disease, the duration of the course and the degree of involvement of various organs and systems in this pathological process.

**P 214 Correlation of blood transfusion amount and iron chelation with blood and saliva ureum levels in  $\beta$ -thalassemia major children**

Gyzca Pradypta P\*, Titien I, Kusuma P

Pediatric Dentistry Department, Faculty of Dentistry, University of Gadjah Mada, Yogyakarta, Indonesia

**AIM** Determine the correlation between the amount of blood transfusion and iron chelation with blood urea and saliva levels in children with beta thalassemia major. **METHODS** Research subjects were children with beta thalassemia major in Moewardi Hospital Solo. Samples were taken by consecutive sampling technique from September to November 2018. The amount of blood transfusion and iron chelation and blood urea levels were secondary data from medical records. Unstimulated saliva was taken in the morning. Methods for measuring salivary urea levels was the urease method. The data was analyzed using Pearson correlation. **RESULTS** The amount of blood transfusion was  $71.9 \pm 34.3$ , iron chelation  $61.0 \pm 32.1$ , blood urea levels  $4.41 \pm 1.1$  mg / dL, salivary urea levels  $35.6 \pm 12.5$  mg / dL. **CONCLUSIONS** (1) the higher the amount of blood transfusion, the higher blood and saliva urea levels in children with beta thalassemia major; (2) the higher the amount of iron chelation, the higher blood urea and saliva levels in children with beta thalassemia major; (3) the higher the blood urea level, the higher salivary urea level.

**P 215 STIM1 deficiency and considerations in dental follow up: a report of 2 cases.**

Toonen J\*, Declerck D, Vansteenkiste G

KU Leuven, Department of Oral Health Sciences and Department of Dentistry, Unit of Paediatric Dentistry and Special Dental Care, University Hospital Leuven, Leuven, Belgium

**INTRODUCTION** STIM1 is a calcium sensor that conveys the calcium load of the endoplasmic reticulum (ER) to store-operated channels at the plasma membrane. Autosomal-recessive mutations in the Ca<sup>2+</sup>-sensing protein Stromal Interaction Molecule 1 (STIM1) result in combined immunodeficiency, immunodysregulation, ectodermal dysplasia with amelogenesis imperfecta and nonprogressive myopathy. **BACKGROUND** This report presents the follow-up of two siblings with STIM1 deficiency and enamel developmental defects, but with different oral characteristics. **CASE REPORT(S)** The patients attended the paediatric dental clinic of the University Hospitals of Leuven (Belgium), at the age of 9 (boy) and the girl at the age of 1 year and 8 months. Clinical examination revealed for both severe enamel hypoplasia and caries of the deciduous teeth. A complex medical follow up was necessary with recurrent infections and start of intravenous immunoglobulin therapy. The deciduous and permanent dentition were treated in different phases supported by general anesthesia. In both cases, the restorations were carried out with a combination of composite fillings and stainless steel crowns. Oral hygiene was before, and even after dental treatment, a problem because of high dental sensitivity and compliance. **FOLLOW UP** The boy, now 27 years old, had dental treatment and follow up with special attention for intra-ossal retention of all mandibular premolars. Over the years we see a spontaneous resorption of these elements. The girl, now 13 years old, was recently diagnosed with aggressive periodontal breakdown where further investigation is needed. **CONCLUSIONS** This report illustrates the variation of oral features in patients with STIM 1 deficiency.

**P 216 Oral manifestations of KID syndrome: rare clinical case**

Korolenkova MV\*, Gusova YV

Central Research Institute of Dentistry and Maxillofacial Surgery, Russian Federation

**INTRODUCTION** `KID (Keratitis, Ichthyosis, Deafness) syndrome is a rare congenital ectodermal disorder. Around 100 cases of the disease are documented worldwide so far most of them being sporadic and of autosomic dominant inheritance.` **BACKGROUND** `The primary cause of the disease is a gain-of-function mutation in the GJB2 gene coding connexin 26. It is clinically manifest as typical disease symptoms including erythrokeratoderma, hyperkeratosis of the palms and soles, scarring alopecia, sensorineural hearing loss and sometimes corneal scarring and neovascularization leading to blindness, as well as higher risk for SCC.` **CASE REPORT(S)** `An infant with KID syndrome was admitted for histological verification of oral mucosa lesions. Disease pathogenesis defines inadequate reparation and skin and mucosa innate immunity defect leading to higher incidence of bacterial and fungal infections, so the 4-years old girl received treatment for vegetating candidiasis of the oral mucosa for several weeks with no clinical improvement. Initial examination showed that the oral lesions resulted from sharp edges of severely affected carious teeth. Histological study of multifocal biopsy revealed pyogenic granulomas and no signs of SCC.` **FOLLOW UP** `Teeth extraction and symptomatic treatment led to significant clinical improvement and some remained mucosal changes after 1 year follow up may be attributed to syndrome manifestations.` **CONCLUSIONS** `The case demonstrated the importance of considering disease pathogenesis when treating specific symptoms of rare diseases. The oral mucosa lesions form typical reticulated pattern and should be treated as typical KID syndrome manifestation, but additional chronic injury complicated the clinical picture and resulted in initial misdiagnosis.

**P 217 A case of rare primary immune deficiency and its unexpected effects on a routine dental treatment**

Radacsi A\*, Nyul Z, Riedling T, Katona K, Sandor B

Department of Dentistry, Oral and Maxillofacial Surgery, Medical School and Clinical Centre, University of Pecs, Hungary

**INTRODUCTION** `Treating patients with immune deficiency can be challenging in the dental office.` **BACKGROUND** `Hyperimmunoglobulin E Syndrome (HIES) is a rare gene mutation related immune deficiency characterized by elevated serum Ig E, recurrent skin and pulmonary infections and associated with musculoskeletal, cranial and dental abnormalities.` **CASE REPORT(S)** `A 6 years old male patient presented at our clinic with painful deciduous second maxillary molar tooth filled in general anaesthesia 2 years earlier. Due to spontaneous pain the pulp chamber was accessed. As pus was discharging, it was left open until next appointment. On the next visit slight swelling was visible in the vestibular area adjacent to the treated tooth. After physical and radiological examination maxillary periostitis was diagnosed and we decided to extract the affected tooth. After treatment wet bandage was applied and adequate dosage of amoxicillin/clavulanic acid was prescribed. Previous extractions in the dental history of the patient were documented without complications. As the facial swelling increased by the following visit the patient was hospitalized, where further examinations (CT, Ultrasound, complete blood count), microbiological culture test were carried out, and intravenous antibiotic and oral antimycotic treatment were initiated. All test results were negative. After 1 week of hospitalisation patient was discharged.` **FOLLOW UP** `Oral antibiotic treatment was continued for 3 weeks, the swelling gradually decreased. Patient is monitored regularly.` **CONCLUSIONS** `In case of patients having immune deficiency dentist and paediatrician must work together closely in order to manage arising complications that have not been anticipated.

**P 218 Periodontal disease in two siblings with VPS45-associated severe congenital neutropenia type 5: A case report**

Alotaibi FA\*

Pediatric Dentistry Department in King Saud Medical City, Riyadh, Kingdom of Saudi Arabia

**INTRODUCTION** `VPS45-associated severe congenital neutropenia type 5 (VPS45-associated SCN5) is an autosomal recessive disorder caused by defective endosomal intracellular protein trafficking due to biallelic mutations in VPS45 underlies a new immunodeficiency syndrome involving reduced absolute neutrophils count below 500 cells/mm<sup>3</sup> and impaired neutrophil function.` **BACKGROUND** `VPS45-associated SCN5 is

a very rare condition with only 19 patients previously reported in the literature. Patients suffering from this disorder having profound neutropenia at early age, frequent episodes of fever, pneumonitis, skin infections, oral ulcerations, gingivitis and other recurrent infections.` **CASE REPORT(S)**` This paper reports the first two cases of VPS45-associated SCN5 in Saudi Arabia and describes the treatment approaches for periodontal disease as a manifestation of that disorder since the existing dental literature is lacking sufficient information on the management of those kinds of patients.` **FOLLOW UP**` Three months recall visit.` **CONCLUSIONS**` The present two cases reflect the importance of early diagnosis of periodontal disease as a possible indicator of underlying systemic disease.

**P 219 Dental treatment of 2 year old patient with Williams Syndrome with 1 year follow-up period – A case report**

Stanceviciene E\*, Petrauskiene S, Narbutaite J  
Lithuanian University of Health Sciences, Lithuania

**INTRODUCTION**` Williams syndrome (WS) is a multisystemic rare genetic disorder caused by deletion of 26–28 genes in the long arm of chromosome 7. To confirm the clinical diagnosis of Williams syndrome use the technique known as fluorescent in situ hybridisation (FISH).` **BACKGROUND**` A male patient with WS aged 1.8 years was reported to LSMU Kaunas Clinics from general dentist. Patient was diagnosed with WS through FISH test. Extra-oral examination revealed typical features specific to WS such as high forehead, big mouth, large ear buds, short nose, wide nose tip, long filter. Intra-oral examination revealed diastemas, enamel hypoplasia of all teeth, except upper and lower left canines, caries lesions were found in all first primary molars, while the second primary molars were not erupted. The chief complaint was fragility and break down of teeth structure.` **CASE REPORT(S)**` Firstly, non-operative dental treatment such as diet counseling, oral hygiene instructions, plaque removal and fluoride varnish (Bifluoride 10, VOCO) application was performed. Later operative treatment (direct Fuji IX GP(GC) restorations and stainless steel crowns(3M)) based on aesthetic rehabilitation was performed under general anaesthesia.` **FOLLOW UP**` Patient did not report any complaints during 1 year follow-up period. Clinic findings showed a good quality of restorations and the second primary molars had erupted without lesions after 1 year follow-up.` **CONCLUSIONS**` A high prevalence of tooth abnormalities and occlusal disorders in patients with WS requires an early complex dental treatment planning and regular follow-up.

**P 220 Oral findings in a patient with Apert syndrome**

Cayirci M, Yazir M\*, Uzuncibuk H, Kasimoglu Y, Aren G  
Department of Pedodontics, Faculty of Dentistry, University of Istanbul, Turkey

**INTRODUCTION**` Apert syndrome is a rare autosomal dominant disorder resulting from missense mutations in the gene on chromosome 10 (10q25-26) encoding fibroblast growth factor receptor 2 (FGFR2). It is characterized by craniosynostosis of coronal sutures system, maxillary hypoplasia and symmetric syndactyly of hands and feet. Respiratory and ophthalmic systems findings, heart-kidney abnormalities may accompany this syndrome.` **BACKGROUND**` This case report presents 4 years follow-up of a patient with Apert syndrome who was treated interdisciplinary approach with pediatric dentistry and orthodontics.` **CASE REPORT(S)**` A 13-year-old male, diagnosed as Apert syndrome was referred to paediatric dentistry clinic at Istanbul University with a complaint of orofacial abnormalities. According to his medical history, he had operations for his head and hands at age of 2. Examination revealed a concave profile with midfacial hypoplasia which resulted in a hypoplastic nasal septum, retruded zygomatic axis and retarded growth of the maxilla. Intraoral findings included ectopic eruptions of maxillary permanent second premolars and lateral incisors with mandibular permanent canines, pseudo cleft configuration, Class III malocclusion and openbite. According to panoramic radiograph, there were two impacted teeth in the inferior of maxillary central incisor region. Primarily oral hygiene provided with preventive and restorative treatment of maxillary and mandibular permanent premolars and molars.` **FOLLOW UP**` After completion of orthodontic treatment, continued treatment plan included LeFort III orthognathic surgery for correction of midface hypoplasia and skeletal Class III malocclusion to obtain facial symmetry and dental relationship.` **CONCLUSIONS**` The complexity of Apert syndrome patients are required accurate treatment plan and interdisciplinary approach.

**P 221 Dental management of a patient with X-linked hypophosphatemic rickets**

Kerimova D\*, Vislobokova E, Kiselnikova L

Moscow State University of Medicine and Dentistry Named after A.I.Evdokimov, Russian Federation

**INTRODUCTION** `One of the main findings in patients with known X-Linked Hypophosphatemic Rickets (XLHR, MIM#307800) is multiple abscesses associated with carious free teeth of the primary and permanent dentition. XLHR is characterized by a renal defect leading to reduced phosphate reabsorption.`

**BACKGROUND** `Due to the irregular structured dentine, the enamel fissures may extend into the pulp horns exposing the pulp with a high risk of microbial invasion. The dental comprehensive examination using modern diagnostic method is crucial for revealing periapical abscesses in XLHR- patients.`

**CASE REPORT(S)** `A 10-year old female came to the Paediatric Dentistry Department of Moscow State University of Medicine and Dentistry for dental examination. The intraoral examination revealed sinus tract associated with the caries-free apparently healthy mandibular mesial incisors. Teeth 4.1 and 3.1 were nonresponsive to vitality test and diagnosed as a pulpal necrosis. The CBCT revealed the mandibular central incisors with periradicular radiolucencies.`

**FOLLOW UP** `The diagnosis was K04.6 Periapical abscess with sinus 3.1, 4.1. After instrumentation and irrigation canals were filled with calcium hydroxide. 10 days later at the second appointment the fistula almost healed. Root canals were treated with the lateral condensation technique after which composite resin restorations were placed. Radiographic examination performed 6 month after treatment showed complete healing of the abscess.`

**CONCLUSIONS** `XHLR patients require frequent and regular dental care due to the fact that the structure of dental hard tissues is severely altered. The dental comprehensive examination using modern diagnostic method as a CBCT helps to identify all dental problems at an early stage.

**P 222 Features of the dental condition of patients with osteogenesis imperfecta.**

Tsymlyanskaya V\*, Kiselnikova L, Kovylna O

Moscow State University of Medicine and Dentistry named after A.I.Evdokimov, Russian Federation

**AIM** `Study of the features of the state of teeth in children with osteogenesis imperfecta.`

**METHODS** `A dental examination was performed on 27 children aged 3-14 years with a genetically confirmed diagnosis of osteogenesis Imperfecta (ICD-Q78. 0).The condition of the hard tissues of the teeth was evaluated by dmf and DMFt indices, according to the age of the patients.All patients underwent panoramic radiography.`

**RESULTS** `In the examined children with osteogenesis imperfecta with a prevalence of 73.7 %, the intensity of dental lesions according to the index dmf -3,7, DMFt- 4,2.Dental manifestations in the form of imperfect dentinogenesis of teeth were detected in 18 children (69.23%) in the form of: - changed enamel color-a watery gray shade of primary and permanent teeth; - erasing the enamel and dentin of primary teeth with a change in the color of the dentin to brown opalescent;- anomalies in the structure of the pulp chamber and root canals (obliteration or expansion).It was revealed that in case of imperfect osteogenesis type I (13 children), obliteration of the pulp chamber and root canals, shortening of the roots of the teeth was detected . With imperfect osteogenesis of type III ( 6 children), a wide pulp chamber and expanded root canals with thin walls were observed.`

**CONCLUSIONS** `When studying the dental status of children with osteogenesis imperfecta, the relationship between the type of osteogenesis imperfecta and the nature of dental manifestations is determined, which is important to consider when planning dental treatment.

**P 223 Neuroblastoma-amplified sequence variants: a case report of dental findings and management**

Patel K\*, Selby-Bennett C, Parekh S

Department of Paediatric Dentistry, Eastman Dental Hospital, University College Hospital, London, United Kingdom

**INTRODUCTION** `The oral manifestations of neuroblastoma-amplified sequence (NBAS) mutations are yet to be recorded in the literature. This case report is the first to describe the dental features and management of a patient with NBAS mutation.`

**BACKGROUND** `NBAS mutations are a very rare genetic disorder, which present with a range of clinical features. Commonly these patients present with; short stature with optic atrophy and Pelger-Huet syndrome, and recurrent acute liver failure. Recently, it has been connected to a number of disorders with multisystemic effects, including osteogenesis imperfecta (OI).`

**CASE**



**REPORT(S)** `A 4-year-old boy was referred to the department for dental screening following a diagnosis of OI associated with NBAS variant. He exhibited characteristic features of NBAS, including short stature, facial dysmorphism and learning difficulties. There were no clinical signs of dentinogenesis imperfecta. He displayed advanced dental development with partially erupted mandibular central incisors. The carious primary molars were treated with preformed metal crowns.` **FOLLOW UP** `Five years later, the patient receives long-term intravenous bisphosphonate treatment, and is regularly reviewed in the department for enhanced prevention. At 9 years old, he is in permanent dentition with unusual incisor morphology. He has been referred to the Joint Paediatric/Orthodontic Clinic for management of dento-alveolar crowding in the anterior maxilla.` **CONCLUSIONS** `Patients with the NBAS variant may present with multiple co-morbidities that can impact on dental management. For those who need invasive dental treatment, a referral to a specialist department should be considered.

**P 224 Oral health and aesthetic perception of dentition and jaw in cleft patients measured by PROMs.**

Schipper LA\*, Kind L, Bonifacio CC, Wolvius E, Kragt L

Department of Paediatric Dentistry, ACTA, Amsterdam/Department of Oral and Maxillofacial Surgery, Special Care Dentistry and Orthodontics. Erasmus University Medical Center, Rotterdam, The Netherlands

**AIM** `To evaluate the oral health and aesthetic perceptions of dentition and jaw in patients with different cleft types, measured by patient-related outcome measures (PROMs). Additionally, to compare the outcomes from the PROM's of the cleft patients with healthy controls.` **METHODS** `334 patients with cleft lip and/or palate (CL/P) treated at the Erasmus MC were included and 59 healthy patients were recruited as a control-group. Patient's perceptions were evaluated at the ages of 8, 12 and 22 years using the CLEFT-Q Dental, CLEFT-Q Jaw and the Child Oral Health Impact Profile - Oral Symptoms Subscale (COHIP-OSS). One-way ANOVA including post-hoc analysis were used to measure differences between age-groups, cleft types, as well as cases and controls.` **RESULTS** `Patients with the most severe cleft phenotype reported significantly worse CLEFT-Q Dental scores compared to other cleft types ( $0.06 \leq p \leq 0.07$ ). Cleft patients reported significantly worse CLEFT-Q Dental scores at ages 8 and 12, than at 22 years ( $p=0.001$ ). Overall, the control group scored significantly better than the cleft-group in the CLEFT-Q Dental scale ( $p=0.03$ ). No significant differences were found with the Cleft-Q Jaw and COHIP-OSS.` **CONCLUSIONS** `Perception of dental aesthetics is dependent of cleft severity and cleft patients generally perceive the dental appearance more negative than healthy controls. Health-care providers should consider patient's age and patient's perceptions to address treatment needs individually.

**P 225 Periodontal breakdown in the permanent dentition of a patient with osteopetrosis: a case report**

Claus S\*, Declerck D, Vansteenkiste G

KU Leuven, Department of Oral Health Sciences and Department of Dentistry, Unit of Paediatric Dentistry and Special Dental Care, University Hospitals Leuven, Leuven, Belgium

**INTRODUCTION** `Osteopetrosis (OP) covers a group of rare heritable disorders characterized by sclerosis of the skeleton. Increased bone density is the main characteristic of OP. Due to genetic variability, the symptoms of the disease can be heterogeneous. Severe, intermediate and mild/late onset OP are three distinct types based on the genetic defect, bone histology and clinical severity.` **BACKGROUND** `This report presents a case of unusual periodontal breakdown after periodontal and restorative treatment of the permanent incisors in a patient with OP.` **CASE REPORT(S)** `This patient was referred to the paediatric dental clinic of the University Hospitals of Leuven at the age of 6 years 9 months. The patient was diagnosed with severe OP and received a haematopoietic stem cell transplantation at age 3.1 years. In both the primary and permanent dentitions, tooth crowns showed malformations, in particular the incisors. The upper incisors were treated with composite restorations two weeks after a combined gingivectomy and crown lengthening at age 13.8 years. After the periodontal surgery the incisors became severely mobile; after eight months the first signs of alveolar bone loss were seen.` **FOLLOW UP** `The increased mobility and persistent poor oral hygiene necessitated the removal of the incisors and canines; this was carried out under antibiotic prophylaxis. A removable prosthesis was fitted in anticipation of implant therapy. Healing was uneventful without infection, swelling or redness.` **CONCLUSIONS** `Dental care of patients with osteopetrosis is challenging and

illustrates the need for a strict periodontal follow-up, with regular oral prophylaxis in order to reduce the risk of bone loss.

**P 226 Caries pattern and oral hygiene habits in children with osteogenesis imperfecta**

Gatzogianni M\*, Agouropoulos A, Gizani S, Doulgeraki A, Kavvadia A

Department of Paediatric Dentistry, National and Kapodistrian University of Athens, Greece

**AIM** To present the caries pattern and oral hygiene habits in a group of children with osteogenesis imperfecta (OI). **METHODS** Twenty-three patients 5-17 ys (14 male) with OI completed a questionnaire and underwent clinical examination after obtaining informed consent. Clinical parameters registered were: DMFT, dmft, CPI, OHI. Oral health related habits included dental visits, tooth brushing, flossing, use of mouth rinses, consumption of sweets and sugary drinks. Descriptive statistics and Spearman correlation coefficient were used (statistical significance  $p \leq 0.05$ ). **RESULTS** Mean age of the patients was 9.86 yrs, while caries-free were 35% for the primary and 39% for the permanent dentition. Mean dmft: 3.18 (SD: 4.03), DMFT: 2.65 (SD: 4.14), CPI:1.43 (SD: 0.5) and OHI:2.3 (SD: 0.76). Thirty percent visited the dentist rarely, 48% brushed once daily and most of them did not floss (87%) or mouth rinse (91%). Daily sweet consumption was reported by 39% of the patients, mostly between meals (78%), while 74% had no sugary drinks. Most affected teeth were 1st permanent molars, followed by 2nd bicuspid and 2nd primary molars, followed by the 1st ones. The least affected teeth were lower incisors for both dentitions. DMFT correlated with patients' age ( $p=0.006$ ) and consumption of sweets between meals was negatively correlated with brushing ( $p=0.001$ ) and flossing frequency ( $p=0.032$ ). **CONCLUSIONS** Dental caries and poor oral hygiene are common problems in patients with OI and therefore dental examination should be part of the full clinical evaluation. Proper daily habits must be reinforced to maintain good oral health.

**P 227 49,XXXXY-syndrome: a report of 2 cases with similar dental features**

Lemmens M\*, Declerck D, Vansteenkiste G

KU Leuven, Department of Oral Health Sciences and Department of Dentistry, Unit of Pediatric Dentistry and Special Dental Care, University Hospitals Leuven, Leuven, Belgium

**INTRODUCTION** The 49,XXXXY syndrome is considered a variation of Klinefelter's syndrome but the symptoms are usually more severe. They include delayed growth, behavioral problems, hypogonadism, dysmorphic facial features, mental retardation and learning difficulties affecting speech development. **BACKGROUND** This report presents 2 cases of 49,XXXXY syndrome with similar dental features. **CASE REPORT(S)** The first patient was seen at the paediatric dental clinic of the University Hospitals of Leuven (Belgium), at the age of 5 years. He presented with severe taurodontism in both primary and permanent dentitions. All second premolars were agenetic, while lateral upper incisors and upper canines were hypoplastic. At the age of 9 years, there was a class III occlusal relation with crossbite of both elements 21 and 42. Upper canines were positioned horizontally with risk for impaction. The second patient presented at the age of 9 years. There was also severe taurodontism and a class III relation. He also showed horizontally orientated upper canines, and additional transposition of teeth 13-14 and 23-24. Upper permanent lateral incisors and lower permanent central incisors and all second premolars were agenetic. **FOLLOW UP** In the first patient, the frontal cross-bite was resolved using criss-cross elastics and buttons. Due to multiple agenetic teeth a multidisciplinary approach was necessary in both cases. In order to facilitate eruption of the underlying teeth in a well-formed arch, premature extraction of deciduous teeth was performed. Both patients are currently in follow-up. **CONCLUSIONS** Patients with 49,XXXXY syndrome seem to develop similar oral features, which require specific consideration.

**P 228 Dental management of a paediatric patient with X-Fragile Syndrome.**

Ninivaggi R\*, Defabianis P

Specializing doctor in Paediatric Dentistry, CIR-Dental School, University of Turin, Italy

**INTRODUCTION** Fragile X (Martin-Bell) Syndrome (FXS) is a genetic condition linked to a single gene mutation on the chromosome X long arm (Xq27.3) and is characterized by intellectual disability, macroorchidism and peculiar facial morphology: elongated and narrow face with a large forehead, wide ear pavilions, deep and high palate, malocclusion are frequently observed. **BACKGROUND** Studies on the oral findings of FXS patients are rare. Difficult management of dental care, poor oral hygiene and manual skills, gingivitis and enamel lesions due to poor mineralization of dental tissue are reported. **CASE REPORT(S)** A

9 years old female patient was referred to the section of Paediatric Dentistry of the Dental School in Turin (Italy) for a dental evaluation. Clinical intra-oral examination showed poor oral hygiene, decay of 5.4, 5.5, 6.4, 6.5, 7.5, 8.4 and 8.5, healthy first permanent molars and malocclusion consisting in an evident dental crowding both the upper and lower jaw, with an increased overjet and a bilateral II molar class. The child was affected by a mental disability: grandmother and mother too were affected by FXS (diagnosis previously confirmed by "southern blot" analysis). The patient underwent extraction of 5.4 and 6.4, restorative treatments of 6.5 and 8.5, root canal treatment of 5.5 and 7.5; all first permanent molar were sealed.

**‘FOLLOW UP’** `After completing the restorative program, the patient was scheduled for orthodontic treatment. After one year, dental crowding was improved. The patient is still undergoing therapy.`

**‘CONCLUSIONS’** `Management of oro dental conditions in FXS patients are essentials to improve the quality of life.

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