E.A.P.D.

EUROPEAN ACADEMY OF PAEDIATRIC DENTISTRY

Programme
and
Abstract book

13th Congress of the European Academy of Paediatric Dentistry

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Programme
of the 13th EAPD Congress Belgrade, Serbia

EAPD Belgrade Congress 2016 Oral Sessions

Session O1 - Orthodontics/Growth & Development/Miscellaneous

Friday 3rd June 2016, Hall 2, 11:30-13:00

Chairmen: N. Nedeljkovic (Serbia) and S. Gizani (Greece)

O1.1 **WITHDRAWN**

O1.2 **Dental arch changes following loss of first primary molars prior to natural exfoliation: A systematic review and meta-analysis**

E. G. Kaklamanos, D. Tsiantou*, A. Dermata, D. Lazaridou, A. E. Athanasios

Department of Paediatric Dentistry, Aristotle University of Thessaloniki, Greece

O1.3 **Early management of anterior tooth crossbite with bonded resin-composite slopes: case series**

M. T. Xavier*, A. D. Soares, J. L. Pereira, S. Rosa, A. L. Costa

Faculty of Medicine, University of Coimbra, Portugal

O1.4 **The effect of oro-myofunctional therapy on malocclusion in young children - a descriptive, retrospective study**

K.M. Braamhaar*, M.C.M. van Gemert-Schriks, P. Helderop, N. van der Kaaij, I.H.A. Aartman

Department of Paediatric Dentistry, ACTA, The Netherlands

O1.5 **Dental abnormalities in children after mandibular distraction**

M. Korolenkova*, N. Starikova

Central Research Institute of Dentistry and Maxillofacial Surgery, Russian Federation

O1.6 **Evaluation of the importance of storage time and tooth type for dental pulp stem cell isolation**

S. Shahbazi*, B. Ozen, A. Mousavi, C. Semeins, A. Bakker

Department of Radiology, Amersfoort, Utrecht, The Netherlands

O1.7 **Oral health condition and Candida albicans carriage in children/adolescents with type 1 diabetes mellitus: preliminary findings.**

A. Babatzia, S. Gizani*, W. Papaioannou, C. Kanaka- Gantenbein, L. Papagiannoulis

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

O1.8 **Combined split-mouth and parallel-arm trial: novel clinical trial design illustrated in anaesthesia for paediatric oral healthcare**

V. Smail-Faugeron*, M. Muller-Bolla, J. L. Sixou, F. Courson

Department of Paediatric Dentistry, Dental School, University of Paris Descartes, France

Session O2 - Dental Materials

Friday 3rd June 2016, Hall 6, 11:30-13:00

Chairmen: J. Kühnisch (Germany) and M. Beloica (Serbia)

O2.1 **Effect of laser pretreatment and saliva contamination on the sealing performance of glass ionomer fissure sealants**

B. Oter, R. E. Tirali, B. Memis Ozgul*, N. Berk, S. B. Cehreli

Department of Paediatric Dentistry, Baskent University Faculty of Dentistry, Ankara, Turkey

O2.2 **Development of a radiopaque infiltrating resin for white spot lesions**

F. S. L. Wong*, M. Moeinian, G. Davis, R. HIll

Institute of Dentistry, Barts and The London SMD, Queen Mary University of London, UK

O2.3 **Effect of pH on calcium ion release of tricalcium silicate cements**

S. Rajasekharan*, C. Vercruysse, L. Martens

Department of Paediatric Dentistry, PAECOMEDIS Research Cluster, Ghent University, Belgium

O2.4 **The effect of calcium silicate based materials on fracture strength**

E. B. Tuna Ince*, Y. Guven, M. E. Dincol, E. Ozel, O. Aktoren

Istanbul University Faculty of Dentistry Department of Paediatric Dentistry, Turkey

O2.5 **Microtensile bond strength of different types of adhesive systems to primary and permanent teeth**

M. D. Beloica*, I. C. Radovic, J. Juloski, Z. Mandinic, A. Vukovic

Clinic for Paediatric & Preventive Dentistry, University of Belgrade, Serbia

O2.6 **Success rate of MedCem Portland cement as a pulp capping agent in pulpotomies of primary teeth**

V. M. Vilimek*, B. S. Christof

Private Practice, Austria

O2.7 **Tooth-coloured materials for class II restorations in primary molars: a systematic review**

V. Siokis*, D. Dimitraki, N. Kotsanos

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

O2.8 **Our experience on infiltration of white spot lesions**

A. S. Ogodescu*, A. E, Ogodescu, M. M. Luca, M. Popa, A. Feher

Discipline of Paediatric Dentistry, University of Medicine and Pharmacy "Victor Babes" Timisoara, Romania

O2.9 **A comparison of the fracture strength of primary molars with different restorative techniques**

H. Simsek*, S. Derelioglu

Dept of Paediatric Dentistry, Ordu University, Ordu, Turkey

Session O3 - Behaviour Management/Miscellaneous

Friday 3rd June 2016, Hall 4, 11:30-13:00

Chairmen: R. Balmer (UK) and J. Veerkamp (The Netherlands)

O3.1 **An audit of repeat paediatric dental general anaesthesia within the salaried dental service of North Yorkshire - England**

L. Duffy*, S. Momen, K. Watson, R. Balmer

Department of Paediatric Dentistry, School of Dentistry, University of Leeds, Leeds, UK

O3.2 **An audit of the quality of joint general anaesthetic referrals to paediatric dentistry at School of Dentistry, University of Leeds, UK**

E. Aliakbari, A. Hollis, R. Balmer*

Paediatric Dentistry, School of Dentistry, University of Leeds, Leeds, UK

O3.3 **Evaluation of a novel self-help cognitive behavioural therapy resource to reduce paediatric dental anxiety**

J. E. Kirby*, A. Morgan, J. Porritt, H. Rodd, Z. Marshman

Sheffield Teaching Hospital, UK

O3.4 **Post-discharge events occurring after dental treatment under deep sedation in paediatric patients**

E. Davidovich*, D. Ram

Hebrew University-Hadassah School of Dental Medicine, Israel

O3.5 **Does maternal dental anxiety affect caries experience of children?**

S. Keles, M. Daloglu*, F. Abacigil, I. Sonmez

Paediatric Dentistry Department, Dental School, Adnan Menderes University, Turkey

O3.6 **Two is one too many: repeat dental general anaesthesia in children**

C. A. Thakrar*, A. G. Morgan, G. Yesudian, A. Hyde, C. Deery

Charles Clifford Dental Hospital, Sheffield, UK

O3.7 **Behavioural management during midazolam sedation of children**

S. Rienhoff, J. Rienhoff*, J. Veerkamp, J. Krikken

Private practice, Hannover, Germany

O3.8 **The use of conscious sedation as an alternative to general anaesthesia in paediatric dental patients.**

T. Cantile*, A. Garret Bernardin, V. D'Anto, G. F. Ferrazzano, A. Galeotti

Bambino Gesu Hospital, Division of Dentistry and Orthodontics, Rome, Italy

O3.9 **Effectiveness of two different school-based oral health education programs on attitude and plaque index of 9 year-old children**

E. Eden, M. Akyildiz*, I. Sonmez

Paediatric Dentistry Department, Dental School, Adnan Menderes University, Turkey

Session O4 EAPD Young Scientist Research Award Part I

Friday 3rd June 2016, Hall 2, 14:00-15:30

Chairmen: A.M. Vierrou (Greece) and B. Drummond (New Zealand)

O4.1 **The effect of parental presence on the child's perception and cooperation during dental treatment**

V. Boka*, K. Arapostathis, N. Kotsanos, C. van Loveren, J. Veerkamp

Department of Paediatric Dentistry, Aristotle University of Thessaloniki, Greece

O4.2 **Comparison of resin modified glass ionomer cement with composite resin in class II primary molar restorations**

A. Dermata*, S. Fragkou, N. Kotsanos

Paediatric Dentistry Department, Aristotle University of Thessaloniki, Greece

O4.3 **Is gagging associated with dental fear in 4-12 years old children?**

M. Katsouda*, C. Tollili, N. Tzialla, T. Coolidge, N. Kotsanos

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

O4.4 **Antibacterial properties of novel dental composites under development for paediatric dentistry**

N. Lygidakis*, E. Allan, W. Xia, A. Young, P. Ashley

Paediatric Dentistry Deparment, Eastman Dental Institute, University College London, UK

O4.5 **NuSmile® zirconia crowns: a valid alternative to stainless steel crowns? A split-mouth RCT, preliminary results**

V. Koningsveld*, L. Martens, R. Cauwels, P. Bottenberg, W. Jacquet

Department of Paediatric Dentistry, Ghent University, Belgium

O4.6 **The association between obesity and oral health in 11 to 18 year olds: a case control study.**

S. De Smedt*, F. Marro, W. Jacquet, L. Martens

Department of Paediatric Dentistry, Ghent University, Belgium

O4.7 **Remineralisation of dentine treated by different fluoride formulations**

M. M Al Hothali*, M. Lagerweij, C. Kleverlaan, G. van Strijp, C. van Loveren

Academic Centre for Dentistry Amsterdam, ACTA, Department of Cariology, Endodontology, Paedodontology, Amsterdam, The Netherlands

O4.8 **Effect of polishing systems on fluoride release and surface roughness of newly developed restorative materials**

G. D. Bayrak*, N. Sandalli, S. S. Kuvvetli

Paediatric Dentistry Department, Dental School, Yeditepe University, Turkey

O4.9 **Decellularised dental pulp as a suitable scaffold for regenerative endodontic techniques**

M. Matoug-Elwerfelli*, H. Nazzal, M. Duggal, F. Esteves, M. El-Raif

Department of Oral Biology & Paediatric Dentistry, School of Dentistry, University of Leeds, UK

Session O5 EAPD Young Scientist Research Award Part II

Friday 3rd June 2016, Hall 2, 16:00-17:30

Chairmen: A. Pavlic (Slovenia) and N. Lygidakis (Greece)

O5.1 **Clinical evaluation of an S-PRG containing resin-based sealant using a self-etch primer**

S. Ntaoutidou*, A. Arhakis, K. Tolidis, N. Kotsanos

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

O5.2 **Changes in oral health-related quality of life of children and parents following treatment of dental caries in children**

A. BaniHani*, C. Deery, K.J. Toumba, T. Munyombwe, M.S. Duggal

Department of Paediatric Dentistry, School of Dentistry, University of Leeds, UK

O5.3 **Quality of life and treatment outcomes under inhalation sedation in children**

A. S. Altimimi*, J. Tahmassebi, M. S. Duggal

Department of Paediatric Dentistry, School of Dentistry, University of Leeds, UK

O5.4 **Chemical and biological properties of new nanostructured materials based on highly active calcium silicates**

B. Lj. Cetenovic*, B. B. Prokic, D. D. Trisic, V. R. Jokanovic, D. Lj. Markovic

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

O5.5 **Is there any association between failed restorations in primary teeth and enamel defects in permanent successors?**

D. Hesse*, C.C. Bonifacio, I. C. Olegario, F. Medeiros Mendes, D. P. Raggio

Department of Cariology, Endodontics and Paedodontology, Academic Centre for Dentistry Amsterdam (ACTA), The Netherlands

O5.6 **Comparison of pulpotomy and direct pulp capping with MTA in carious primary molars.**

D. Dimitraki*, A. Koleventi, N. Kotsanos

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

O5.7 **Patient and parent satisfaction with the premolar auto-transplantation pre-surgical information.**

Z. Alkahtani*, H. Nazzal, A. Hollis, M. S. Duggal

Paediatric Dentistry Dept, School of Dentistry, University of Leeds, Leeds, UK

O5.8 **Evaluation of two methods of conscious sedation in children using nitrous oxide mixture (Entonox) and perorally administered midazolam**

J. Vasakova*, J. Matouskova, M. Drahos, L. Navarova, Z. Broukal

School of Dental Medicine, 1st Faculty of Medicine, Charles University and General University Hospital, Prague, Czech Republic

Session O6 - Dental Trauma/Endodontics

Saturday 4th June 2016, Hall 2, 11:30-13:00

Chairmen: R. Steffen (Switzerland) and S. Barry (UK)

O6.1 **Colour change in anterior permanent teeth treated with regenerative endodontic technique**

H. Nazzal*, A. Altimimi, M. S. Duggal, P. Day

Paediatric Dentistry Dept, School of Dentistry, University of Leeds, Leeds, UK

O6.2 **New strategies in the treatment of invasive cervical resorption-case series**

A. Belcheva*, G. Tomov, I. Nachkov, M. Shindova, R. Andreeva

Medical University-Plovdiv, Faculty of Dental Medicine, Department of Paediatric Dentistry, Bulgaria

O6.3 **Analysis of after-hours traumatic dental injuries in Serbia**

A. P. Vukovic*, R. M. Vukovic, D. Lj. Markovic, Z. Mandinic, M. D. Beloica

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

O6.4 **School Bullying and Traumatic Dental Injuries in East London Adolescents**

M. Agel*, W. Marcenes, S. A Stansfeld, E. Bernabe

King's College London Dental Institute at Guy's, King's College and St. Thomas' Hospitals, UK

O6.5 **Effect of LAI with EDTA and phytic acid on the removal of calcium hydroxide and triple antibiotic paste from root dentine.**

A. Eymirli*, E. Nagas, O. Uyanik, Z. Cehreli

Hacettepe University, Faculty of Dentistry, Department of Endodontics, Turkey

O6.6 **Evaluation of MTA pulpotomy for carious exposure in primary teeth**

B. N. Celik*, S. Sari

Ankara University, Department of Paediatric Dentistry, Turkey

O6.7 **Revascularisation of immature permanent teeth: an alternative to the apexification. Indications and protocol.**

A. M. Collignon*, C. Besnault, E. Dursun, J. J. Lasfargues

Paris Descartes University, France

O6.8 **Short-term treatment outcomes of pulpotomies in primary molars: A pilot study**

B. Ozen*, D. Kara, M. M. Hothali, F. L. Duvekot, A. J.P. van Strijp

ACTA, Department of Cariology Endodontology Paedodontology, University of Amsterdam and VU University Amsterdam, The Netherlands

Session O7 - Dental Anomalies/Miscellaneous

Saturday 4th June 2016, Japanese Lounge, 11:30-13:00

Chairmen: C. Deery (UK) and H. Alapulli (Finland)

O7.1 **Molar incisor hypomineralisation (MIH): knowledge of general dental practitioners in the Netherlands**

N. M. Delmee*, I.H.A. Aartman, J.J.M. Bruers, K.L. Weerheijm

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

O7.2 **Molar incisor root malformation in four Norwegian children**

I. J. Brusevold*, T. Granvoll Bie, C. S. Baumgartner, I. Espelid

Department of Paediatric Dentistry and Behavioral Science, Institute of Clinical Dentistry, University of Oslo, Norway

O7.3 **Management of four developmental defects of enamel associated with vitamin D deficiency. A case series.**

W. AlMutairi*, M. S. Duggal

Paediatric Dentistry, School of Dentistry, University of Leeds, UK

O7.4 **Bonding to amelogenesis imperfecta affected teeth: a systematic review and an ultrastructure study.**

E. Savard*, D. Solis, A. Le Thai, E. Vennat, E. Dursun

Paris Descartes University, France

O7.5 **Measuring the influence of telescopic Galileo system on visual acuity of paediatric dentists in a simulated clinical environment**

D. Negovetic Vranic, I. Urlic, J. Jelicic, P. Bucevic, I. Cukovic-Bagic*

Department of Paediatric Dentistry, School of Dental Medicine, University of Zagreb, Zagreb, Croatia

O7.6 **A cross-sectional study comparing parental and child versions of CFSS-DS in 4-12 year old Greek children.**

C. Tollili*, M. Katsouda, N. Tzialla, T. Coolidge, K. Arapostathis

Dept. of Paediatric Dentistry, Dental School, Aristotle University of Thessaloniki, Greece, Greece

O7.7 **Oral health status in children with asthma**

B. Abubakr*, I. Kalyoncu, I Tanboga

Department of Paediatric Dentistry, Marmara University, Istanbul, Turkey

Session O8 - Oral Medicine & Pathology/Special Needs Patients/Syndromes & Genetics

Saturday 4th June 2016, Room 4/I, 11:30-13:00

Chairmen: M. Casas (Canada) and D. Declerck (Belgium)

O8.1 **Oral lesions in Brazilian children and adolescents: a retrospective study**

C. Nogueira Rodrigues Milhomem, E. Costa Cuccolo da Silva, F. Kuhl Panzarella, F. Passador Santos, L. Butini Oliveira*

SLMandic, School of Dentistry, Campinas, Brazil

O8.2 **Anaesthetic efficacy of articaine versus lidocaine in children. An equivalence parallel, randomised, controlled trial**

F. S. Alzahrani*, M. S. Duggal, J. F. Tahmassebi

Paediatric Dentistry, School of Dentistry, University of Leeds, UK

O8.3 **Evaluation of in vitro cytotoxicity of root repair materials on 3T3 cells**

Y. Kasimoglu*, B. Varol, E. B. Tuna, E. Karsli, F. Seymen

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

O8.4 **Management of oral graft-versus-host disease (OGvHD) in the paediatric patient**

M.F. McLaughlin Skene*, A. Crighton, G. L. Richardson

Glasgow Dental Hospital and School/ Royal Hospital for Children (Glasgow), UK

O8.5 **Parents` perceptions on dental care of Dutch children with autism spectrum disorder**

L.S. Kind*, I.H.A. Aartman, M.C.M. van Gemert-Schriks, C.C. Bonifacio

Department of Cariology, Endodontics and Paedodontology, Academic Centre for Dentistry Amsterdam (ACTA), Amsterdam, The Netherlands

O8.6 **Oral health status in patients with mucopolysaccharidoses**

P. Serdar Eymirli*, E. Ballikaya, N. Avcu, M. Tekcicek, S. Sivri

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

O8.7 **Striking abnormal tooth shape and hypodontia in undiagnosed XLHED twins. The role of the paediatric dentist.**

K. Chatzidimitriou*, N. A. Lygidakis

Private Dental Clinic, Athens, Greece

O8.8 **Parental oral health knowledge and oral findings in children with Prader-Willi syndrome in Ireland**

S. E. O'Brien*, A. C. O'Connell

Dublin Dental University Hospital, Ireland

Session O9 – Prevention

Saturday 4th June 2016, Hall 6, 14:00-15:30

Chairmen: M. Spyriodons-Loizidou (Cyprus) and J. Tahmassebi (UK)

O9.1 **Evaluation of different remineralisation agents in the treatment of incipient enamel lesions in primary and permanent teeth**

A. Akbay Oba*, F. Tulumbasi

Dept Paediatric Dentistry, Kırıkkale University Faculty of Dentistry, Kırıkkale, Turkey

O9.2 **Salivary factors modifying dental erosion in children**

F. Zawaideh*, A. H. Hamasha, K. Suleiman

Jordan University of Science and Technology, Jordan

O9.3 **Effect of a new fluoride varnish in preventing enamel erosion**

N. Tuloglu*, S. Bayrak, H. Bicer, E. S. Tunc

Department of Paediatric Dentistry, University of Eskisehir Osmangazi, Eskisehir, Turkey

O9.4 **Withdrawn**

O9.5 **Association of non-rinsing after toothbrushing and caries increment in school children: a cluster randomised clinical trial**

T. Ris Koler*1, R. Gaspersic, R. Kosem

Department of Paediatric & Preventive Dentistry, University Medical Centre Ljubljana, Slovenia

O9.6 **Determinants of oral self-care practice in adolescents after the social learning theories guided dental education**

L. Dziaugyte*, J. Aleksejuniene, V. Brukiene, V. Peciuliene

Institute of Odontology, Faculty of Medicine, Vilnius University, Lithuania

O9.7 **The comparison of caries risk factors in 1 year old infants with very low birth weight and physiologic birth weight.**

R. Koberova Ivancakova*, V. Merglova, Z. Broukal, J. Zemankova, L. Ryskova

Dept. of Paediatric Dent., Charles Univ. and Univ. Hospital, Hradec Kralove, Czech Republic

O9.8 **Dental caries status of children and their parents' willingness to invest in children's oral health**

J. L.M. Berendsen*, C. C. Bonifacio, E. Verrips, C. van Loveren, D. Duijster

Department of Cariology, Endodontics and Paedodontology, Academic Centre for Dentistry Amsterdam (ACTA), The Netherlands

O9.9 **Paediatric health care providers' knowledge, behavior and confidence regarding oral health**

M. Saffari*, I.H.A Aartman, M.C.M van Gemert-Schriks, A.J.P van Strijp

Academic Centre for Dentistry Amsterdam (ACTA), The Netherlands

Session O10 Epidemiology

Saturday 4th June 2016, Japanese Salon, 14:00-15:30

Chairmen: S. Parekh (UK) and H. Juric (Croatia)

O10.1 **Association between obesity in paediatric patients and erosive tooth wear: A case-control study.**

M. F. Marro*, S. De Smedt, W. Jacquet, P. Bottenberg, L. Martens
Dept. of Paediatric Dentistry, Ghent University, Belgium

O10.2 **An audit to analyse patient demographics and attendance for repeat dental general anaesthetics in children in North Yorkshire**

S. Momen*, E. Duffy, R. Balmer
Dept of Paediatric Dentistry, School of Dentistry, University of Leeds, UK.

O10.3 **The prevalence of deleterious oral habits in a group of children aged 6-12 years living in Istanbul Turkey**

S. Akgun, I. O. Kalyoncu, I. Tanboga*
Marmara University Paediatric Dentistry Department, Istanbul, Turkey

O10.4 **Oral hygiene and periodontal status of 12- and 15-year-old Greek adolescents. A National Pathfinder Survey**

O. Panagopoulou, M. Sifakaki, K. Tsinidou*, W. Papaioannou, C. J. Oulis
Department of Paediatric Dentistry, Dental School, National and Kapodistrian University of Athens, Greece

O10.5 **Caries and fluorosis prevalence of 6- and 12-year-old children in South Ecuador**

M. A. Petrou*, C. Bschorer, H. Meyer-Luckel
Department of Operative Dentistry, Periodontology and Preventive Dentistry, RWTH University of Aachen, Germany

O10.6 **Premature extraction of primary teeth in schoolchildren**

A. Belcheva, R. Andreeva*, M. Shindova
Medical University-Plovdiv, Faculty of Dental Medicine, Bulgaria

O10.7 **Molar incisor hypomineralisation (MIH) type enamel defects on the other teeth of adolescents**

N. Kotsanos*, K. Kevrekidou, I. Kosma
Dept of Paediatric Dentistry, Dental School, Aristotle University of Thessaloniki, Greece

O10.8 **Visits to a paediatric emergency department for caries-related complaints: Ten-year utilisation trends**

M. Friedman*, E. Barrett, M. Casas, C. Quinonez
SickKids, Toronto, Canada

Session O11 - Oral Health & Nutrition Award (O11.1-11.4)/Cariology
Saturday 4th June, Room 4, 14:00-15:40

Chairmen: P. Lansen (The Netherlands) and F. Seymen (Turkey)

O11.1 **Investigation of caries prevalance and BMI correlation in Down syndrome children**
N. Tomacoglu*
Department of Pediatric Dentistry, Marmara University, Istanbul, Turkey

O11.2 **TAS1R2 Genotypes Associated with Dental Caries**
M. Kilic*, T. Gurbuz, S. Tasdemir
Department of Paediatric Dentistry, Ataturk University, Erzurum, Turkey

O11.3 **Black stain in children: a systematic review**
E. Dursun*, P. Monsarrat, C. Pujade, M. Daou, J. P. Attal
Paris Descartes University, France

O11.4 **Home-based toothbrushing practices by parents of young children to reduce dental caries: a systematic review**
E. Aliakbari*, K. Gray-Burrows, Z. Marshman, R. McEchan, P. Day
Det of Paediatric Dentistry, School of Dentistry, University of Leeds, UK

O11.5 **Effects of ER:YAG laser and APF gel application on surface microhardness, fluoride uptake and acid resistance of enamel**
D. Kiper Akatay, N. Sandalli, S. Selvi-Kuvvetli*

O11.6 **Use of ordinal valuation tasks with children and young people for the valuation of a caries-specific measure**
H. J Rogers*, H. D. Rodd, K. Stevens, F. Gilchrist, Z. Marshman
School of Clinical Dentistry, University of Sheffield, UK

O11.7 **Dutch paediatricians` knowledge, attitude and practices regarding dental caries**
I. Moelker-Bachet*, I. H. A. Aartman, M. C. M. van Gemert-Schriks
Academic Centre for Dentistry Amsterdam (ACTA), The Netherlands

O11.8 **Child-reported discomfort of ART and Hall technique for the management of occluso-proximal caries lesions in primary molars**
C. C. Bonifacio*, D. Hesse, M. P. de Araujo, I. C. Olegario, D. P Raggio, N. Innes
Department of Cariology, Endodontology and Pedodontology, Academic Centre for Dentistry Amsterdam (ACTA), The Netherlands

O11.9 **Performance of an automated caries detection system in classifying occlusal caries from digital images in vitro in ICDAS-II system**
E. D. Berdouses*, M. Michalaki, E. E. Tripoliti, D. I. Fotiadis, C. J. Oulis
Paediatric Dentistry Department, Dental School, National and Kapodistrian University of Athens, Greece

O11.10 **Prevalence and severe early childhood caries risk indicators of 5 year-old Greek children: A national pathfinder survey.**
C. Reppa, K. Kavvadia, K. Tsinidou, E. D. Berdouses, C. J. Oulis*
Department of Paediatric Dentistry, School of Health Sciences, Faculty of Dentistry, University of Athens, Greece

EAPD Belgrade Congress 2016
Oral Poster Discussion (OPD) Sessions

Session OPD1 - Dental Trauma I

Friday 3rd June 2016, Hall 5, 11:30-13:00

Chairmen: N. Kotsanos (Greece) and E. Stratigaki (Switzerland)

OPD1.1 **Pulp revascularisation of necrotic immature permanent incisor after intrusive luxation injury: a case report.**
I. Turedi*, A.T. Ulusoy, S. Ibis
Dept. of Paediatric Dentistry, Faculty of Dentistry, Ondokuz Mayis University, Samsun, Turkey

OPD1.2 **Factors associated with oral health-related quality of life for Turkish preschool-aged children with dental trauma**
D. Tabakcilar*, K. Peker, D. Ozge Yilmaz, Y. Kasimoglu, E.B. Tuna-Ince
Istanbul University, Faculty of Dentistry, Department of Paedodontics, Istanbul, Turkey

OPD1.3 **Use of mouth guards by amateur basketball athletes in Greece and USA.**
E.L. Exarchou*, I. Kotsanos, N. Kotsanos
Paediatric Dentistry Dept., Dental School, Aristotle University of Thessaloniki, Greece

OPD1.4 **Withdrawn**

OPD1.5 **Dentists` knowledge and attitudes about traumatic dental injuries in a Paediatric population**
C. Savin*, A. Petcu, V. Toma, R. Cioata, A. Balan
U.M.F. "Grigore T. Popa" Iasi, Faculty of Dental Medicine, Romania

OPD1.6 **Different approaches in treatment of tooth avulsion in patients of the same age**
S. Kadic*, M.M. Mestrovic, K. Johman, P. Nola Fuchs, D. Blaic
Dental Polyclinic, Zagreb, Croatia

OPD1.7 **Multidisciplinary treatment of maxillary central incisor associated with open apex and periapical lesion: a case report**
I. Karahasanoglu*, A. Avsar, O. Ulker
Dept. of Paediatric Dentistry, Ondokuz Mayis Univercity, Turkey

OPD1.8 **Withdrawn**

OPD1.9 **Long-term results of crown fragment-reattachment technique for fractured anterior teeth (a 4 year follow-up)**
M. Sarapultseva*, A. Sarapultsev
Vital EBB, private dental practice, Ekaterinburg, Russia.

OPD1.10 **Factors associated with oral health-related quality of life for Turkish children aged 11 to 14 years with dental trauma**
D. Ozge Yilmaz*, K. Peker, D. Tabakcilar, Y. Kasimoglu, E. Tuna-Ince
Dept. of Paedodontics, Istanbul University, Istanbul, Turkey

OPD1.11 **Avulsion of upper permanent central incisor**

I. Al Shekaili*, K. Kenny, M. S. Duggal
Paediatric Dentistry Dept. School of Dentistry, University of Leeds, Leeds, UK

OPD1.12 **Delayed treatment of dental trauma**

J. B. Krikken*, G. Capello, K. L. Weerheijm
Paediatric Research Project and OLVG, Amsterdam, Netherlands

OPD1.13 **Management of a 9-year-old child with a complex dento-alveolar trauma**

G. Kotantoula*, M. S. Duggal
Dept. of Peadiatric Dentistry, School of Dentistry, University of Leeds, Leeds, UK

OPD1.14 **Case Report: Delayed replantation of avulsed permanent immature teeth with 15 hours extra oral time**

N. Yilmaz*, O. Baygin, Y. Korkmaz, T. Tuzuner
Paediatric Dentistry, Istanbul, Turkey.

Session OPD2 - Miscellaneous I

Friday 3rd June 2016, Hall 6, 14:00-15:30h

Chairmen: J. Vandenbulcke (Belgium) and E. Caglar (Turkey)

OPD2.1 **Neonatal haemochromatosis: Demonstration of iron deposition in lower lip minor salivary gland biopsy helps establish diagnosis.**
S. Gallagher*, K. FitzGerald, P. Fleming, S. Hussey, E. Reade
Paediatric Dentistry, Our Lady's Children's Hospital, Crumlin, Dublin, Ireland

OPD2.2 **The stress evaluation of premolar shaped primary 2nd molar without successor: 3D FEA study**
S. Sari*, A. Demirel, B. N. Celik
Dept. of Paediatric Dentistry, Ankara University, Turkey

OPD2.3 **The utilisation of general anaesthetic theatre time for paediatric dental procedure at Chelsea and Westminster Hospital**
G. Al-Jaddir*
Paediatric Dentistry, Chelsea and Westminster Hospital, London, England.

OPD2.4 **A qualitative study of knowledge and understanding of dental health terms in parents of preschool children**
D. Bailey*, P. Lucas
Paediatric Dentistry, School of Dentistry, University of Bristol, UK

OPD2.5 **Clinical application of dental lasers in the different cases of Paediatric dentistry**
E. Akbeyaz, S. Peker*, M. Ulluakay
Paediatric Dentistry Dept., Faculty of Dentistry, Marmara University, Turkey

OPD2.6 **Assessment of ergonomic risk among paediatric dentists**
V. Petorviæ*, N. Pejèiæ, N. Miljkovic, M. Duric-Jovicic, D. Popovic
Dept. of Preventive and Paediatric Dentistry, University of Belgrade, Belgrade, Serbia

OPD2.7 **Adhesive bridge reinforced with fiber post in treatment of premature tooth loss**
D. Kosanovic*, M. Beloica, Z. Mandinic, A. Vukovic[2], A. Colovic
Clinic for Paediatric and Preventive Dentistry, Belgrade, Serbia

OPD2.8 **Evaluation of antimicrobial effects of ozone therapy on some cariogenic bacteria**
E. Duzyol, T. Gurbuz*
Dept. Paediatric Dentistry, Atatürk University of Erzurum, Turkey

OPD2.9 **Oral aspects in children with nephrotic syndromes**
K.G.U Guzel*[1], D. Yilmaz, F.A. Ergin, S. Pirincci
Dept. of Paediatric Dentistry, Adnan Menderes University, Turkey

OPD2.10 **Dental treatment under general anaesthesia in a sample of patients attending a university clinic**
A. Munteanu, R. Luca*, I.A. Stanciu, C. Farcasiu, T.A. Farcasiu
Paediatric Dentistry, UMF Carol Davila University, Bucharest, Romania

Session OPD3 - Miscellaneous II

Friday 3rd June 2016, Hall 4, 14:00-15:30

Chairmen: K. Kandiah (UK) and M. Van Gemert-Schriks (The Netherlands)

OPD3.1 **Retrospective audit of morbidity experienced by children awaiting dental treatment under general anaesthesia in Yorkshire**

N.L. Gallichan*, E. McDerra

Paediatric Dentistry, Mid-Yorkshire Hospitals NHS Trust, Local Dental Care, W.Yorkshire, UK

OPD3.2 **Dental pulp stem cells**

Y. Guerroudj, M. Theologiti* , A. Shayegan, A. Vanden Abbeele, C. Nicaise

Paediatric Dentistry, Hospital of Queen Fabiola, Free University of Brussels, Belgium

OPD3.3 **Pocket-like crevices in erupting permanent teeth: does it favour the presence of putative periodontal pathogens?**

A. Marie-Cousin, S. Le Gall, A. Noel, M. Bonnaure-Mallet, J. L. Sixou*

Dept of Paediatric Dentistry & UPRES EA1254, University of Rennes, CHU of Rennes, France

OPD3.4 **Withdrawn**

OPD3.5 **In vitro performance of ultrasound enamel preparation compared with classical bur preparation on pit and fissure sealing.**

G. F. Ferrazzano*, T. Cantile, M. Coda, B. Alcidi, A. Ingenito

Paediatric Dentistry, University of Naples, Federico II, Naples, Italy

OPD3.6 **Local anaesthesia during dental treatment in children under general anaesthesia: survey of Dutch Paediatric dentists**

C.S. Jongkind*, C.C. Bonifacio, W. Kerdijk, L.W. van der Sluis

Centre for Dentistry and Oral Hygiene, University Medical Centre Groningen The Netherlands

OPD3.7 **Development of an analgesic protocol for children undergoing dental treatment under general anaesthesia**

S. Marshall*, C. Mearns, T. Kandiah

Paediatric Dentistry Dept., East Surrey Hospital, Redhill, UK

OPD3.8 **Comparing the intubation effectiveness of the McGrath MAC and Macintosh laryngoscope in patients with cerebral palsy**

M.E. Sari*, T. Caglar, M.Z. Yilmaz, C. Kaya, B. Ustun

Paediatric Dentistry, University of Istanbul, Istanbul, Turkey

OPD3.9 **Means, acceptability and outcomes of dental management of special needs patients in a private clinic in Bucharest, Romania**

A. Vinereanu*, A. Bratu, A. Munteanu, D. Popescu, A. Olaru

Private Paediatric Dental Practice and Carol Davila University, Bucharest, Romania

OPD3.10 **An integrative treatment approach to regional odontodysplasia in a girl with chromosome 3 deletion and Autism Spectrum Disorder.**

C. Devine*, A.C. O'Connell

Paediatric Dept, Dublin Dental University Hospital, Trinity College Dublin, Ireland

OPD3.11 **Withdrawn**

Session OPD4 - Behaviour Management

Friday 3rd June 2016, Hall 5, 14:00-15:00

Chairmen: Kiselnikova (Russia) and J. Harris (UK)

OPD4.1 **Physiological and emotional responses to different caries removal methods**

M. Shindova*, A. Belcheva, R. Andreeva

Paediatric Dentistry, Medical University-Plovdiv, Faculty of Dental Medicine, Bulgaria

OPD4.2 **The effects of mother's personality on dental anxiety of 3-6 year old children**

S. Ibis*, M.E. Sari, L. Tomak, Z. Babadag, K.M. Karabekiroglu

Dept.of Paediatric Dentistry, University of Ondokuz Mayıs, Samsun, Turkey

OPD4.3 **Withdrawn**

OPD4.4 **Withdrawn**

OPD4.5 **Management of hypomineralised and carious primary molars using a biological approach**

H. Al-Bahar*, P. Kandiah

Paediatric Dentistry, School of Dentistry, University of Leeds, Leeds, UK

OPD4.6 **Effect of parents' academic background and time of the first dental visit on children's behaviour**

L. Drobotko*, L. Kiselnikova, A. Sedoykin, A. Zolotussky

Paediatric Dentistry Department, Moscow State University of Medicine and Dentistry Russia

OPD4.7 **Dental fear in children… What about it?**

S. Cianetti, G. Lombardo, L. Paglia, S. Caruso*, R. Gatto

Paediatric Dentistry, School of Dentistry, University of L'Aquila, Italy

Session OPD5 – Cariology

Saturday 4th June 2016, Hall 5, 11:30-13:00

Chairmen: A. Tveit (Norway) and B. Kargul (Turkey)

OPD5.1 **In vitro assessment of antibacterial activity of Pomegranate juice and peel extracts on mutans Streptococci**

B. Alcidi*, T. Cantile, M. Coda, C. Pagliarulo, G. F. Ferrazzano

Paediatric Dentistry, Dept. Neuroscience, University of Naples, Naples, Italy

OPD5.2 **The dental caries experience among Albanian pre-school children, nationwide data 2016**

E. Caglar*, D. Hysi, E. Droboniku, C. Toti, O. O. Kuscu

Private Paediatric Dentistal Practice, Istanbul, Turkey

OPD5.3 **Full Mouth Aesthetic Rehabilitation of ECC: A case report**

A. Popescu*, T. Mirel, A. Tatucu

University of Medicine and Pharmacy "Carol Davila", Bucharest, Romania

OPD5.4 **The comparison of the biocompatibility and antibacterial effects of different commercial mouthwashes**

C. Yucel Er*, C. Kayabasi, D. Cogulu, S. Caliskan Ozdemir, C. Gunduz

Dept. of Paedodontics Ege University, Faculty of Dentistry, Izmir, Turkey

OPD5.5 **Oral health related quality of life in children following dental treatment under general anaesthesia - a systematic review.**

R. P. Anthonappa*, N. M. King

Paediatric Dentistry, The University of Western Australia, Australia

OPD5.6 **Study of oral cavity's environment and dental indifference scale in mixed dentition**

A. Balan*, E. Mihalas, V. Serban-Pintiliciuc, D.C. Maxim, L.M. Vasilca-Gavrila

U.M.F. Iasi, Faculty of Dental Medicine, Romania

OPD5.7 **Withdrawn**

OPD5.8 **Effects of laser and casein phosphopeptide-amorphous calcium phosphate on caries resistance**

S. Bayrak*, E. Ipek Yilmaz

Paediatric Dentistry, Ankara, Turkey

OPD5.9. **A 7-year follow-up of minimally invasive treatment of a child with Early Childhood Caries - case report.**

M. Kukurba-Setkowicz*

Private Paediatric Dental Practice, Krakow, Poland

OPD5.10 **Withdrwn**

OPD5.11 **Evaluation of efficiency of optical magnification in the early detection of dental caries in children and adolescents**

M. Tanase*, A. M. Raducanu, I. V. Feraru, A. Stanciu

Paediatric Dentistry Dept., UMF Carol Davila, Bucharest, Romania

OPD5.12 **Influence of social environment on occurrence of early childhood caries (ECC)**

S. Matijevic*, I. Andjelic

Paediatric Dentistry, University of Montenegro, Podgorica, Montenegro

OPD5.13 Dental general anaesthesia treatment among children: a follow-up study

J. Narbutaite*, B. Jankauskiene, J.I. Virtanen

Preventive and Paediatric Dentistry Dept., Lithuanian University of Health Sciences, Lithuania

Session OPD6 – Epidemiology

Saturday 4th June 2016, Hall 6, 11:30-13:00

Chairmen: K. Kavvadia (Greece) and R. Luca (Romania)

OPD6.1 **The effect of a dental charity in Iraq on the average number of decayed and filled teeth in school children**

M. A. Jaffer*, R. Merali

General Dental Practice, London, UK

OPD6.2 **WITHDRAWN**

OPD6.3 **Prevalence of non-carious lesions in children**

D. Blagojevic*, B. Petrovic, S. Vujkov, N. Milicevic, I. Demko Rihter

Paediatric Dentistry, Faculty of Medicine, University of Novi Sad, Serbia

OPD6.4 **First permanent molar status in schoolchildren from Pitesti (Romania)**

E. M. Chirca*, R. Luca, D. E. Georgescu, D.D. Zmarandache

Paediatric Dentistry, Carol Davila University of Medicine and Pharmacy, Bucharest, Romania

OPD6.5 **Eruption Cysts: A Clinical Report of 66 New Cases**

H. Acikel*[1]. E. Sen Tunc[1], I. Saroglu Sonmez[2], S. Bayrak[1], N. Tuloglu[1]

[1]Dept.of Paediatric Dentistry, University of Ondokuz Mayis, Samsun, Turkey

[2]Dept of Paediatric Dentistry, Faculty of Dentistry, University of Adnan Menderes, Aydin, Turkey

OPD6.6 **Labial frenum attachment in Greek children: An epidemiologic assessment**

A. Kavvadia*, D. Tatakis, O. Panagopoulou, C. Oulis, A. Polychronopoulou

Paediatric Dentistry Dept, Dental School, University of Athens, Greece

OPD6.7 **Dental caries polarisation and its association with early childhood determinants: an epidemiological study**

D. Valukoniene*, M. Zemaitiene, E. Slabsinskiene, R. Grigalauskiene

Preventive and Paediatric Dentistry, Lithuanian University of Health Sciences Kaunas, Lithuania

OPD6.8 **Prevalence of early childhood caries in children referred to a University Paediatric dentistry clinic in Istanbul**

Y. Ayik*, S. Akyuz

Paediatric Dentistry Dept., Dental Faculty, Marmara University, Istanbul, Turkey, Turkey

OPD6.9 **Evaluation of black stain prevalence, associated factors and parental awareness status in 3-6 years old children**

A. S. Ulgen, T. Tuzuner*, A. Kupgoz, A. Kurt

Dept. of Paediatric Dentistry, Karadeniz Technical University, Turkey

OPD6.10 **Evaluation of the prevalence, severity and treatment needs of MIH in 8- and 11-year-old children in Ankara, Turkey**

H. Sonmez*, T. Bezgin, G. Yildirim,

Paediatric Dentistry, Ankara University, Ankara, Turkey

OPD6.11 **Modified World Health Organisation (WHO) checklist adherence in the paediatric dental department at Eastman dental hospital**

L. Dakkouri*, U. Devalia, P. Ashley
Paediatric Dentistry, University College, Eastman Dental Institute, London UK

OPD6.12 Relationship between birth weight and deciduous tooth eruption among children of Nepal

N. Ghimire*, E. Shrestha
Dept. of Paedodontics and Preventive Dentistry, Chitwan Medical College, Nepal

OPD6.13 An audit of prescribing practices of the department of paediatric dentistry, Eastman dental hospital.

S. F. Alqadi*, S. Parekh, A. Johnson
Paediatric Dentistry, Eastman Dental Hospital and Institute, London, England

Session OPD7 - Dental Trauma II/Endodontics

Saturday 4th June 2016, Hall 5 14:00-15:30

Chairmen: B. Peretz (Israel) and J.L. Sixou (France)

OPD7.1 **Decoronation for untreatable traumatized anterior maxillary teeth**
M.T. Cosgun*, F. Tulga Oz, L. Ozer
Paediatric Dentistry, Ankara University, Ankara, Turkey

OPD7.2 **Management of combination dental injuries in the developing dentition.**
A. F. Carter*, S. Barry
Paediatric Dentistry Dept., Dental Hospital of Manchester, University of Manchester, UK

OPD7.3 **Endodontic favourable outcome after complicated dental trauma in a teenage hockey player**
C. D. Ionel*, R. Luca, M. Matei, S. Luparu, T. D. Gheorghi
Dunarea de Jos, University, Faculty of Medicine and Pharmacy, Galati, Romania

OPD7.4 **Outcomes of traumatised primary teeth - a 12 year retrospective study**
T. Vukojevic*, J. J. Galovic, I. Demko Rihter, D. Blagojevic
National Health Centre Novi Sad, Serbia, Serbia

OPD7.5 **A standardised approach to traumatic dental injuries follow-up: improvement of data collection.**
A. G. Capitaine*, A. Njiwa, C. Naulin - Ifi, M. De la Dure - Molla
Dept. Paediatric Dentistry, Rothschild Hospital, Paris. Un.Denis Diderot Paris VII, Paris., France

OPD7.6 **Reliabiliy of electro-odontometry in immature permanent teeth**
J.N. Nikolic Ivosevic*, K.F. Vicko, B.M. Nikolic, B. B. Petrovic
National Health Centre Suboitca, Serbia, Serbia

OPD7.7 **Comparison of different irrigation protocols for smear layer removal in primary teeth root canals: a SEM study**
M. Ziya*, B.N. Celik, S. Dogan, H. Gumus, S. Sari
Dept.of Paediatric Dentistry, Ankara University, Ankara,Turkey

OPD7.8 **Management of a necrotic premolar with buccal cellulitis using regenerative endodontic treatment**
M. Cimen*, A. T. Ulusoy
Dept. of Paediatric Dentistry, Ondokuz Mayis University, Samsun, Turkey

OPD7.9 **Is haemostasis at an exposure site crucial for radicular pulp inflammation in primary teeth with carious exposure?**
V. Arikan*, M. Mutluay, S. Sari, U. Kisa
Paediatric Dentistry Dept., Kirikkale University Faculty of Dentistry, Turkey

OPD7.10 **Apexification of an immature tooth : gutta percha versus MTA. A case report.**
I. S. Amara*, A. Shayegan, T. Vanhee, A. Vanden Abbeele
Paediatric Dentistry, Free University of Brussels, Belgium

OPD7.11 **Withdrawn**

OPD7.12 **Disappearance of Metapex root canal fillings from pulpectomised primary molars.**
O. Melnikova*, N. Ghouth, M. S. Duggal

Fantasy Dental Clinic, Moscow and Paediatric Dentistry, University of Leeds, Leeds, UK

OPD7.13 Regenerative endodontic treatment of necrotic primary molars with missing permanent successors

A.T Ulusoy*, Z.C Cehreli
Dept. Paediatric Dentistry, Ondokuz Mayis University, Ankara, Turkey

Session OPD8 - Prevention/Orthodontics/Growth & Development

Saturday 4th June 2016, Annexe B, 16:00-17:30

Chairmen: Z. Mandinic (Serbia) and R. Ivancakova (Czech Rep)

OPD8.1 **Management of the severely submerged primary molar: A case report**
E. Karakaya*, S. Sari
Dept. of Paediatric Dentistry, University of Ankara, Turkey

OPD8.2 **Changes in fluoride varnish acceptance in young children after 6 applications**
V. Polansek*, T. Tomazevic, R. Kosem
Dept. of Paediatric and Preventive Dentistry, University Medical Centre Ljubljana , Slovenia

OPD8.3 **Oral health in children with diabetes mellitus type I in Montenegro**
M. Djurickovic*
Paediatric Dentistry, Podgorica, Montenegro

OPD8.4 **Assessment of antibacterial efficiency of ozone on biofilms**
F. Kucuk*, B.K. Namazoglu, F. Tulga Oz
Dept. of Paediatric Dentistry, Ankara University, Ankara, Turkey

OPD8.5 **The habit of tooth brushing among students from two districts in Ankara with different socio-economic status.**
M. Gulec*
Paediatric Dentistry, GATA Medical Academy, Ankara, Turkey

OPD8.6 **Liver and serum changes of MDA in fluoride intoxicated rats**
Z. Mandinic*, M. Curcic, A. Vukovic, M. Beloica, D. Kosanovic
Paediatric and Preventive Dentistry, School of Dental Medicine, University of Belgrade, Serbia

OPD8.7 **In vitro remineralisation of enamel by CPP-ACP containing probiotic complex**
E. Akbeyaz*, B. Kargul
Paediatric Dentistry Dept., Marmara University, Turkey

OPD8.8 **Prevalence of uneven root resorption of primary molars in Greek children during pre-orthodontic screening.**
G. Vagdouti*, T. Vagdouti
Private Orthodontic Dental Practice, Volos, Greece

OPD8.9 **Dental management of a patient with two missing second premolars. A case report**
M. Vinau*, T. Secara, A. Budulan
Faculty of Dental Medicine - University of Medicine & Pharmacy, Timisoara, Romania.

OPD8.10 **Is Tanaka-Johnson mixed dentition analysis an applicable method for a Turkish population?**
A. Y. Gungor*, M. Celikoglu, B. Kale, O. Erken Gungor
Dept. of Orthodontics and Paediatric Dentistry, Akdeniz University, Antalya, Turkey

OPD8.11 **Orthodontic therapy in early childhood**
J. Andjelic*, I. Andjelic
Depts.of Paediatric Dentistry/Orthodontics, University Montenegro, Podgorica, Montenegro

OPD8.12 Withdrawn

OPD8.13 Success of closed exposire for impacted maxillary canines combined with orthodontic traction: a retrospective study

N. Prado*, J. Patel, H. Al-Kailiany, A. Dickenson
Paediatric Dentistry, Royal Derby Hospital, Derby, UK

OPD8.14 Correlation of body mass index with eruption time of permanent first molars and incisors in children in Serbia

B. Svilengacin*, S. Vujkov, D. Blagojevic, B. Petrovic, J. Komsic
Health Care Centre, Novi Becej, Serbia

OPD8.15 Pilot Study: The effect of preterm delivery on the oral health status of six-year-old children in Pecs, Hungary

B. Sandor*, F. Fonai, K. Puskar, A. Nagy, I. Szanto
Dept. Oral and Maxillofacial Surgery, University of Pecs, Pecs, Hungary

Session OPD9 - Dental Anomalies

Saturday 4th June 2016, Japanese Lounge 16:00-17:30

Chairmen: A. Skaare (Norway) and M. Elfrink (The Netherlands)

OPD9.1 **Aberrant teeth morphology in a child with Fanconi anaemia**

H. Vanclooster*, G. Vansteenkiste, D. Declerck

Paediatric Dentistry/Special Dental Care, University Hospital Leuven, Leuven, Belgium

OPD9.2 **Dental findings and management of a child with megalencephaly-capillary malformation (MCAP) syndrome.**

M. Lambrechts*, J. Wyatt, D. Declerck

Paediatric Dentistry/Special Dental Care, University Hospital Leuven, Leuven, Belgium

OPD9.3 **A new-born baby with double natal teeth**

E.E. Kalaoglu*, E. Haznedaroglu, A. Mentes

Paediatric Dentistry Dept., Dental School, Marmara University, Istanbul, Turkey

OPD9.4 **Dentists' knowledge and awareness about molar-incisor hypomineralisation and its management in Kuwait**

A. Fraidoon*, A. Alanzi, K. Kavvadia

Paediatric Dentistry, Faculty of Dentistry, Kuwait University, Kuwait

OPD9.5 **Natal teeth: a report of 4 cases**

S. Hrvatin*, N.I. Jokic, D. Bakarcic

Dept. of Paediatric Dentistry, School of Medicine, University of Rijeka, Croatia, Croatia

OPD9.6 **Enamel microstructure in three unrelated patients with hypocalcified amelogenesis imperfecta (AI)**

Pavlic* T. Leban, M. Tome

Dept. of Paediatric and Preventive Dentistry, University of Ljubljana, Slovenia

OPD9.7 **Developmental anomalies of teeth in a patient with autoimmune lymphoproliferative syndrome (ALPS)**

L. Hocevar*, A. Pavlic, L. Likar Ostrc, L. Jurecic

Dept. of Paediatric and Preventive Dentistry, University of Ljubljana, Ljubljana, Slovenia

OPD9.8 **MIH – perception, etiological factors and treatment needs in the opinion of polish dentists.**

N. Glodkowska*, K. Emerich

Dept. Paediatric Dentistry, Medical University of Gdansk, Gdansk, Poland

OPD9.9 **Aesthetic rehabilitation of an adolescent patient with molar-incisor hypomineralisation (MIH): a case report**

R. Mota de Carvalho*, D. Campos Amaral, R. C. Castro, L. B. Oliveira

Paediatric Dentistry, School of Dentistry; UniEvangélica University Centre, Brazil

OPD9.10 **Multidisciplinary restorative management of hypomature amelogenesis imperfecta in two brothers.**

S. C. Hughes*, P. Kandiah, M. S. Duggal

Dept. of Paediatric Dentistry. University of Leeds, School of Dentistry, UK

OPD9.11 Systematic review on primary molar hypomineralisation (PMH)

C. Vlachou*, E. Alifakioti, N. Kotsanos
Paediatric Dentistry Dept., Dental School, Aristotle University of Thessaloniki, Greece

OPD9.12 Prevalence of molar incisor hypomineralisation in a group of Egyptian children: a cross-sectional observational study

F. S. Saber*, N.G. Waly, D.M. Moheb
Dept. of Paediatric Dentistry and Dental Public Health, Future University in Egypt, Egypt

OPD9.13 Dental management of Amelogenesis Imperfecta (AI): A multidisciplinary approach

N. Ghouth*, K.J Toumba
Paediatric Dentistry, School of Dentistry, University of Leeds, UK

OPD9.14 Effects of third molar tooth germ agenesis on craniofacial morphology

O. Erken Gungor*, A. Y. Gungor
Dept. of Paediatric Dentistry, Akdeniz University, Antalya, Turkey

OPD9.15 Comparison of mesio-distal crown dimensions of maxillary incisors in hypodontia and hyperdontia Patients

M. Uluakay*, B. Pekel, A. Mentes
Paediatric Dentistry Dept., Dental Faculty, Marmara University, Turkey

OPD9.16 Unilateral bimaxillary tooth transposition in a boy with velocardiofacial syndrome

H. Backaert*, A. Lewyllie, A. Verdonck, D. Declerck
Paediatric Dentistry/Special Dental care, KU Leuven, Dept.of Oral Health Sciences, , University Hospitals Leuven, Leuven, Belgium

Session OPD10 - Dental Materials

Saturday 4th June 2016, Hall 4, 16:00-17:30

Chairmen: J. Juloski (Serbia) and E.B. Tuna Once

OPD10.1 Withdrawn

OPD10.2 Effect of storage time and immersion media on the elution of Bisphenol A from composite compomer and fissure sealant

B.S. Capan*, S. Akyuz, E. Cekmegeli, B. Alev Tuzuner, A. Yarat

Dept.of Paediatric Dentistry, [1]Marmara University Faculty of Dentistry Istanbul, Turkey

OPD10.3 Comparison of in vitro cytotoxicity of two different pulp capping materials

B. Gulcan*, E. Sen Tunc, S. Bayrak, N. Tuloglu, H. Albayrak

Dept. of Paediatric Dentistry, Ondokuz Mayýs University, Samsun, Turkey

OPD10.4 Water sorption-solubility and surface roughness of different bulk fill materials

E. Sen Tunc, N. Gonulol, S. Ozer*, K. Yildizli

Dept. Paediatric Dentistry, Ondokuz Mayis University, Samsun, Turkey

OPD10.5 The stress evaluation of occlusally built up infra-occluded primary 2nd molar: 3D FEA study

A. Demirel*, B.N. Celik, S. Sari

Dept. of Paediatric Dentistry, Ankara University, Ankara, Turkey

OPD10.6 Effectiveness of biodentine versus ferric sulphate as a dressing agent in pulpotomised primary molars: preliminary results

M. Irina*, T. Mirel, L. Rodica, O. Carmen, A. Tatucu

Paediatric Dentistry, University of Medicine/Pharmacy Carol Davila, Bucharest, Romania

OPD10.7 Evaluation of surface micro-hardness of restorative materials used in paediatric dentistry

E. C. Tatli*, L. Ozer

Paediatric Dentistry, Ankara University, Ankara, Turkey

OPD10.8 The effect of finishing-polishing systems on surface roughness of resin restorative materials

E. Gul Aydin*, N. Ozalap, M. Atan

Dept. of Paediatric Dentistry, Ankara University, Ankara, Turkey

OPD10.9 Clinical and radiographic evaluation of indirect pulp capping application with Theracal material

F. Seymen*, T.A. Tanyeri Gurcan,

Dept. Paediatric Dentistry, Istanbul University, Turkey

OPD10.10 Dental stem cells isolated from primary and permanent tooth: A potential source for regenerative therapies?

A. Mousavi*, S. Shahbazi, C. Semeins, M. Van Gemert-Schriks, G. van Strijp

Paediatric Dentistry and Cariology, ACTA Amsterdam, Netherlands

OPD10.11 Evaluation of eluted residual monomers from different bulk-fill and conventional composite resins by HPLC.

Kusgoz, E. Baltaci*, S. H. Altintas, A. Yasar
Department of Paediatric Dentistry, Karadeniz Technical University, Trabzon, Turkey

OPD10.12 Effect of curing units and adhesion strategies on performance of bulkfill composites

G.B. Bostanci*, B. Memis Ozgul, R.E. Tirali, S.B. Cehreli
Dept. of Paediatric Dentistry, Faculty of Dentistry, Baskent University, Ankara, Turkey

OPD10.13 Removing efficiency of dfferent cleaning colutions on residual caries detector dyes

Z. Sahin* , E. Sen Tunc, E. Guler, N. Tuloglu, S. Bayrak
Dept. of Paediatric Dentistry, Ondokuz Mayis University, Samsun, Turkey

OPD10.14 MTA effect on the shear bond strength of self-etch adhesive systems towards primary teeth dentine

A. Sedoykin* , L. Kiselnikova, L. Drobotko, D. Kiva, I. Kovaleva
Paediatric Dentistry Dept. Moscow State University, Moscow, Russia

OPD10.15 Evaluation of the bioactive and antibacterial properties of a novel dental composite resin

A. Lefkelidou*, X. Chatzistavrou, N. Kotsanos, P. Papagerakis
Dept. of Paediatric Dentistry, Dental School, Aristotle University of Thessaloniki, Greece

Session OPD 11 - Oral Medicine & Pathology

Saturday 4th June 2016, Hall 5, 16:00-17:30

Chairmen: M. Ashkenazi (Israel) and P. Defabianis (Italy)

OPD11.1 **Peripheral cemento-ossifying fibroma associated with an unerupted tooth**
S. Uz*, Y. Kasimoglu, A. B. Cankaya, N. Aksakalli, F. Seymen
Dept. of Paediatric Dentistry, Faculty of Dentistry, Istanbul University, Turkey

OPD11.2 **Congenital epulis in a newborn baby– A case report**
L. Hua*, A. Lakhani, P. Doyle, I. H. McVicar
Oral Maxillofacial Dept. Queen's Medical Centre, Nottingham, United Kingdom

OPD11.3 **Refferal and management patterns of paediatric patients with recurrent aphthous stomatitis: Who treats oral aphthae in children?**
K.F. Vicko*, J.N. Nikolic Ivosevic, T. Puskar, B. Petrovic
Medical Faculty, University of Novi Sad, Serbia

OPD11.4 **Multidisciplinary approach in the diagnosis and management of a child with a long-standing odontogenic extra-oral fistula**
J. Monteiro*, P. Kandiah
Dept. Paediatric dentistry, School of Dentistry, University of Leeds, Leeds, UK

OPD11.5 **Conservative treatment of odontogenic cyst associated with endodontically treated primary second molar.**
N. Tzialla*, A. Dermata, A. Arhakis, K. Antoniades
Paediatric Dentistry Dept., Aristotle University of Thessaloniki, Greece

OPD11.6 **Erythema exudativum multiforme - Case report**
J. Mandic*, M. Ivanovic, D. Kosanovic
Clinic for Paediatric and Preventive Dentistry, Belgrade, Serbia

OPD11.7 **Clinical efficacy of a solution composed of sodium bicarbonate, alginate and herbal components for the mRAS in children**
A. Majorana*, E. Bardellini, D. Chiappini, F. Amadori
Paediatric Dentistry, Dental Clinic, University of Brescia, Italy

OPD11.8 **WIthdrawn**

OPD11.9 **Probiotics in complex therapy of chronic recurrent aphthous stomatitis (CRAS) in children**
D. Kiva*, L. Drobotko, L. Kiselnikova, S. Strakhova, K. Petrova,
Paediatric Dentistry Dept., Moscow State University of Medicine and Dentistry Moscow, Russia

OPD11.10 **Dental management of a child with microcystic lymphangioma**
K. Kenny*, L. Carter, M. S. Duggal
Paediatric Dentistry, School of Dentistry, University of Leeds, Leeds, UK

OPD11.11 **Effect of radiotherapy on mineral contents of primary molars**
S. Keles*, Y. Yilmaz, O. Sezen, Y. Ozdemyr
Dept. of Paediatric Dentistry, Adnan Menderes University, Turkey

OPD11.12 Presentation of a symptom free uni-lateral swelling in the mandible in a 8 year old child

R.M. Al Sourani*, P. Kandiah
Paediatric Dentistry, School of Dentistry, University of Leeds, Leeds, UK

OPD11.13 Giant cell granuloma located in the maxilla: Case report

E. Hadjiantonis*, J. F. Tahmassebi
Paediatric Dentistry, School of Dentistry, University of Leeds, Leeds, UK

OPD11.14 Hemifacial hyperthophy: A case report

M. D. Turgut*, T.I. Keceli, M. Aksu, M. Tekcicek,
Paediatric Dentistry Dept., Hacettepe University, Turkey

OPD11.15 A conservative treatment of a large dentigerous cyst in a paediatric patient: a case report.

H. Sobczak-Zagalska*
Department of Paediatric Dentistry. Medical University of Gdańsk, Poland

OPD11.16 Management of a 7-year-old child with a mandibular arteriovenous malformation

E. Xiarchou*, E. Aliakbari, J. Tahmassebi
Paediatric Dentistry, School of Dentistry, University of Leeds, Leeds, UK

OPD11.17 Cysts and unerupted maxillary permanent incisors

L. M. Bowdin*, R. P. Anthonappa, N. M. King
Paediatric Dentistry, School of Dentistry, The University of Western Australia, Perth, Australia

Session OPD 12 Oral Medicine & Pathology/Syndromes & Genetics

Saturday 4th June 2016, Room 6, 16:00-17:30

Chairmen: Osgur Kuscu (Turkey) and A. Vanden Abbeele (Belgium)

OPD12.1 Severe gingivitis: a manifestation of a serious systemic condition?
C. Harrison*, S. Barry
Paediatric Dentistry, University Dental Hospital of Manchester, Manchester, UK

OPD12.2 Modern approach to the treatment of atopic cheilitis in children
L. Kiselnikova*, A. Sedoykin, L. Drobotko,
Paediatric Dentistry Dept., Moscow State University, Moscow, Russia

OPD12.3 Tongue tie and breastfeeding difficulties; Do paediatric dentists have a role?
T. Bani-Hani*, A. O'Connell
Paediatric Dept, Dublin Dental University Hospital, Trinity College Dublin, Ireland

OPD12.4 The clinical and therapeutic care of odontogenic facial cellulitis in paediatric dentistry: a retrospective preliminary study.
F. Ezzahti*, I. Sanoussi, T. Vanhee, A. Vanden Abbeele, A. Shayegan
Queen Fabiola Children's University Hospital, Free University of Brussels, Belgium

OPD12.5 The management of a patient with Sanjad-Sakati syndrome suffering from a dental abscess
G. Abou-Ameira*, M. Jaffer, G. Charan
Paediatric Dentistry, Great Ormond Street Hospital, London, UK

OPD12.6 Withdrawn

OPD12.7 Premature exfoliation of primary teeth in a girl with congenital insensitivity to pain and Papillon- Lefevre syndrome
J. Al-Kandari*, E.Aliakbari, A. Tizro, M. S. Duggal
Paediatric Dentistry Dept., School of Dentistry, University of Leeds, Leeds, UK

OPD12.8 Dental management of a 10 year-old boy with Schwartz-Jampel syndrome.
G. Charan*, S. Scuplak, C. Mason
Paediatric Dentistry, Great Ormond Street Hospital for Children, London, UK

OPD12.9 Pathology of the oral cavity in a child with Papillon-Lefevre syndrome (Q82.8)
O. Kovylina*, L. Kiselnikova, T. Rzaeva, L. Drobotko
Paediatric Dentistry, Moscow State University, Moscow, Russian Federation

OPD12.10 A rare case of a triad of incontinentia pigmenti, tetralology of Fallot and a genetic translocation.
M. Al-Chihabi*, S. Barry
Dept. of Paediatric Dentistry, Manchester Dental Hospital, Manchester, UK

OPD12.11 Co-existence of ARHR1 and amelogenesis imperfecta. Adjacent affected loci may result in unusual combination of isolated traits.
N. A. Lygidakis*, K. Chatzidimitriou, N. N. Lygidakis,
Private Paediatric Dental Clinic, Athens, Greece

OPD12.12 Goldenhar`s syndrome : A case report

M. Cayirci*, G. Aren
Dept. of Paediatric Dentistry, Istanbul University, Istanbul, Turkey

OPD12.13 Dental treatment of a child with congenital central hypoventilation syndrome.

E. R. Athanasiadou*, A. Lefkelidou, V. K. Boka
Paediatric Dentistry Der., Aristotle University of Thessaloniki, Greece

OPD12.14 Bilateral giant cell granuloma, gingival hyperplasia, and ectopic teeth in Noonan's syndrome patient

A. S. Alsaif*, P. Kandiah
Paediatric Dentistry, School of Dentistry, University of Leeds, Leeds, UK

OPD12.15 Atypical infra-occlusion in a child with a rare complex medical background.

A. Alqadi*, K. FitzGerald
Division of Public and Child Dental Health, Dublin Dental University, Dublin, Ireland

OPD12.16 Mucopolysaccharidosis: orofacial findings in a series of 35 Cases

D. Cogulu* S. Kalkan-Ucar, E. Atila, A.R. Alpoz, M. Coker
Paediatric Dentistry Dept., Dental School, Ege University, Turkey

OPD12.17 Aggressive periodontitis as a manifestation of systemic disease

D. J. Owens*, S.M. Barry
Paediatric Dentistry, University Dental Hospital of Manchester, Manchester, UK

Session OPD13 Special Needs

Sunday 5th June 2016, Annexe B, 11:30-13:00

Chairmen: C. Tardieu (France) and I. Cukovic-Bagic (Croatia)

OPD13.1 An audit of basic periodontal examination recording in a Special Care Dentistry Centre (SCDC)

M. Velissariou*, Y. Kottait
Paediatric Dentistry Dept. European University College, Dubai, UAE

OPD13.2 Challenges in dental treatment of children with dystrophic epidermolysis bullosa

A. Colovic*, O. Jovicic, Z. Mandinc, J. Juloski, D. Kosanovic
Clinic for Paediatric and Preventive Dentistry, University of Belgrade, Belgrade, Serbia

OPD13.3 Dental decay prevalence dynamics in children with intellectual disabilities and rumination syndrome

Y. V. Pakhomova*, O. G. Avraamova, M. V. Korolenkova
Central Research Institute of Dentistry and Maxillofacial Surgery, Moscow, Russian Federation

OPD13.4 Oral health status in hospitalized paediatric patients

M.U Tekcicek*, B. Isbitiren, G.E Unverdi, C.O. Ozler, A. Atac
Paediatric Dentistry, Hacettepe University, Turkey

OPD13.5 Effects of medical and mental status on treatment types of the patients treated under general anaesthesia

S. Aksoy*, O. Baygin, A. Kusgoz, G. Yahyaoglu, N. Yilmaz,
Department of Paediatric Dentistry, Karadeniz Technical University, Trabzon, Turkey

OPD13.6 Dental care with EMONO on a severe disabled child.

S. Giuliardi*, T. Vanhee, A. Vanden Abbeele, A. Shayegan
Université Libre de Bruxelles, Anderlecht, Belgium

OPD13.7 Prosthetic rehabilitation of a patient with Neurofibromatosis type 2

M. Paschalidou*, A. Arhakis, E. Provatenou, A. Dermata, N. Kotsanos
Paediatric Dentistry Dept., Aristotle University of Thessaloniki, Greece

OPD13.8 The use of IPad to enhance oral health in a group of autistic patients

S. Lopez Cazaux*, A. Rouches, G. Lefer, A. Mathilde, P. Bourdon
UFR Dental Dept. Odontologie, CHU, CREN, Nantes, France

OPD13.9 Oral conditions in one-year-old preterm infants

V. Merglova*, R.K Ivancakova, Z. Broukal, J. Dort
Dentistry Dept., Medical Faculty in Pilsen, Charles University in Prague, Czech Republic

OPD13.10 Withdrawn

OPD13.11 Dental anxiety and oral health in children and young adults with inherited bleeding disorders

S. Vujkov*, D. Blagojevic, B. Bajkin, B. Petrovic, I. Neskovic
Dental Clinic, Faculty of Medicine Novi Sad University of Novi Sad, Serbia

OPD13.12 Dental caries and enamel hypoplasia in children with acute lymphoblastic leukemia

C. Bica*, D. Esian, V. Ion, M. Chincesan, M. Monea
Paediatric Dentistry Dept., University of Medicine and Pharmacy of Tirgu Mures, Romania

OPD13.13 Withdrawn

OPD13.14 Withdrawn

OPD13.15 Comparison of oral health between children with odontophobia and children with intellectual disability

J. Kaiferova*, J. Durica, J. Ginelliova
Paediatric Dentistry, Charles University General Teaching Hospital, Prague, Czech Republic

OPD13.16 Dental status of intellectually challenged children retreated under general anaesthesia.

B. Sandor*, B. Kiraly
Dept. of Paediatric Dentistry University of Pecs, Pécs, Hungary

EAPD Belgrade Congress 2016 NPD Sessions

PND1 **Intrinsic green staining resulting from neonatal hepatitis and hyperbilirubinemia**
N. C. Mungan*, E. Haznedaroglu, A. Mentes
Paediatric Dentistry Department, Dental School, Marmara University, Turkey

PND2 **Achondroplasia: a report of three cases**
H. Ozcan*, Y. Kasimoglu, F. Seymen, K. Gencay
Department of Paedodontics, Faculty of Dentistry, Istanbul University, Turkey

PND3 **Riga-Fede disease in the upper jaw in an infant: A case report**
S. Cavus*, B. Ozmen
Department of Paediatric Dentistry, Ondokuz Mayýs University, Samsun, Turkey

PND4 **Methods of conservative treatment of pulpitis**
S. Gromova*, E. Kolevatish, N. Kushkova, O. Kovilina
Kirov State Medical Academy, Kirov, Russian Federation

PND5 **Sleeper One - a must have computer assisted intra-osseous anaesthesia (CAIO) for Paediatric Dentistry**
N. Van Gelder*
Private Practice, Romania

PND6 **The clinical management of self-mutilation lip biting using a mouth guard: A case report**
S. Aksu*
Paediatric Dentistry Dept., Hacettepe University, Turkey

PND7 **Peculiarities of the oral cavity mucosa of children with diffuse scleroderma**
A. Skakodub*
I.M. Sechenov First Moscow State Medical University, Russian Federation

PND8 **Oral findings of a patient with Duchenne muscular distrophy**
C. Ozsin Ozler*, T. Ileri Keceli, M. D. Turgut, M. Uzamis Tekcicek
Paediatric Dentistry Department, Faculty of Dentistry, Hacettepe University, Turkey

PND9 **The general dentists` knowledge about local anaesthesia in paediatric patients**
N. C. Mungan, I. Tanboga, I. Ozgul Kalyoncu*
Paediatric Dentistry Department, Dental School, Marmara University, Turkey

PND10 **Molar agenesis: A rare case report**
T. Ileri Keceli*, N. Tas, M. D. Turgut, M. Tekcicek
Paediatric Dentistry Department, Faculty of Dentistry, Hacettepe University, Turkey

PND11 **Effect of mobile phones as magnetic field on the microhardness of human teeth**
I. Yavuz, M. Z. Akdag, S. Dasdag, M. A. Durhan*, B. Kargul
Marmara University, Istanbul, Turkey

PND12 **Dental usage of the optical coherence tomography (OCT)**
B. Sen*, G. Kargul Dinc, B. Kargul
Department of Paediatric Dentistry, Marmara University, Turkey

PND13 **Functional orthodontic treatment with LM-Activator in mixed dentition: 4 case reports**
G. Karabiber, B. Cakirer, B. Gokkaya*, B. Kargul
Department of Paediatric Dentistry, Marmara University, Turkey

Abstracts
of the 13th EAPD Congress Belgrade, Serbia

Oral Presentations

Session O1 Orthodontics/Growth & Development/Miscellaneous

O1.1 WITHDRAWN

O1.2 Dental arch changes following loss of first primary molars prior to natural exfoliation: A systematic review and meta-analysis

E. G. Kaklamanos, D. Tsiantou*, A. Dermata, D. Lazaridou, A. E. Athanasiou
Department of Paediatric Dentistry, Aristotle University of Thessaloniki, Greece

AIM To investigate dental arch changes following loss of first primary molars prior to natural exfoliation. **METHODS** Search without restrictions for published and unpublished literature and hand searching took place. We reviewed randomised and non-randomised controlled trials, as well as prospective cohort studies. We considered split-mouth design studies eligible for inclusion. We used the random effects method to combine results and assessed risk of bias using the Cochrane Collaboration recommendations. **RESULTS** Initially 6283 references were identified and finally included data from 4 split-mouth trials comparing space in extraction and unaffected contralateral quadrants. In the two studies on loss of a mandibular first primary molar, the measured space loss in the extraction side was greater than the control side at 2, 4, 6 and 8-month follow-ups, amounting to 1.5 mm difference in the final examination (95% Confidence Interval (95% CI): 2.080 – 0.925; p=0.000). In the other two studies on maxillary first primary molar loss, the initial (at 6 months) greater space loss of 1.22 mm in the extraction side (95% CI: 1.896 – 0.544; p=0.000), diminished to 0.81 mm at the 12-month examination (95% CI: 1.452 – 0.168; p=0.013). Variable problems were identified with regards to individual study risk of bias assessment. **CONCLUSIONS** The amount of space lost observed after loss of first primary molars prior to natural exfoliation could have treatment implications under certain circumstances. However, better study standardisation and reporting with long follow-ups are necessary.

O1.3 Early management of anterior tooth crossbite with bonded resin-composite slopes: case series

M. T. Xavier*, A. D. Soares, J. L. Pereira, S. Rosa, A. L. Costa
Faculty of Medicine, University of Coimbra, Portugal

BACKGROUND Anterior crossbite is one of the most common orthodontic problems observed in children's growth, in both skeletal and functional malocclusion, with long-term effects on the growth and development of the teeth. This widely requires an early intervention to achieve a normal occlusion that is morphologically stable and functionally and aesthetically acceptable.
The bonded resin-composite slopes are an alternative option to treat anterior dental crossbite. The main purpose of this inclined plane is to tip the affected maxillary tooth or teeth labially to a point where a stable overbite relationship prevents relapse. **CASE REPORT(S)** A series of 4

children is presented with an anterior crossbite, in early mixed dentition, with class I molar and canine relationships and with sufficient mesio-distal distance to achieve labial movement of the maxillary tooth. **FOLLOW-UP** All patients were followed up for at least 2 years. **CONCLUSIONS** The paediatric dentist has major importance to guide the developing dentition to a state of normality in line with the stage of oro-facial growth and development. The bonded resin-composite slope is a simple and effective method for treating anterior dental crossbite.

O1.4 The effect of oro-myofunctional therapy on malocclusion in young children - a descriptive, retrospective study-

K.M. Braamhaar*, M.C.M. van Gemert-Schriks, P. Helderop, N. van der Kaaij, I.H.A. Aartman

Department of Paediatric Dentistry, ACTA, The Netherlands

AIM To investigate the effect of oro-myofunctional therapy (OMFT) on open bite and overjet in children. **METHODS** Speech therapists who followed the basic OMFT-course in the Netherlands, were invited to participate. A questionnaire comprising questions concerning the OMFT treatment of children aged 5-14years had to be completed. The speech therapist had to provide information of the indication, chosen therapy and effect of the treatment. This information had to be provided with pre- and post-treatment photographs. For this study, only the children with a diagnosed sagittal overbite (SOB) and/or vertical overbite (VOB) were included. **RESULTS** A total of 1100 speech therapists was contacted. At the time of writing this abstract only 34 cases could be included in the preliminary statistical analysis*. In these children, 19 VOB's and 23 SOB's were recorded. After OMFT, 14 of the VOB's (73.7%) and 13 of the SOB's (56.5%) showed a considerable reduction. **CONCLUSIONS** Though based on preliminary results, this study indicates the positive effect of OMFT on the reduction of malocclusion in children, especially in cases of VOB. *NOTE: This abstract contains only preliminary results. Due to prohibitive circumstances there was a delay in data collection. The data are currently complemented and statistically analysed. Final results will be presented during the EAPD congress.

O1.5 Dental abnormalities in children after mandibular distraction

M. Korolenkova*, N. Starikova

Central Research Institute of Dentistry and Maxillofacial Surgery, Russian Federation

AIM This was to assess the prevalence of dental abnormalities after mandibular distraction (MD). **METHODS** Seventy-five children aged 6—17 years (mean age 9.8±4.1 years) that received MD at the age of 0—17 years (mean age at MD 6.1±4.3) were included in the study. Indication for MD were hemi-facial microsomia (n=41), Goldenhar syndrome (n=4), Robin sequence (n=10), Treacher Collins syndrome (n=7) or acquired mandible underdevelopment (n=13). Control groups consisted of 22 children aged 5—14 years (7.0±3.7 years) with mandible underdevelopment of similar origin (hemi-facial microsomia (n=15), Goldenhar syndrome (n=2), Robin sequence (n=4), Treacher Collins syndrome (n=1)) with no history of MD. **RESULTS** The most affected teeth were first permanent molars (their aplasia was observed in 6 cases, hypoplasia – in 11 cases) and second permanent molars (aplasia in 3 cases and severe tooth

germ dystopia in 10 children). There were also some cases of first and second premolar aplasia (n=11 and 1, correspondingly). In the control group only one child had oligodontia of evidently genetic origin. Juvenile paradental cysts (JPCs) were revealed radiologically in 19 first molars after MD at the time of eruption and resolved spontaneously in 16 children. Three cases had clinical manifestations treated by lesion curettage only. **CONCLUSIONS** Case-control study results proved MD to be the risk factor for dental abnormalities especially for teeth localised at osteotomy sites. JPCs, being the most often radiological MD finding, which resolved spontaneously in the majority of patients. In refractory JPCs cases lesion curettage without endodontic treatment was an adequate approach.

O1.6 Evaluation of the importance of storage time and tooth type for dental pulp stem cell isolation

S. Shahbazi*, B. Ozen, A. Mousavi, C. Semeins, A. Bakker
Department of Radiology, Amersfoort, Utrecht, The Netherlands

AIM To compare the importance of storage time and tooth type for dental pulp stem cell isolation from extracted human teeth. **METHODS** Fourteen Human premolars and third molars were used in this study. The premolars were extracted for orthodontic reasons. The teeth were stored in PBS medium after extraction and randomly divided into two groups according to the time elapsed between extraction and isolation. In group one, the isolation was performed within 2 hours and in the other group it was performed 24 hours after extraction. The teeth were fractured and the pulps were removed using endodontic k-files and forceps. Pulp tissue was cut into small pieces and transferred into 5 ml HBSS+5%FPS. After various isolation steps, the viability of the total cells were measured and cells were seeded in 6-well plates. An independent samples t-test was used for data analyses. **RESULTS** There were no significant differences between isolation time and total cell counts (p=0.33) and between isolation time and viable cells (p=0.18). However, there were significant differences between molars and premolars related to the viability of cells and the total cell counts, the premolars showed significant higher viability (p=0.001) and had higher total cell amounts after isolation (p=0.002). **CONCLUSIONS** This study concluded that the procedure for isolation of the DPSCs from extracted teeth should be completed in 24 hours. Premolars are better donors than third molars for DPSCs isolations.

O1.7 Oral health condition and Candida albicans carriage in children/adolescents with type 1 diabetes mellitus: preliminary findings.

A. Babatzia, S. Gizani*, W. Papaioannou, C. Kanaka- Gantenbein, L. Papagiannoulis
Department of Paediatric Dentistry, National and Kapodistrian University of Athens, Greece

AIM To determine the oral health condition and Candida albicans carriage of children and adolescents with type 1 diabetes (T1D) (those who are good controlled (GC) versus those with poor glycaemic control (PGC)) and to compare them with the healthy control group (HCG). **METHODS** One hundred and five children and adolescents from the Aghia Sophia Children's hospital (aged 6 -15 years) were allocated to three groups: (a) 32 GC (HbA1c<7.5%), (b) 30 PGC

(HbA1c >7.5%) and (c) 43 healthy (HCG). Plaque index (PlI) (Silness & Loe 1964), gingival index (GI) (Silness & Loe 1964), and DMFS index were used. Candida albicans carriage was determined by RealTime PCR in saliva samples. The examinations were performed by two calibrated examiners (kappa>0.8). Differences in clinical parameters and microbial levels among groups were tested by ANOVA ($p<0.05$). **RESULTS** Differences in the PlI levels among the three groups were significant (ANOVA $p=0.034$) with PGC individuals having the highest scores (mean:0.77, SD:0.52). No significant differences were found in DMFS between groups (GGC: 2.13, GC: 1.1 and HCG: 1.12). Candida albicans was found in 8/43 HCG group (mean: 1.07x104 cfu/ml), 8/30 in GC(8.84x102) and 9/32 in PGC (5.7x103) ($p>0.05$). **CONCLUSIONS** Although only plaque accumulation was significantly worse in PGC, their high DMFS scores, indicate poor oral health status. Candida albicans carriage was found in less than 1/3 of the children regardless the group. Further investigation of the association between oral glucose level, oral condition and Candida albicans in PGC is necessary.

O1.8 Combined split-mouth and parallel-arm trial: novel clinical trial design illustrated in anaesthesia for paediatric oral healthcare

V. Smail-Faugeron*, M. Muller-Bolla, J. L. Sixou, F. Courson
Department of Paediatric Dentistry, Dental School, University of Paris Descartes, France

AIM To introduce a novel clinical trial design that combines a split-mouth trial and a parallel-arm randomised trial. **METHODS** The design consists of simultaneously conducting a split-mouth trial (in which each patient receive both the experimental and control interventions at different areas in the oral cavity at random) and a parallel-arm trial (where patients receive either the experimental or the control interventions). If findings from the split-mouth and parallel-arm trials are consistent, they are combined through a meta-analysis. It offers advantages in terms of enrollment, statistical power, and applicability of findings. We illustrate it with the comparison of intra-osseous and conventional anaesthesia in children. For the split-mouth trial, eligible patients have at least 2 carious first permanent molars in the same dental arch. For the parallel-arm trial, eligible patients require treatment with anaesthesia in one first permanent molar. The primary outcome is pain reported by the patient after the injection. **RESULTS** The trial is ongoing. Patient recruitment started in January 2015, and in January 2016, 12 and 70 patients were included for the split-mouth and parallel-arm trials, respectively. For each patient enrolled in the split-mouth trial, about 6 were enrolled in the parallel-arm trial. Conducting the two types of trials allows for not losing any eligible patients, because during the period of patient inclusion for the split-mouth trial, patients can also be enrolled for the parallel-arm trial. Outcome results will be presented at the conference. **CONCLUSIONS** This study design allows increasing statistical power and using all generated evidence. Trial registration number: ClinicalTrials.gov NCT02084433

Session O2 - Dental Materials

O2.1 Effect of laser pretreatment and saliva contamination on the sealing performance of glass ionomer fissure sealants

B. Oter, R. E. Tirali, B. Memis Ozgul*, N. Berk, S. B. Cehreli
Department of Paediatric Dentistry, Baskent University Faculty of Dentistry, Ankara, Turkey

AIM To investigate whether laser pretreatment reduces microleakage of saliva, which can contaminate conventional and resin-modified glass ionomer (GI) sealants. **METHODS** Eighty extracted impacted non-carious human third molars were randomly assigned to two groups: Group A (n=40), for which treatment included enamel pretreatment with an erbium, chromium:yttrium, scandium, gallium, garnet (Er,Cr:YSGG) laser; and Group B (n=40), for which there was no pretreatment. These groups were divided into two subgroups according to the presence of saliva contamination. In each subgroup, fissures were sealed either with resin-modified or conventional glass ionomer cement (n=10). Microleakage was assessed quantitatively using the dye-penetration method along with quantitative computer-aided image measurement. Data analysis was performed using the Mann–Whitney U test. **RESULTS** In the uncontaminated samples, both resin-modified glass ionomer sealants and conventional glass ionomer sealants demonstrated significantly lower microleakage scores than their non-pretreated counterparts (both $p<0.001$). When materials were contaminated with saliva, laser pretreatment did not affect the marginal integrity of resin-modified glass ionomer sealants ($p=0.035$). When saliva-contaminated samples were sealed using a conventional glass ionomer, microleakage scores were significantly lower in the laser pretreated group ($p<0.001$). **CONCLUSIONS** When saliva contamination is inevitable, a conventional glass ionomer with Er,Cr:YSGG pretreatment may be the best combination for sealing pits and fissures.

O2.2 Development of a radiopaque infiltrating resin for white spot lesions

F. S. L. Wong*, M. Moeinian, G. Davis, R. HIll
Institute of Dentistry, Barts and The London SMD, Queen Mary University of London, UK

AIM To develop a resin that can infiltrate in white spot lesions and be detected by clinical radiographs. **METHODS** Two premolars with white spot lesions were selected and digital clinical radiographs were taken to assess the radiolucencies of the lesions. Two types of radiopaque resins were made by adding 40% Tin-Methacrylate and 30% to ICON resin (Sn-ICON and Br-ICON respectively). The lesions were infiltrated with these resins according to the manufacturer's instructions. Each of the radiopaque resins were applied twice on the lesion and radiographs were taken. In addition, a third application of Br-ICON was used and radiographed. Afterwards, the teeth were scanned using a high definition micro-CT. Radiographs before and after the infiltrations were assessed visually and imported to an image analysis software (ImageJ) for digital assessment of the radiopacity. **RESULTS** Visual detectable changes on

radiographs could be observed after the infiltration of these two resins. A more notable increase in radiopacity was found after the third application of Br-ICON. Image analysis of the digital radiographs showed the increase of radiopacity could be up to 20%. The microtomographic images showed that radiopaque resins infiltrated into the full depth of the lesions. **CONCLUSIONS** This preliminary report showed that radiopaque methacrylate can be developed as a treatment modality for white spot lesions.

O2.3 Effect of pH on calcium ion release of tricalcium silicate cements

S. Rajasekharan*, C. Vercruysse, L. Martens
Department of Paediatric Dentistry, PAECOMEDIS Research Cluster, Ghent University, Belgium

AIM To evaluate the calcium ion release of three different tricalcium silicate cements exposed to hydration solutions with different pH. **METHODS** ProRoot® white MTA (Dentsply, Tulsa dental specialities; Tulsa, OK, USA), Medcem MTA® GmbH (Weinfelden, Switzerland) and Biodentine™ (Septodont, Saint Maur des Fosses, France) were mixed according to manufacturer's instructions and condensed into cylindrical acrylic resin (Plexiglass) tubes of size 10 mm length and 1.5 mm diameter. The tubes were open only at one end and were randomly immersed in either 10 ml of glycine buffer (pH=10.4), HEPES buffer (pH=7.4) or butyric acid buffer (pH=4.4). Six cylindrical tubes per material per buffer solution were stored at 37^{o}C on a shaker. The solutions was collected and renewed after 3, 24, 72 and 168 hours. Calcium ion release was measured at each time interval using an atomic absorption spectrophotometer (Varian SpectrAA-30, Agilent Technologies, Santa Clara, USA). **RESULTS** The concentration of released calcium ions was in the order of Biodentine™ > ProRoot® white MTA > Medcem MTA® in all three different pH milieus. Calcium ion release was higher in acidic environment (pH 4.4) and lowest in alkaline environment (pH 10.4) at all time intervals. In both acidic and neutral milieu (pH 4.4 and 7.4), the concentration of calcium ions decreased with increase in time. **CONCLUSIONS** Biodentine™ released more calcium ions than ProRoot® white MTA and Medcem MTA® irrespective of the pH of the environment.

O2.4 The effect of calcium silicate based materials on fracture strength

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Istanbul University Faculty of Dentistry Department of Paediatric Dentistry, Turkey

AIM To assess the long-term fracture resistance of simulated human immature permanent teeth filled with BioAggregate, mineral trioxide aggregate and EndoSequence® root repair material. **METHODS** Forty extracted maxillary central incisor teeth were selected. The root of each tooth was standardised to a length of 13±1mm as measured from the apex to the facial CEJ by cutting off the root end to simulate immature teeth (Cvek`s stage 3). The pulps were extirpated and the canals were prepared using an apical approach. The teeth were randomly assigned to four groups (n=10/group). Group I: DiaRoot® BioAggregate (BA) (DiaDent, Canada), Group II: MTA Plus (MTA-P) (Avalon Biomed Inc.,India), Group III: MTA Angelus (MTA-A)(Angelus, Londrina,Brazil), Group IV: EndoSequence® Root Repair Material (ERRM) (Brasseler,

USA). Teeth were placed in saline solution at 4°C for 24 months; the root of each tooth was embedded in an acrylic resin block. All specimens were loaded at crosshead speed of 1 mm min-1 in an Instron machine. Data were analysed statistically by Kruskal-Wallis and Mann-Whitney U tests. **RESULTS** Mean (±SD) failure loads (MPa) were: 20.46±2.53 for BA, 18.88±5.13 for MTA-P, 14.12±1.99 for MTA-A and 17.65±4.28 for ERRM groups. Significant differences were found in failure loads among all tested groups ($p<0.01$). The BA group exhibited the highest and MTA-A group showed the lowest resistance to fracture. Significant differences in fracture resistance were found between the BA and MTA-Angelus; MTA-Plus and MTA-Angelus and also between ERRM and MTA-Angelus groups ($p<0.05$). **CONCLUSIONS** BioAggregate-filled immature teeth demonstrated higher fracture resistance than other groups at 24 months and appears to be the most advantageous of the materials tested.

O2.5 Microtensile bond strength of different types of adhesive systems to primary and permanent teeth

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AIM To determine microtensile bond strength (MTBS) of different types of contemporary adhesive systems to enamel and dentine of primary and permanent teeth. **METHODS** Different generations of adhesives were tested: 3-step total-etch (OptiBond FL, Kerr), 2-step total-etch (OptiBond Solo Plus, Kerr), 2-step self-etch (OptiBond XTR, Kerr) and 1-step self-etch (OptiBond All-In-One, Kerr; AdheSE Universal, Evetric Bond, Ivoclar Vivadent; Scotchbond Universal, 3M ESPE). SonicFill (Kerr) was used as a material for build-ups in combination with all adhesives. MTBS was assessed on flat buccal enamel surfaces and mid-coronal dentine of primary and permanent molars. A non-trimming method of specimen preparation was followed and tests were performed using universal testing machine at a crosshead speed of 0.5mm/min. Failure modes were evaluated using a microscope. Data were analysed by Kruskal-Wallis ANOVA, Dunne's multiple comparisons and Mann-Whitney U tests. **RESULTS** There was no statistically significant difference in bond strength between primary and permanent teeth among the investigated adhesives, except for OptiBond Solo Plus and OptiBond FL which showed higher bond strength to primary compared to permanent enamel. Selective enamel etching had no influence on bond strength of the investigated self-etching adhesive systems to primary enamel. Higher bond strength to permanent enamel was recorded after selective etching for OptiBond XTR, Evetric Bond and ScotchBond Universal. **CONCLUSIONS** For the vast majority of investigated adhesive systems no significant differences were found in bond strength between primary and permanent teeth, regardless of the tooth substrate. Selective etching may improve bond strength of self-etch adhesive systems to permanent enamel.

O2.6 Success rate of MedCem Portland cement as a pulp capping agent in pulpotomies of primary teeth

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AIM To evaluate the clinical and radiographic outcomes of Portland cement (PC) as a pulp capping agent in primary teeth pulpotomies. **METHODS** The study included 71 primary teeth (9 incisors and 62 molars), from 20 children aged 3-8 years, of both genders. The teeth had deep carious lesions and symptoms of inflammation of the coronal pulp. Treatment was performed under general anaesthesia, and with the technique of vital amputation. MedCem Portland cement was used as pulp capping agent. GIC was placed over the PC. Incisors were finally restored with composite and molars with preformed metal crowns. Clinical and radiographic successes and failures were recorded at 6, 12, 18 and 24-month follow-ups. The treatment success was measured using predetermined criteria. **RESULTS** After 12 months 69 teeth (97.18%) were assessed as successfully treated. After 24 months the treatment of 66 teeth (92.96%) were defined as successful. The results showed satisfactory success rate of pulpotomies using MedCem PC as a pulp agent in the primary dentition during the observation period. **CONCLUSIONS** Portland cement may serve as an effective and inexpensive material in primary teeth pulpotomies. Further studies and longer follow-up assessments are needed.

O2.7 Tooth-coloured materials for class II restorations in primary molars: a systematic review

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AIM To review the efficiency of tooth-coloured materials when used for class II restorations in primary molars. **METHODS** A systematic search and review of the English language literature was undertaken through Medline database from 1966 to 2016 (January) using the key words: composite resin (CR), resin-based composite, glass ionomer cement (GIC), resin-modified glass ionomer cement (RMGIC), compomer, tooth-coloured materials and aesthetic restorations, combined with class II, proximal/interproximal restorations and primary molars. Studies including ART/ITR techniques, open-sandwich technique, questionnaires, restorations after endodontic therapy or pulpotomy, preparations such as tunnel or box-only, sealing caries techniques, in vitro and laboratory studies and studies without abstracts were excluded. Only randomised controlled trials (RCTs) were assessed using predetermined inclusion criteria (e.g. a clearly stated study aim/hypothesis, a clearly described and valid randomization scheme, study duration adequate to obtain valid results and a follow-up period at least 24 months, etc). **RESULTS** The search identified 504 papers. After the title and abstract screening 38 remained, and applying the final (RCT) criterion yielded 13 RCTs. Failure rates for small to moderate class II cavities varied from 2-36% for RMGIC, 14-46% for GIC, 12-41% for CR and 9-31% for Compomers. **CONCLUSIONS** There is evidence that some tooth-coloured restorative materials (CR, RMGIC, Compomers) can be recommended as appropriate, but there is no data for

moderately large class II cavities. There is also a need for well-designed RCTs with longer follow-up periods.

O2.8 Our experience on infiltration of white spot lesions

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BACKGROUND Nowadays children, due to high consumption of acidic juices, have a high number of white spot lesions (WSL). WSLs are early signs of demineralisation of the enamel. The increasing number of fixed orthodontic treatments determine the increase of the associated WSLs. The infiltration technique is based on the ability of a low-viscosity light-curing resin to penetrate the white spot lesion microporosities. It is a plastination of the enamel lesion. **CASE REPORT(S)** We applied this technique in different clinical situations: WSLs on primary or permanent teeth or WSLs associated with fixed orthodontic treatment. The surface layer of the lesion was eroded with 15% hydrochloric acid gel (Icon-Dry) for 2 minutes. After this the tooth was desiccated with ethanol (Icon-Dry) for 30s. If the whitish appearance of the lesion did not disappear the first 2 steps were repeated. After air-drying the lesion Icon resin was applied to the lesion surface, excess removed and after 2, 3 or 5 minutes light cured. **FOLLOW-UP** Each case was reviewed for 6 to 24 months by clinical examination and photographs of the infiltrated WSLs were taken every 6 months. There was no progression of the WSLs and the improvement in the aesthetics was stable. **CONCLUSIONS** This technique has proved to be a viable, efficient and predictable. The aesthetic improvement was stable while preventing the progression of the WSLs. The technique was readily accepted by all patients.

O2.9 A comparison of the fracture strength of primary molars with different restorative techniques

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AIM To compare to fracture strength test of inlay restorations prepared using direct inlay technique (Gradia direct composite) and indirect inlay technique with indirect restoration system (Gradia indirect composite, Labolight LV-III) and CAD/CAD system (Vita Enamic block). **METHODS** Forty-eight extracted primary second molars were used. Thirty-six class II inlay restorations were prepared using the direct inlay technique, Gradia indirect restoration system and CAD/CAM system. Fracture strength tests of 48 teeth (36 restorations + 12 control) teeth were performed. All restorations were cemented with Rely X Unicem Aplicap which is a self-adhesive dual-cure resin. The obtained data was analysed with a confidence interval of 5%. **RESULTS** There was a statistically significant difference among all groups for fracture strength ($p<0.05$) but very close values were noticed between Gradia indirect restoration system and CAD/CAM system ($p>0.05$). **CONCLUSIONS I**nlay restorations, indirect restoration systems and CAD/CAM systems applied succesfully together with the self-adhesive dual-cure resin cements in primary molars.

Session O3 - Behaviour Management/Miscellaneous

O3.1 An audit of repeat paediatric dental general anaesthesia within the salaried dental service of North Yorkshire - England

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AIM To determine the frequency and characteristics of repeat dental general anaesthesia (DGA) episodes in children. **METHODS** All episodes of DGA were identified for children in North Yorkshire between October 2002 and July 2015. From these, all children requiring more than one DGA were identified and information regarding the treatment provided was entered into an excel database. Descriptive statistics were used to examine characteristics of these episodes. **RESULTS** A total of 5069 episodes of DGA were identified. 4735 children (96.7%) received only 1 DGA. 148 children received 2 DGAs, 10 received 3 DGAs and 2 received 4 DGAs. The average age at DGA1 was 6 years 1 month. This increased to 9 years 7 months at DGA2. The average time between DGA1 and DGA2 was 3 years 4 months. Of the 334 repeat DGA episodes, 29% had a restorative component and the remainder were exodontia. At DGA1, 80% of exodontia episodes involved extraction of primary teeth only, and 8% involved permanent teeth only. At DGA2, exodontia episodes involving primary teeth only decreased to 49% compared with 29% that involved permanent teeth only. In DGA1, 37% of restorative episodes involved permanent teeth only, in comparison with 85% at DGA2. Following DGA1 episodes, 63% received caries-prevention advice. This increased to 86% and 100% following DGA2 and DGA3 respectively. **CONCLUSIONS** The frequency of repeat DGA in North Yorkshire is relatively low. However, these findings highlight a need for the service to ensure thorough treatment planning and subsequent prevention in order to avoid development of new caries and the need for unnecessary DGA.

O3.2 An audit of the quality of joint general anaesthetic referrals to paediatric dentistry at School of Dentistry, University of Leeds, UK

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AIM To assess the quality of joint general anaesthetic (GA) referral communications received by the paediatric dentistry department at Leeds which is a tertiary referral centre. **METHODS** Joint GA referral communications were identified through telephone, emails and letters recorded by the departmental secretary and analysed retrospectively using a piloted data-capture sheet. The referrals were compared against locally-agreed standards. **RESULTS** Referrals received from January to December 2014 in cycle 1 and from September 2015 to January 2016 in cycle 2 for a total of 40 referrals were analysed retrospectively. The majority of the referrals were received from medical teams and community dental services. In cycle 1 (n=20) the majority of the standards were not met and, therefore, following dissemination of the results, a referral proforma for joint GA requests was introduced along with a mechanism to accurately record

joint GA referrals. Use of a referral proforma in the second cycle (n=20) increased the number of standards that were met. **CONCLUSIONS** This audit highlighted a need to establish a standardised protocol for joint GA requests. The introduction of the referral proforma improved the quality of the referrals and facilitated the joint GA care pathway.

O3.3 Evaluation of a novel self-help cognitive behavioural therapy resource to reduce paediatric dental anxiety

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AIM To conduct a pilot evaluation of a self-help cognitive behavioural therapy (CBT) resource for the reduction of dental anxiety in young people. **METHODS** A novel CBT resource was developed with young people informed by the five areas model (Williams and Garland 2002). Following ethical approval, young people who were referred to a UK dental school with dental anxiety, were invited to participate. At initial recruitment, participants completed the modified child dental anxiety scale (MCDAS). The young person and parent/guardian were then provided with a self-help CBT resource and commenced their course of dental treatment. The MCDAS was completed again after two treatment visits. **RESULTS** To date, 32 young people, aged 9-16 years (72% female), completed the study over a 10-month period in 2015 (response rate=60%). The majority (78%) had been referred for caries management, with a mean DMFT of 4.0. Most participants (72%) required a combination of preventative sealants/restorations and extractions and only two failed to complete treatment as prescribed. At baseline, participants reported high levels of dental anxiety (mean MCDAS = 25.3). Following use of the CBT resource, there was a significant reduction in MCDAS (mean = 17.5; $p<0.001$; paired t-test) and 94% felt the resource had helped them to be less worried about going to the dentist. **CONCLUSIONS** The use of a guided self-help CBT resource was found to reduce dental anxiety in young people in this pilot evaluation. Further evaluation is required in a larger study.

O3.4 Post-discharge events occurring after dental treatment under deep sedation in paediatric patients

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AIM To assess the immediate post-sedation events during the first 24 hours after dental treatment under deep sedation in children, and examine correlations to a number of variables. **METHODS** Information was collected from medical files for a convenience sample of children between the ages of 1 and 16 years, who were treated under deep sedation at one clinic (propofol alone or combined with a sedative agent). Parents were interviewed by telephone regarding the first 24 hours following treatment. **RESULTS** Among 32 children under age 6 years, 26 (81.3%) had at least one post-sedation complication, compared to 19/22 (86.4%) aged 6 years and older, $p>0.05$. According to parent reports, 13 (59.1%) of the older children had pain, compared to 6 (18.8%) of the younger ones, $p=0.002$. No patients in the younger group compared to 18.2% in the older group reported dizziness as a complication, $p=0.023$. Among those who received a sedative agent, 93.3% had one or more complications; 26.7% had nausea

or vomiting. The respective rates were 79.5% and 5.1% among those treated only with propofol. **CONCLUSIONS** Though safe, deep sedation poses complications and adverse events in children.

O3.5 Does maternal dental anxiety affect caries experience of children?

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AIM To determine the influence of maternal anxiety on caries experience of children and the effect of previous traumatic dental history on mother's dental anxiety levels. **METHODS** This cross-sectional study was conducted with 200 mother-child (between 3-15 years) dyads. A form was prepared for recording the socio-demographic data and dental findings. DMFT/dmft index was used for evaluating dental status of children. Modified dental anxiety scale (MDAS) was used for evaluating mother's dental anxiety. The mother's traumatic dental experience, educational level, family income, frequency of dental visits of mother were also recorded. Data was analysed by descriptive statistics, student t test and Pearson correlation coefficient. **RESULTS** 97% of the mothers had dental anxiety at different levels. 13 % of them were phobic. Nearly half of the mothers visited the dentist only when they had a dental problem. 24.5% of mothers reported that they had had a traumatic dental experience. The caries experience of children with anxious mothers was significantly higher than less anxious mothers' children ($r=0.143$, $p=0.44$). Additionally the presence of traumatic dental experience was related with mothers' dental anxiety ($t=2.061$, $p=0.04$). **CONCLUSIONS** There was a positive association between maternal dental anxiety and children's dental caries experience. Previous traumatic dental experience was found to be related with mothers' dental anxiety. Decreasing the mother's dental anxiety levels may be helpful for improving children's dental health.

O3.6 Two is one too many: repeat dental general anaesthesia in children

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AIM To determine the proportion of children who had a second dental general anaesthetic (DGA) within two years of their first DGA at a teaching hospital in Northern England and identify possible reasons for this. **METHODS** Sheffield Children's Hospital admissions data was used to determine the frequency of general anaesthesia for dental extractions or comprehensive dental treatment in children between May 2011 and 2013. From those patients, children who were readmitted within two years were identified. Clinical records were reviewed to obtain: socio-demographic data (age, deprivation); clinical information relating to the assessment appointment (pain/sepsis at presentation, safeguarding concerns); and the clinical justification recorded for the repeat dental general anaesthesia. **RESULTS** In total 2,479 children had a DGA between 2011 and 2013. Overall, 0.8% (n=21) of children went on to have a repeat DGA. The median time between the two admissions was 17 months (25-75% interquartile range=11-21 months). The most common reason for the second procedure was the child developing new carious lesions (62%, n=13). Of the children who had a repeat DGA, a third (33%, n=7) were

under 4 years, the majority lived in areas of deprivation (81%, n=17, deprivation quintiles 4 and 5) and 14% (n=3) were referred to the local paediatric liaison service due to safeguarding concerns, at their first admission. **CONCLUSIONS** Overall it appears from these data that the proportion of children having repeat DGA is low. Comparable outcome data for other paediatric dentistry centres is required to benchmark clinical performance.

O3.7 Behavioural management during midazolam sedation of children

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AIM This prospective study searched for behavioural management techniques capable of keeping the dose of midazolam during sedation in paediatric dentistry low, outcome variable being treatment success. **METHODS** Some 311 children (mean age 5.72 years, SD=2.1) were selected. They presented as patients in a large secondary dental care clinic in Hannover. All children had at least one cavity. Siblings and children not performing regular education were excluded. After consent of the parents, the sedation treatments (0.4 mg/kg) were taped on video. Techniques of behavioural management were analysed and assessed, as was treatment success. **RESULTS** In 79.7%, the scheduled treatment was completed, while in 12.7%, more teeth than expected could be treated. Only 4.7% of the treatments had to be shortened and 3% of patients could not be treated resulting in an overall success rate of 97%. The high success rate with low midazolam dose could be reached due to techniques of behavioural management, especially continuous bodily contact and tell-show-do, but also some verbal techniques. **CONCLUSIONS** Behavioural management is a helpful means of increasing treatment success in paediatric dentistry, in some cases apparently more effective than medical support.

O3.8 The use of conscious sedation as an alternative to general anaesthesia in paediatric dental patients.

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AIM To evaluate the effectiveness and the tolerability of nitrous oxide sedation during dental treatment in very young or anxious children and in children with intellectual disability as an alternative to general anaesthesia. **METHODS** Some 472 patients (aged 4 to 12 years) were treated under conscious sedation. 100% oxygen was delivered via a flavoured nasal mask and, after 8 minutes, nitrous oxide was gradually added, up to 30-50%. During the procedure, the patients were reminded to breathe through the nose in order for the gas to work. At the end of the procedure, 100% oxygen was administered for 3–5 minutes. The patient`s physical status and alertness were assessed before discharge. The level of cooperation was assessed using the Venham scale. The percentage of successful sessions and the differences according to age were measured. The percentage of adverse effects was calculated. **RESULTS** Of the total number of patients 8.7% were represented by children with intellectual disability and 58.7% were aged 4 to 6 years. The overall percentage of successful sessions was 86.3% at the first appointment and 90.7% at the second appointment. The percentage of successful sessions for children with disability was 75%. Vomiting occurred in 3.5% of all sedations. **CONCLUSIONS** Sedation with

nitrous oxide represents an effective, reliable and safe method to obtain cooperation in very young, anxious, uncooperative and disabled children. This technique is a valid alternative to dental treatment under general anaesthesia.

O3.9 Effectiveness of two different school-based oral health education programs on attitude and plaque index of 9 year-old children

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AIM To evaluate the effectiveness of two different school-based oral health education programs on the oral health attitude, behaviour and oral hygiene of 9-year-old children in Turkey. **METHODS** The study included 1053 school children aged 9 years in Aydýn, Turkey. This was a 2-arm parallel-group prospective clinical trial. Group 1 received one lecture on oral health education by dentists whereas Group 2 had a similar lecture given by teachers including supporting materials (brochures, toothbrushes and pastes) which continued through the academic year. Oral health attitude and behaviour were evaluated via questionnaires at baseline, 1 and 6 months intervals. A total of 107 students were randomly selected to assess plaque accumulation at baseline and 1 month later to report the effect of different education programs on oral hygiene. **RESULTS** At baseline, toothbrushing frequency was found to be similar in the study groups. Compared to baseline, frequency of brushing increased significantly after one and six-month intervals in both study groups ($p < 0.005$). Group 1's education was found to be more effective in teaching the correct brushing technique ($p<0.001$). Comparison of plaque reduction after one month showed no difference between the study groups. **CONCLUSIONS** School-based preventative oral health education programs generate short-term improvements in children's knowledge of oral health and some aspects of oral hygiene behaviour. Future research should engage parents/teachers and include objective clinical and behavioural outcomes in randomised controlled studies.

Session O4 - EAPD Young Scientist Research Award Part I

O4.1 The effect of parental presence on the child's perception and cooperation during dental treatment

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AIM To study the influence of parental presence during dental treatment on the child's behaviour and perception. **METHODS** Parents of 100 patients (mean age 7.0±2.2 years) who visited the postgraduate paediatric dental clinic were randomly divided in two equal groups during one habituation and two treatment sessions: 1) parent present in the operatory, 2) parent absent (observed children through a window). Both dentist and parent rated the child`s behaviour using the Venham scale. The child's perception was measured using the Wong-Baker faces rating scale (FPRS) at the end of every session. Statistical analysis was performed with the IBM statistics SPSS 22.0 ($p<0.05$). Comparisons between variables were performed with the Mann Whitney U, Wilcoxon and Friedman's tests. **RESULTS** According to the dentist's rating, children's behaviour was worse when the parent was absent, with significant difference only for the 2nd treatment ($p=0.011$). There was no difference on parental rating behaviour scores between the two groups. There was no difference between the two groups for children's perception, except from the increased discomfort found at the 2nd treatment ($p=0.021$) when the parent was present. In both groups, children's behaviour was rated significantly better by the dentist than the parents (presence: $p=0.001$, absence: $p=0.038$). **CONCLUSIONS** The only significant finding was in the antithesis of how children perceived their 2nd treatment session and how dentists rated their behavior regarding parental presence. Parents' scores of their child's behaviour were unrelated to parental presence.

O4.2 Comparison of resin modified glass ionomer cement with composite resin in class II primary molar restorations

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AIM To directly compare the two year success rates of a resin modified glass ionomer cement (RMGIC) to a composite resin (CR) in class II primary molar restorations. **METHODS** Children with at least one carious primary molar requiring a class II restoration were randomly allocated to receive either CR (Z250, 3M ESPE) or RMGIC (Vitremer, 3M ESPE) restorations. According to the sample size calculation at least 40 teeth were needed in each group. Healthy, cooperative children aged 4-7.5 years were included in the study. The carious lesion dif not exceed the outer half of the dentine radiographically. Restorations were placed by 6 paediatric dentistry postgraduates and evaluated by any of four calibrated supervisors. Clinical follow-up was semi-annual, using modified USPHS criteria. Radiographic follow-up was annual. The Wald Chi-Square test (SPSS 19.0, $p<0.05$) was used for the statistical analysis. **RESULTS** In this study 43 patients were followed-up, with 53 teeth in the RMGIC and 49 teeth in the CR group. One restoration was lost for each material. Regarding marginal integrity, 13 teeth were rated B and 2 teeth

rated C for RMGIC, while 4 teeth rated B and 1 tooth rated C for the CR, with no evident secondary caries difference between groups. Occlusal wear, not exposing dentinal walls, was only observed in the RMGIC restorations. **CONCLUSIONS** Both materials are suitable for class II primary molar restorations, with RMGIC presenting with occlusal wear of limited clinical importance for the 2 year follow-up.

O4.3 Is gagging associated with dental fear in 4-12 years old children?

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AIM To appraise the prevalence of gagging in children and detect any association between gagging and dental fear in the dental setting. **METHODS** After approval by the Ethics Committee, 668 children (4-12 years old) seeking dental care either at a university clinic (UC, n=369) or at a private practice (PP, n=299) filled out a questionnaire consisting of demographics and the Greek version of the gagging assessment scale (GAS, subjective assessment) and the children's fear survey schedule-dental subscale (CFSS-DS). The shorter version of the gagging problem assessment (GPA-de-c/SF, dentist's objective measurement) was used to assess gag reflex. Statistical analyses were conducted using Spearman's rho correlation, Chi-Square, and Mann-Whitney tests. **RESULTS** Some 183 children (27.4% of total; 124 were boys) presented with gagging by GPA-de-c/SF. Significantly more children examined in the UC gagged (30%, n=111), compared with those in the PP (24%, n=72) ($p<0.001$). Boys ($p<0.001$) and younger ($p=0.001$) children revealed greater tendencies to gag. Children rated as gaggers on the GPA-de-c/SF reported significantly higher GAS (subjective assessment) and CFSS-DS ($U=32.145$, $p<0.001$, $U=31.175$, $p<0.001$, respectively). Also, there was a statistically significant association between GAS and CFSS-DS ($rho= 0.30$, $p<0.001$). In both settings, boys stated (by GAS) that they were more prone to gag ($p<0.024$), while no difference was evident for GAS and age. **CONCLUSIONS** About 25-30% of children gagged in the dental setting. Greater dental fear was associated with a higher likelihood of gagging.

O4.4 Antibacterial properties of novel dental composites under development for paediatric dentistry

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AIM To find if the addition of polylysine (antibacterial agent) to a novel composite formulation containing monomer/glass/calcium phosphate will produce a significant reduction in the concentration of streptococcus mutans in vitro. Also to compare the results with a commercially available composite. **METHODS** Composite discs were prepared using a constant monomer phase to which glass filler was added with varying calcium phosphate and polylysine concentrations. Following monomer polymerisation, set discs were immersed and incubated for 24 hours at 37^{o}C in a suspension of streptococcus mutans. Bacterial counts were measured at 0, 6 and 24 hours. **RESULTS** The addition of 2% polylysine to the novel composite filler produced a

significant reduction of bacterial concentration over 24 hours. Similar results were seen using 5% polylysine. Almost all bacteria were killed with 10% polylysine. The commercial composite saw a significant increase in bacterial concentration, consistent with the natural growth of bacteria over 24 hours. Variations in calcium phosphate concentration did not affect the antibacterial properties. **CONCLUSIONS** The addition of polylysine to the novel composite showed very promising results in reducing the bacterial load of streptococcus mutans. The above novel composites have promising characteristics for minimally invasive tooth restoration.

O4.5 NuSmile® zirconia crowns: a valid alternative to stainless steel crowns? A split-mouth RCT, preliminary results

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AIM To investigate whether zirconia crowns (NuSmile®, ZC) are a suitable alternative to stainless steel crowns (SSC). The latter are regarded as the gold standard when extensive coronal breakdown needs to be restored. **METHODS** All patients were recruited from the paediatric dental clinic at Ghent University and were planned for treatment under general anaesthesia. According to the inclusion criteria second primary molars were randomly allocated for either treatment with a SSC or for treatment with a ZC in a split-mouth study design. Differences in retention rate, plaque retention (OHI-S), gingival condition (GI by Loë and Silness 1969), infection, procedure time, attrition of the antagonist (tooth wear index by Smith and Knight 1984), presence of a contact point and marginal adaptation were evaluated every three months. **RESULTS** During this study so far 16 patients came for follow-up ranging from 3 to 9 months of which 44% were girls and 56% were boys. Age ranged from 3 to 7 years (mean 4.88; SD 1.2 years). Significant differences (Wilcoxon $p<0.001$) were found for treatment time only. Placement of a SSC had a mean duration of about 6 minutes while for a ZC about 16 minutes were needed. Although not significantly different, less plaque retention could be noticed for ZC. **CONCLUSIONS** Although longer procedure time has to be taken into account, ZC seems to be a valid alternative for a SSC. Further research with a larger sample size is indicated.

O4.6 The association between obesity and oral health in 11 to 18 year olds: a case control study.

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AIM To examine the difference in oral health between obese and non-obese Belgian 11 to 18 year olds by measuring dental caries and periodontal status. **METHODS** The obesity group was recruited at a boarding school for patients with chronic diseases. Obesity was defined according the WHO guidelines for BMI-for-age-Z-scores. Clinical assessment for dental caries was conducted using the DMFT index, with a subdivision for the D component. The periodontal status was assessed using the gingival and plaque index. All participants had to answer a validated questionnaire concerning medical history, oral hygiene habits and diet. Statistical analysis was performed using Pearson's chi-square and Mann-Whitney U-tests. **RESULTS** The sample of this case-control study consisted of 71 obese subjects (mean age: 14.83±0.22 years)

in the test group, 54 non-obese subjects (mean age: 14.80±0.39 years) in the control group. Obese subjects exhibited significantly more gingival inflammation ($p<0.001$), plaque ($p<0.001$) and pathological periodontal pockets ($p<0.05$). Also the DMFT score in the obese group was significantly higher than in the non-obese group ($p<0.001$). Obese subjects preferred a manual brush over an electrical, visited the dentist less frequently, ate more chocolate and chips between meals and drank and ate more frequently after brushing in the evening than non-obese subjects. **CONCLUSIONS** Being obese was found to be significantly associated with having more caries, plaque, gingivitis and pathological periodontal pockets.

O4.7 Remineralisation of dentine treated by different fluoride formulations

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AIM To investigate the remineralisation of artificially demineralised bovine dentine by different topical fluoride treatments. **METHODS** In 45 dentine specimens artificial lesions were formed (1580 vol% x µm). Thirty specimens were randomly allocated to 5 fluoride treatment groups (n=6): NaF varnish (22,600 ppm F−), SnF_2 gel (1000 ppm F-), TiF_4 solution (9,180 ppm F-), SDF solution (35,400 ppm F-) and a control group without fluoride treatment. The fluoride treatments were applied once according to the instructions of the manufacturer. Next the specimens were subjected for 14 days to remineralising solution. Changes in integrated mineral loss (IML) were determined with transverse microradiography (TMR). The remaining three specimens per group were treated with fluoride, but not subjected to remineralisation solution were analysed with scanning electron microscopy (SEM). **RESULTS** Overall, the dentine lesions were remineralised by 60%, the pattern of deposition differed among the fluoride treatment groups. Minerals in the SDF group were deposited in the surface layer, while minerals in the TiF_4 group were deposited deeper into the dentine lesion. Analysis of variance (ANOVA) found statistically significant more remineralisation in the SDF group as compared to the other groups ($p=0.001$). Crystals-like deposits were found with SEM on the outer surface of the dentinal tubules in the SDF and TiF_4 groups, but not in the NaF, SnF_2 and control groups. **CONCLUSIONS** Topical application of different fluoride formulations promotes the remineralisation of artificially demineralised dentine. SDF treatment showed the highest mineral gain.

O4.8 Effect of polishing systems on fluoride release and surface roughness of newly developed restorative materials

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AIM To evaluate the effects of two different polishing systems on fluoride release and surface roughness of five restorative materials. **METHODS** The study groups comprised five different restorative materials, Beautifil II (B); GCP Glass Fill (G); Amalgomer CR (A); Dyract XP (D); Fuji IX GP (F) and 21 specimens were prepared from each material. Each group was divided into three subgroups according to the polishing system: Mylar (control) (C), Sof-Lex (S) and Enhance/PoGo (EP). The amount of fluoride release was measured at 1, 2, 3, 7, 14, 21 and 28th days by using a fluoride ion-selective electrode connected to an ion analyser. Surface roughness was

investigated with a profilometer. The intergroup differences were estimated by one-way analysis of variance (ANOVA), the subgroup differences were estimated by Newman Keuls and Tukey multiple comparison tests ($p<0.05$). **RESULTS** Highest amount of fluoride was released from the specimens in S subgroup of group G during all measurement days. Surface roughness values were significantly lower in subgroup C than the other polishing systems in all study groups except group G ($p<0.05$). Group A produced significantly higher surface roughness values than the other material groups in both subgroups (S and EP) ($p<0.01$). **CONCLUSIONS** Polishing significantly enhances fluoride release from restorative materials, depending on the type of material and polishing system. Proper polishing systems must be chosen according to the structure and composition of materials in order to provide the best clinical benefits in terms of fluoride release and surface roughness.

O4.9 Decellularised dental pulp as a suitable scaffold for regenerative endodontic techniques

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AIM To assess the feasibility of decellularising rat followed by human dental pulp tissues for use as a scaffold in regenerative endodontic techniques. **METHODS** Rat and human dental pulps were retrieved following animal care procedure and human tissue bank approval, respectively. Teeth were divided into control (5 rat, 2 human) and decellularised (5 rat, 6 human) groups where decellularisation was achieved using a standardised protocol. Pulp tissues were histologically assessed and characterised using haematoxylin and eosin, picrosirius red, alcian blue and fluorescent DAPI staining. Residual DNA content was quantified using DNA assay while immunohistochemical analysis was performed to detect collagen type I, III, fibronectin and laminin within the pulpal matrix. Independent t-test was used for comparison between groups. **RESULTS** Histological assessment of decellularised tissues revealed an acellular matrix with preservation of surrounding connective tissue architecture. No visible nuclei or cellular material could be seen following DAPI staining. Picrosirius red and alcian blue staining revealed preservation of pulp collagenous matrix and acidic polysaccharides, respectively, within the acellular matrix following decellularisation. DNA quantification revealed a statistically significant reduction in DNA between decellularised and control groups ($p<0.01$). Immunohistochemical analysis showed retention of the main structural components of the pulp extracellular matrix following decellularisation. **CONCLUSIONS** This study shows promising results with regards to decellularising both rat and human dental pulp tissues in terms of producing an acellular pulpal matrix with preserved extracellular structure and composition. In the future this scaffold could be seeded with stem cells for the regeneration of the dentine-pulp complex.

Session O5 - EAPD Young Scientist Research Award Part II

O5.1 Clinical evaluation of an S-PRG containing resin-based sealant using a self-etch primer

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AIM To clinically evaluate the retention rates and caries-prevention effect of a resin-based non-etch and rinse, self-etch primed pit and fissure sealant containing S-PRG filler, in comparison to a conventional resin-based sealant over a 12 month period. **METHODS** Eighty-one patients, aged 6-14 years old, were randomly assigned to one of the two sealant-groups, either the self-etch primed sealant (BeautiSealant, Shofu) or the conventional etch and rinse sealant (Seal it, Spident). A total of 218 sealants of both groups were placed on 1st permanent molars with either sound surfaces (ICDAS code 0) or incipient enamel caries lesions (ICDAS code 1) according to manufacturer's instructions. Each sealant restoration was independently evaluated in terms of retention and caries status at baseline, 6 and 12 months. Data analysis was performed with the SPSS V.20 statistical software. **RESULTS** At 6 months recall, complete retention rates of 81.4% for the Seal it group and 15.5% for the BeautiSealant group were observed. The complete retention rates decreased to 72.8% and 8.4% respectively, at 12 months. There were statistically significant differences in retention rates between the two groups at all periods of evaluation ($p<0.01$). Survival rates of each sealant-group were comparable on sound (ICDAS 0) and enamel caries lesions (ICDAS 1) and differences were not statistically significant. Seven teeth in the experimental and five teeth in the control group presented with caries progression throughout the 12 month recall period. **CONCLUSIONS** The etch and rinse fissure sealant showed statistically significantly higher retention rates than the self-etch primed sealant.

O5.2 Changes in oral health-related quality of life of children and parents following treatment of dental caries in children

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AIM To investigate prospectively the impact of dental caries and its treatment on children and their families` quality of life. **METHODS** A total of 155 children aged 3-9 years and their parents who attended for dental treatment of their carious primary teeth completed the early childhood oral health impact scale (ECOHIS) and the self-reported scale of oral health outcomes for 5 year old children (SOHO-5) at two points; baseline prior to the dental treatment, and after 3-6 months following dental treatment. **RESULTS** In each domain and in the overall SOHO-5 and ECOHIS scores, untreated dental caries showed a negative impact on the child and family`s OHRQoL ($p=0.001$). Children mainly reported difficulty with eating (61.3%), difficulty with sleeping (40.6%), avoidance of smiling because of how their teeth looked (29%) and pain (27.7%). More than half (58%) of the parents reported that their child had pain from teeth at

some point in their life. In addition, difficulty eating (45.2%), drinking (36.7%), and being irritable (40.7%) were the main impacts reported by parents on their perception of their child`s OHRQoL. Some 56.1% of the parents also reported feeling guilty and 49% having taken time off work due to their child's dental problems. Following dental intervention, both children and parents reported a significant improvement in all the parameters studied (p=0.001). **CONCLUSIONS** Dental caries was associated with a profound negative impact on children and parents` overall quality of life and wellbeing. Treatment of caries significantly improved the quality of life of children and families (p<0.001).

O5.3 Quality of life and treatment outcomes under inhalation sedation in children

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AIM Assess the outcome of treatment and changes in quality of life (QoL) following comprehensive dental treatment using inhalation sedation in children. **METHODS** Children attending the sedation unit at the Leeds School of Dentistry for management of caries were included. Baseline questionnaires included a QoL assessment (COHIP-SF19) and a tool for indication of sedation need (IOSN-p). Participants were followed-up to evaluate their treatment outcome. Those who completed treatment as planned completed a second QoL assessment at least 2 weeks following their last appointment. **RESULTS** In total, 78 patients were recruited; 29 completed treatment as planned, with 18 completing a 2nd QoL, 27 are currently undergoing treatment, and 22 did not complete the treatment as planned. There was a statistically significant improvement in QoL following treatment (p value= 0.000). None of the factors assessed such as anxiety, gender, age group, sedation need and treatment complexity, could be used as a reliable predictor for QoL. Changing from high to low sedation need decreased the likely need for referring to GA (p< 0.05). **CONCLUSIONS** Rendering the child dentally fit improved their QoL. Regarding predicting treatment outcome or QoL, the data was inconclusive, although the study is ongoing in a larger sample. Using anxiety, gender, age group or sedation need could not accurately predict the treatment outcome of the child under sedation, though patients with moderate sedation need were not likely to need treatment under GA when compared to high sedation need. The same could be said about predicting baseline QoL scores.

O5.4 Chemical and biological properties of new nanostructured materials based on highly active calcium silicates

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AIM To analyse chemical and biological properties of new nanostructured materials, based on highly active calcium silicates with Bi_2O_3 (ALBO-MPCA1) and $BaSO_4$ (ALBO-MPCA2), as radiocontrast agents, in comparison to MTA+. **METHODS** Phase analysis of investigated materials before and after hydratation was performed by X-ray diffraction, while the morphology of the samples was studied by SEM. The pH measurements were performed using

a pH meter with combined electrode, while the amount of released ions was determined using ICP-OES. For biological investigation, 12 New Zealand white rabbits, divided into two groups, were used. Four calvary defects were created and filled with investigated materials or left empty (negative control) in each animal. **RESULTS** X-ray diffraction showed that active silicate phases were transformed into tobermorite phase, mostly consisted of agglomerates built up from nanoparticles, preferentially spherical, ellipsoidal and rod-like (SEM). All of the investigated materials acquired pH values above 11, with an increasing trend during time, except for MTA+. The amount of calcium and aluminium ion release decreased, while the amount of magnesium, bismuth (ALBO-MPCA1 and MTA+), and barium (ALBO-MPCA2) increased over the period of 21 days. After 30-days, according to the scale, bone formation results for MTA, ALBO-MPCA1 and ALBO-MPCA2 were: (2.50±0.55), (1.83±0.75) and (1.67±0.82); and after 60-days: (2.83±0.41), (2.83±0.41) and (2.33±0.82), retrospectively. No significant differences between investigated materials in both groups were noticed. **CONCLUSIONS** Both ALBO-MPCA1 and ALBO-MPCA2 enhanced favourable tissue responses and osteogenesis, and thus are very promising for potential application in dental practice.

O5.5 Is there any association between failed restorations in primary teeth and enamel defects in permanent successors?

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AIM To investigate the association of failed restorations in primary molars and dental enamel defects (DED) in the permanent successors. **METHODS** A total of 208 occluso-proximal carious lesions in primary molars were selected in 6-7 year old children. The cavities were restored using high viscosity glass ionomer cement, according to the atraumatic restorative treatment, in school grounds. Failed restorations were not repaired or replaced. In cases of pulp inflammation, extraction was indicated. The longevity of restorations and teeth were evaluated after 1, 6, 12, 18, 24, and 36 months. After 60 months, children were re-examined and the presence of DED was evaluated in the permanent successors. Logistic regression analysis (α = 5%) evaluated the influence of clinical factors such as dmft, cavity volume, jaw, molar (1st/2nd molar), presence of failed restoration with and without pulp inflammation and age of patient when pulp inflammation occurred. **RESULTS** At 36 months, the cumulative longevity of the restorations was 52.8% and the success rate of the teeth was 81.8%, meaning that in 18.2% of cases the restoration failure was associated with pulp inflammation. After 60 months, 147 children were re-evaluated (drop-out = 29.3%). From those, 11 (7.5%) presented DED in the permanent successor. There was no influence of any clinical variables tested on the occurrence of DED in the permanent successor teeth. **CONCLUSIONS** The presence of a primary molar with a failed restoration with or without pulp inflammation does not result in DED in the permanent successor teeth.

O5.6 Comparison of pulpotomy and direct pulp capping with MTA in carious primary molars.

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AIM To compare the clinical and radiographic success of pulpotomy (P) and direct pulp capping (DPC) of carious primary molars with MTA for the first year of a long term study at a University setting. **METHODS** Following ethical approval and parental consent, healthy, cooperative children aged 3-9 years, with at least one carious primary molar lesion radiographically approaching or contacting the pulp, randomly received either P or DPC with MTA (Medcem GmbH, Ch) after haemorrhage control. Pulp therapies and restorations were performed by 6 2nd/3rd year postgraduate students in the Paediatric Dentistry clinic under supervision by 2 faculty members, all previously calibrated. Clinical and radiographic follow-up was scheduled every 6 months. The analysis was based on two stage clustered models for binary outcome for the two follow-up periods reached. It was performed with the generalised estimating equations procedure (algorithm GENLIN) by SPSS 20.0 (significance at $p<0.05$). **RESULTS** In the 76 children so far followed-up (excluding 6 drop-outs), 57 teeth received P and 42 DPC. At 6 months, clinical success was P 100% and DPC 90.3%, whereas radiographic success was 94.3% and 87.5%, respectively (difference not significant: Wald ÷2(1)=0.901, p=0.343). At 12 months, clinical success was P 95.5% and DPC 80%, (difference not significant: Wald ÷2(1)= 2.022, p=0.155), whereas radiographic success dropped to 70% and 71.4%, respectively (difference not significant: Wald ÷2(1)=0.010, p=0.920). **CONCLUSIONS** DPC with MTA was not a statistically significantly worse option than MTA pulpotomy after one year, when performed by training paediatric dentists.

O5.7 Patient and parent satisfaction with the premolar auto-transplantation pre-surgical information.

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AIM To assess patient and parent satisfaction with the pre-surgical information received at the pre-surgical inter-disciplinary clinic for premolar auto-transplantation. **METHODS** Patient and parent satisfaction questionnaires were completed at the premolar auto-transplant pre-surgical inter-disciplinary planning clinic and at least six months after the auto-transplantation at the Leeds School of Dentistry between February 2015 and February 2016. **RESULTS** Twenty patient and parent questionnaires were completed at the pre-surgical stage, while 16 were completed post-surgery. At the planning clinic, all patients and parents were satisfied with the information received with regards to treatment options including premolar auto-transplantation with 85% of parents and 65% of patients expressing interest in a photographic information booklet of different auto-transplantation treatment stages. Following auto-transplantation, all parents remained satisfied with the information received regarding auto-transplant stages, while there was a 12.5% drop in patient satisfaction following treatment. A similar pattern existed with regards to the benefit of a photographic information booklet post-surgery with a drop of 15% in

patients' interest. All patients and parents were satisfied with the auto-transplantation post-operatively with 100% of parents and 87.5% of patients reporting that they would recommend the treatment to someone else. **CONCLUSIONS** Discussing treatment options including premolar auto-transplantation with patients and parents at a designated inter-disciplinary pre-surgical clinic was helpful in preparing patients and parents for the treatment. Development of a photographic information booklet was advocated by a majority of parents and patients.

O5.8 Evaluation of two methods of conscious sedation in children using nitrous oxide mixture (Entonox) and perorally administered midazolam

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AIM To compare children's coping with two methods of conscious sedation - inhalation nitrous oxide-oxygen mixture (N) and peroral intake midazolam iv solution (M). **METHODS** Parental informed consent was obtained for every sedation. Subjects were recruited from child-patients referred to the School of Dental Medicine. Inclusion criteria ASA I, II, no medical contraindications for N or M, intake of food and liquids limitation related to sedation (N or M). Frankl behaviour rating scale (F) was recorded during initial visit and after sedation (Outcome of sedation scale used for difference in F scores-OSS), presence of amnesia after sedation, type of procedure (restorations or extractions), dental status using dmft/DMFT, pain evaluation using Wong Baker faces scale (W). Parents were asked to complete a short questionnaire after sedation. Wilcoxon sign-ranked test (p=0.05) was used to compare study groups. **RESULTS** Altogether 129 children (66 M, mean age 5.07 years, 63 N, mean age 6.63 years) participated in the study. Satisfaction from sedation did not depend on sedation type p = 0.60. Parents should choose again the same type p = 1.90 e -14. Reasons for sedations were not dependent on sedation type p = 0.17. Pain score was higher in M (5.5) than in N (1.8); p = 5.72 e -07. Amnesia depended on OSS p = 0.02. OSS depended on sedation type and type of procedure p = 1.46 e -11. **CONCLUSIONS S**ignificant difference in children´s behaviour was observed when using two methods of sedation and dependency on accomplished procedure.

Session O6 - Dental Trauma/Endodontics

O6.1 Colour change in anterior permanent teeth treated with regenerative endodontic technique

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AIM To investigate colour changes in permanent non-vital immature teeth treated using an established Leeds Dental Institute regenerative endodontic technique (LDIRET) protocol. The protocol uses bi-antibiotic paste containing ciprofloxacin and metronidazole in order to disinfect the root canal system and Portland cement in order to provide a hermetic coronal seal. **METHODS** Non-vital infected immature teeth were treated using the LDIRET protocol by one clinician. Colour changes were measured using an objective digital camera system (IKAM). IKAM photographs were taken at baseline (immediately after treatment) and 12 months (10-18 months, mean= 13 months) following treatment. Using MATLAB software, colour changes over time (L*,a*,b* and ΔE) were measured using a validated objective method. **RESULTS** Following ethical approval and informed consent, 11 children (7-10 years, mean=8.5 years) were treated using LDIRET protocol as part of a prospective cohort. Over the 12 months, IKAM recorded a global colour change of ΔE=6.98 (SD=+/-3.64) with a mean change of L*=2.39 (lighter), a*=0.29 (redder) and b*=3.20 (yellower). Operator and software measurement errors were calculated at ΔE=0.62. **CONCLUSIONS** Over 12 months, there was a noticeable change with treated teeth becoming predominantly yellower and lighter in colour. The LDIRET protocol still causes noticeable colour change over time despite the removal of minocycline and Mineral Trioxide Aggregate. Enquiry into patients' perception and satisfaction will be undertaken at their next review visit.

O6.2 New strategies in the treatment of invasive cervical resorption-case series

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BACKGROUND Invasive cervical resorption (ICR) is a relatively uncommon form of external root resorption. Aetiological factors include trauma, orthodontic treatment, intra-coronal bleaching, and inflammation. There are two methods described in the literature for treating cervical resorption, non-surgical and surgical. **CASE REPORT(S)** Case 1: An 18-year-old male, after dental trauma showed an invasive cervical defect in the coronal aspect of his maxillary left central incisor. The resorptive tissue was removed by Er:YAG laser 2940 nm. Partially affected pulp was capped with MTA, restored with conventional glass ionomer cement and crown portion with hybrid composite resin. Cases 2 and 3: 17-year-old female and 18-year-old male with a pink spot in their mandibular left and right central incisor respectively. The clinical examination showed cervical resorption and loss of pulp vitality. After raising a full thickness flap, the resorptive tissue was again removed by Er:YAG laser 2940 nm. The teeth were endodontically treated and then restored. **FOLLOW-UP** Regular follow-up examinations were made for two

years after the first treatment. There was no evidence of pulpal or periapical pathology. **CONCLUSIONS** New strategies in the treatment of ICR involve a multidisciplinary approach. The proposed method gives opportunity to preserve vital pulp tissue when available and leads to good periodontal tissue healing.

O6.3 Analysis of after-hours traumatic dental injuries in Serbia

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AIM To analyse factors associated with after-hours dental trauma. **METHODS** Study sample consisted of 466 patients with 881 injured teeth during office-hours and the 494 patients which were gender and age matched with 881 injured teeth. Data were collected from dental trauma forms in four university dental clinics. Obtained data included: epidemiological and clinical data, time elapsed from injury to first dental treatment, treatment provided and occurrence of complications during follow-up. **RESULTS** Occurrence of hits as the mechanism of injury was significantly higher in the after-hours group ($p<0.01$). The statistically significant difference was observed in distribution of places of injury in regard to office or after-hours time of injury ($p< 0.001$). Accidental cause of injury was more common in office-hours group (41%), while sports injuries were more common in the after-hours group (28%) ($p<0.01$). Injuries with dislocation were more frequent in the after-hours group compared to office-hours group (63% vs. 47%, $p< 0.001$). Statistically significant difference between types of urgent treatment was observed between office-hours and after-hours group ($p<0.05$). **CONCLUSIONS** The significant difference was observed in distribution of mechanism, place, cause, types of injuries and urgent treatment provided between office-hours and after-hours traumatic dental injuries. This study was supported by the Ministry of Education, Science and Technological Development, project no 172026.

O6.4 School Bullying and Traumatic Dental Injuries in East London Adolescents

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AIM To explore the association between school bullying and traumatic dental injuries (TDI) among 15-16-year-old children from schools in East London. **METHODS** Data from phase III of the research with East London adolescents community health survey (RELACHS), a school-based prospective study of a representative sample of adolescents in East London, were analysed. Adolescents provided information on demographic characteristics, socio-economic measures and frequency of bullying in school through self-administered questionnaires. The children were also were clinically examined for overjet, lip coverage and the presence of TDI. The association between school bullying and TDI was assessed using binary logistic regression models. **RESULTS** The prevalence of TDI in the sample was 17%, while the lifetime and current prevalence of bullying was 32% and 11%, respectively. The prevalence of TDI increased with increasing frequency of bullying; from 16% among adolescents who had never been bullied at

school to 21% among those who were bullied in the past but not this school term to 22% for those who were bullied this school term. However, this association was not statistically significant in either crude or adjusted regression models; adjusted odds ratios were, respectively, 1.51 (95%CI: 0.83-2.76) and 1.16 (95%CI: 0.45-2.93). **CONCLUSIONS** The study found there was no evidence of an association between frequency of school bullying and TDI in this sample of 15-16-year-old adolescents in East London.

O6.5 Effect of LAI with EDTA and phytic acid on the removal of calcium hydroxide and triple antibiotic paste from root dentine.

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AIM To assess the efficacy of Erbium Chromium: Yttrium Scandium Gallium Garnet (Er,Cr:YSGG) laser activation (LAI) of ethylene diaminetetraacetic acid (EDTA) and phytic acid on the removal of calcium hydroxide (CH) and triple antibiotic paste (TAP) from root canals. **METHODS** Root canals of extracted maxillary incisors (n=80) were instrumented using rotary files, and thereafter, were split longitudinally. Following preparation of a standardised groove in the apical region of one root half, the roots were randomly divided into two groups according to the intra-canal medicaments placed into the grooves: 1: CH and 2: TAP. The roots were reassembled, and the specimens were further assigned into four groups (n=10/group) defined by the final irrigation solution (EDTA and phytic acid) and irrigation technique (needle irrigation and LAI) used for removal of the medicaments. The data was analysed statistically using Kruskal–Wallis and Mann–Whitney tests. **RESULTS** For both EDTA and phytic acid, LAI was more efficient than needle irrigation in removing both CH and TAP ($p<0.05$), but none of the tested techniques completely removed CH. Irrespective of the tested irrigation solutions and techniques, significantly less TAP remained in canals ($p=0.0001$), with TAP being completely removed by LAI. Irrigation with phytic acid showed better removal efficacy than EDTA in the absence of statistical significance. **CONCLUSIONS** Er,Cr:YSGG laser-activation of EDTA and phytic acid completely removed TAP and effectively reduced CH in root dentine.

O6.6 Evaluation of MTA pulpotomy for carious exposure in primary teeth

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AIM To evaluate the success of MTA pulpotomies clinically and radiographically conducted to treat carious and mechanical pulp exposure. **METHODS** This was conducted with 50 mandibular primary molar teeth (19 first molars, 31 second molars) in 33 children (18 girls, 15 boys) aged 6-9 years. Teeth were divided into 2 groups according to status of the exposure site, with teeth surrounded by carious dentine in a carious exposure group and those surrounded by sound dentin in a mechanical exposure group. MTA pulpotomies were performed for both groups. Treatment was followed-up clinically and radiologically for 24 months. Pulp canal obliteration was not considered to represent treatment failure. **RESULTS** Clinical and radiographic success rates at 24 months were 100% for both groups. Success rates did not vary significantly between the groups ($p=1.000$). In the carious exposure group, pulp canal obliteration was observed in 2

teeth (8.3%) at 6 months, but the teeth were stable at 24 months. **CONCLUSIONS** The prognosis of vital pulpotomy for carious exposure is unpredictable due to the difficulty in assessing the severity and extent of pulpal inflammation. The findings indicate MTA to be preferable for long-term success of pulpotomies in primary teeth. It is also indicated that treatment prognosis is dependent upon choosing the right material for treatment.

O6.7 Revascularisation of immature permanent teeth: an alternative to the apexification. Indications and protocol.

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AIM To review articles on revascularisation of immature permanent teeth, to identify its indications and to determine a simple and clear protocol, then illustrated by a case report. **METHODS** An electronic search was performed using three databases: PubMed, Cochrane Library and Embase. Data were collected using keywords related to "apical periodontitis", "immature teeth", "apexification", "revascularisation", "treatment necrotic tooth", "stem cell", "regenerative" and "endodontics". Papers were selected after a review of their title, abstract and full text. Non-English articles and irrelevant studies were excluded. A manual research completed this electronic search. **RESULTS** Following the search 21 studies were selected. The indications depend on the age and general health of the patient and on the clinical situation. Regarding the protocol, issues discussed were: hypochlorite concentration (from 1% to 5.25%), intra-canal medication (calcium hydroxide or antibiotic paste), session number, scaffold use (or not), coronal sealing material (MTA® or Biodentine®). **CONCLUSIONS** This literature review allowed production of a decision-tree to indicate (or not) revascularisation in the treatment of immature teeth, and to suggest an optimal protocol, illustrated by a case report.

O6.8 Short-term treatment outcomes of pulpotomies in primary molars: A pilot study

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AIM To compare the outcomes of primary tooth pulpotomies using white mineral trioxide aggregate (MTA) cement or Biodentine (BD). **METHODS** A total of 20 teeth were randomly divided into two pulpotomy groups (BD and MTA). The teeth in each group were cleaned with 2.5% NaOCl moistened sterile cotton pellets for 1 minute prior to application of the respective pulpotomy materials. The treatments were followed clinically and radiographically for 6-12 months. The following criteria were used for the determination of clinical and radiographic success of pulpotomies: (1) absence of spontaneous pain and/or sensitivity to palpation/percussion; (2) absence of fistula, swelling, and/or abnormal mobility; (3) absence of radiolucencies at the inter-radicular and/or periapical regions, as was determined by conventional periapical radiographs taken at all control appointments; (4) absence of pulp canal obliteration (fully obliterated canals); (5) absence of internal or external pathologic resorption The chi-square test was performed for data analysis. **RESULTS** The radiographic and clinical

success rates were 100% for MTA and Biodentine groups. There were no significant differences between the radiographic success rates in both groups. **CONCLUSIONS** Use of sodium hypochlorite as an antibacterial agent prior to application of the pulpotomy material may improve the success rates of pulpotomies up to 12 months. Long term clinical and histological studies and larger experimental groups are required to evaluate the outcomes of pulpotomies.

Session O7 - Dental Anomalies/Miscellaneous

O7.1 Molar incisor hypomineralisation (MIH): knowledge of general dental practitioners in the Netherlands

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AIM To assess the knowledge of general dental practitioners (GDP) concerning MIH. **METHODS** A questionnaire was sent by email to a representative sample of dentists in the Netherlands. The questionnaire aimed to retrieve the GDP's knowledge about MIH, the considerations with regard to the treatment of MIH and the confidence of the dentists in diagnosing and treating MIH. The results were analysed using chi-square tests and Mann-Whitney U tests (α=5%). **RESULTS** Of the 910 dentists 191 (21%) returned the questionnaire. Of these respondents, 47.2% were not familiar with the international term MIH. Of those who claimed to be familiar with the term MIH, only 31.8% were able to give the correct term. The misdiagnosis of MIH, based on 6 different oral photographs, varied between 2.4% and 82.4% and was mostly present in cases of the hypoplastic type of amelogenesis imperfecta (60.1% - 82.4%). With respect to MIH treatment, 32.9% of the dentists always or sometimes referred patients to colleagues; 73.6% of these referrals were to paediatric dentists. Treatment problems were reported by 51.3% of the dentists. Of these problems 36.4% pertained to local anaesthetics and 53.2% to rapid caries progression. To receive additional information about MIH was appreciated (77.1%), preferably through web seminars or dental journals. **CONCLUSIONS** The results showed that MIH knowledge among GDP leaves room for improvement. Postgraduate training courses for general practitioners in the Netherlands should cover the topic of MIH, including the difference with other enamel disturbances.

O7.2 Molar incisor root malformation in four Norwegian children

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BACKGROUND The term molar incisor root malformation was recently presented in scientific literature, describing a condition where the crowns of first permanent or second primary molars were normal, while root development was seriously impaired. Also, cervical constrictions on incisors were described. We present four patients recently diagnosed in the Department with similar history and dental conditions. **CASE REPORT(S)** All four patients demonstrated small roots on their first permanent molars, and two had cervical constrictions on their maxillary incisors. The patients were 6-9 years old, presently healthy, but had suffered from serious medical conditions located to the head and neck region within their first year of life. One of the cases, a nine year old girl, was referred because of painful lower first molars. Radiographs showed marginal and/or apical bone destruction and signs of periapical infection, a narrow pulpal cavity and one slim root apical to a cervical constriction. She had a brain blood

clot immediately after birth, and experienced epileptic seizures up to the age of seven years. The lower molars were extracted as endodontic treatment was considered impossible. Post-extraction examination confirmed a developmental malformation and not a resorptive process. **FOLLOW-UP** These cases need to be followed closely, and extractions should be planned at the right time to avoid unnecessary pain from infections in addition to orthodontic problems. **CONCLUSIONS** Severe health problems early in life related to the head and neck area seem to be associated with root malformation in molars and incisors in some children.

O7.3 Management of four developmental defects of enamel associated with vitamin D deficiency. A case series.

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BACKGROUND Vitamin D deficiency in childhood can affect the process of amelogenesis leading to different forms of developmental defects of enamel (DDE) known as chronological enamel defects. Both hypoplastic and hypomineralised forms can be seen. **CASE REPORT(S)** All children complained of dental sensitivity ranging from mild to severe caused by different stimuli. Two patients reported aesthetic concerns with anterior teeth. Clinical and radiographic examination of children`s teeth revealed hypoplastic enamel defects with various degree of post-eruptive breakdown. Two patients were in their primary dentition stage, one in mixed and one in permanent dentition. No family history of similar conditions was reported. Comprehensive dental treatment under LA and GA for the affected teeth was provided. The treatment included restoration of moderate and severe defects with composite fillings and preformed metal crowns. Teeth with poor prognosis were extracted. **FOLLOW-UP** 18-24 months follow-up is reported. **CONCLUSIONS** Management of children with DDE requires interpretation of multiple factors and the treatmenent plan individualised for each patient In some cases, especially with severely affected teeth, a multidisciplinary approach is an essential prerequisite for planning short and long-term dental care.

O7.4 Bonding to amelogenesis imperfecta affected teeth: a systematic review and an ultrastructure study.

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AIM To systematically review the published studies on bonding to AI-affected teeth and to carry out an ultrastructural study. **METHODS** A systematic electronic search was performed using the PubMed and Cochrane Library databases. Data were collected using keywords related to "amelogenesis imperfecta", "bonding", "bond strength", "adhesive treatment", "composite resins", "human teeth" and "microscopy", without time limit. Papers were selected after a review of their title, abstract and full text. Case reports, reviews, non-English articles and studies using non-human teeth were excluded. The included articles were based on: bonding to AI-affected enamel and dentine. Manual screening was conducted on the bibliographies of the remaining papers to identify relevant articles. Besides, scanning electron microscopy (SEM) and focused ion beam (FIB) images were performed. **RESULTS** Most of the studies were in vitro

studies, only one was an in vivo study. They suggested to pretreat AI-affected enamel with sodium hypochlorite or to use self-etching adhesives. The SEM and FIB images helped to discuss these proposals. **CONCLUSIONS** Bonding to AI-affected teeth remains a challenge. Protocol optimisation has been suggested, however further studies are needed to validate, adapt or change them.

O7.5 Measuring the influence of telescopic Galileo system on visual acuity of paediatric dentists in a simulated clinical environment

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AIM To compare visual acuity of paediatric dentists without optical aids (VSC) and with use of the Galilean telescope system (VGA2) with 2.5x magnification and distance of 350 mm in simulated working clinical conditions. **METHODS** The study included 50 paediatric dentists (central visual acuity 1.0). Cavity preparations were made in dental phantoms' molars. Snellen visual test was placed in the preparations in order to simulate visualisation in vivo. Visual acuity for the vicinity was examined in two ways: a) without correction at a distance of 300-400 mm, and b) with Galileo's telescope with 2.5x magnification, with focal length of 350 mm. **RESULTS** The distribution of visual acuity recorded using VSC and VGA2 were compared by the Wilcoxon signed rank test. Results indicated a statistically significant difference in the distribution of recorded visual acuity between VSC and VGA2 ($W = -403.5$; $p < 0.001$). **CONCLUSIONS** Using VGA2 system, higher values of visual acuity were recorded compared to natural vision without magnifying aids (VSC). Using a telescopic system is beneficial especially in paediatric dentistry because of specific work conditions and a smaller work field in young patients.

O7.6 A cross-sectional study comparing parental and child versions of CFSS-DS in 4-12 year old Greek children.

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AIM To compare the parental and child` versions of the children`s fear survey schedule-dental subscale (CFSS-DS) in 4-12 year old Greek children and to study possible factors affecting their agreement in measuring children`s dental fear. **METHODS** After approval by the ethics committee, 566 families seeking dental care either at a university clinic (48.2%) or at a private practice with 1-3 children that participated in the study (a total of 652 children). Each parent independently completed a questionnaire consisting of demographics and the parental Greek version of the CFSS-DS, and the child independently completed the child Greek version of CFSS-DS. The analysis of the total mean score (CFSSts) was based on multilevel models with family as a random factor (IBM Statistics SPSS 20.0), and statistical significance set at $p<0.05$. **RESULTS** There was no significant CFSSts difference between the mother and father`s scores ($p=0.321$). However, the parents` mean scores were significantly higher than their children`s ($p<0.01$). Girls had higher scores than the boys ($p=0.047$). The gender of the child did not affect the

results about parents. The parents` and the child`s age did not interact with the CFSSts differences among the members of the family (p=0.353). However, younger children`s (p<0.001) and younger mothers` (p=0.018) mean CFSSts were significantly higher; the fathers` age was not related to mean CFSSts. There was no significant differences between dental settings (p=0.920). **CONCLUSIONS** Mothers and fathers estimate their children`s dental fear to be higher than their children state themselves.

O7.7 Oral health status in children with asthma

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Aim: To investigate oral dental findings and determine the oral health status of children with asthma. **METHODS:** A random sample of 50 asthmatic children, aged 6-12 yrs old (24 girls and 26 boys) undergoing treatment in the Department of Paediatric Pulmonary Diseases of Marmara University, and 50 healthy control subjects matched for age and gender were selected. An interview including questionnaires to parents assessed diet (episodes of sugar intake) and oral hygiene habits of fluoride/toothpaste usage and frequency. Following intra-oral examinations, DMFT and dmft scores of both groups were recorded as well as plaque and gingivitis which were also assessed. **Results:** A higher DMFT score among asthmatics of 1.2±1.8 (SD) and 0.3±0.8 among non-asthmatic patients (p<0.05) was observed. Comparison of dmft scores between the two groups showed no significant difference. Symptoms of dry mouth were more frequently severe in asthmatics than the control group. Asthmatic children had more bleeding, gingivitis and a higher consumption of sugary drinks than healthy children (p< 0.05). The asthmatic group of children were more frequently mouth breathers than healthy children (p< 0.05). Average daily F-toothpaste brushings did not differ between groups. Other oral hygiene habits (mouthrinses, F-gels etc) were not different between groups (p>0.05). **CONCLUSION:** Children with asthma at 6 years to 12 years of age have a higher caries-susceptibility compared with children without asthma. Children with asthma have a higher prevalence of bleeding, gingivitis, a higher intake of sugary drinks and are more frequently mouth breathers than children without asthma.

Session O8 Oral Medicine & Pathology/Special Needs Patients/Syndromes & Genetics

O8.1 Oral lesions in Brazilian children and adolescents: a retrospective study

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AIM To describe the most common oral lesions biopsied in children and adolescents aged 7-19 years. **METHODS** In this retrospective study data was obtained from 14,714 biopsies received over 15 years in the Oral Pathology Service, São Leopoldo Mandic Institute and Research Center, Campinas, Brazil. The data were revised and compiled for age, gender and histopathological diagnosis. The patients were divided into 2 age groups: 7-12 years and 13-19 years. The lesions were compiled into 10 diagnostic categories. Data were analysed by Mann-Whitney, Chi-square and Fisher`s exact tests. **RESULTS A total of** 836 biopsied oral lesions from paediatric patients were compiled. The majority of the lesions occurred in the second age group of patients and oral lesions increased with age (Chi-square, $p<0.0001$). There was no significant difference between male and female patients (Chi-square, $p>0.05$). The diagnostic category with the largest number of lesions was salivary gland pathology (32.9%), followed by traumatic, reactive and inflammatory lesions (20.3%) and odontogenic cysts (12.6%). In addition, the most frequently diagnosed lesion was mucocoele. **CONCLUSIONS** This survey shows that the results are similar to those reported in the literature regarding oral lesions commonly found in children and adolescents. Most oral lesions were diagnosed as benign and only a very small part of the sample consisted of malignant cases.

O8.2 Anaesthetic efficacy of articaine versus lidocaine in children. An equivalence parallel, randomised, controlled trial

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AIM To carry out an equivalence randomised controlled study, in order to evaluate and compare the anaesthetic efficacy of mandibular infiltration using 4% articaine (1:100,000 epinephrine) with mandibular nerve block using 2% lidocaine (1:80,000 epinephrine) in the extraction and restoration of mandibular primary molars. **METHODS** In total 98 children aged 5–9 years old were randomly assigned into two groups: (treatment group) received mandibular infiltration combined with inter-papillary infiltration with 4% articaine; (control group) received an inferior alveolar nerve block with 2% lidocaine. A single operator gave all local anaesthetic injections. The presence/absence of pain as well as the child's behaviour during the injection and treatment procedures was assessed using the Wong-Baker faces rating scale (W-BFRS), the visual analogue scale (VAS) and Frankl behaviour scales. **RESULTS** During the injection phase the absolute differences between the two anaesthetic techniques using W-BFRS VAS and behaviour

scales was zero (no difference), 0.060 (95% CI -0.110 to 0.230) and -0.080 (95% CI -0.190 to 0.030) respectively. During the treatment phase, the absolute difference were -0.020 (95% CI -0.180 to 0.140), -0.040 (95% CI -0.220 to 0.150) and zero (no difference). The equivalence margin was set at ± 0.2. **CONCLUSIONS** The results indicated that both 4% articaine used as buccal infiltration and 2% lidocaine used as inferior dental nerve block provided similar efficacy. It would be acceptable to carry out invasive dental treatment for mandibular primary molars with the administration of infiltration using 4% articaine as an alternative to the traditional method of inferior dental block using lidocaine.

O8.3 Evaluation of in vitro cytotoxicity of root repair materials on 3T3 cells

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AIM To assess and compare the cytotoxicity and the gelatinolytic activity of MMP-2 and MMP-9 produced by 3T3 fibroblasts after stimulation with seven different endodontic materials. **METHODS** 3T3-fibroblasts were incubated directly with ortho MTA, retro MTA, Bioaggregate, Biodentine, MTA plus, MTA Angelus and MTA Cerkamed for 24 hours and 7 days. The cytotoxicity was determined using an MTT assay. Gelatin zymography was performed to determine the activities of MMP-2 and MMP-9. The Kruskal-Wallis test was used to compare the results between groups. The Mann-Whitney post hoc multiple comparisons U test was used to assess the causes of differences between groups. Data were analysed for each group using the Wilcoxon sign test. The significance level used was $p<0.01$. **RESULTS** The difference of mean cell viability after 1 day and 7 days was significantly different ($p:0.003$; $p<0.01$). Biodentine revealed the lowest level of cell viability compared with the other materials on both days. Ortho MTA, MTA Cerkamed, and MTA Plus induced a significant reduction in cell viability. However, Bioaggregate showed increased cell viability. Specific characteriation of MMPs in cell culture demonstrated that MMP-2 (62kPa) in the cell culture supernatants by gelatin zymography showed induced expression in 4 out of 7 groups. No MMP-9 expression was observed. **CONCLUSIONS** The results of the present study showed that ortho MTA and Biodentine had minor cytotoxicity. No cytotoxicity was observed with retro MTA, Bioaggregate, MTA Angelus, MTA plus, and MTA Cerkamed. However, Bioaggregate showed better cell viability compared with other MTA-derived materials.

O8.4 **Management of oral graft-versus-host disease (OGvHD) in the paediatric patient**

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BACKGROUND Caused by a set of immunologically-mediated reactions by cells genetically disparate to the transplant recipient, graft-versus-host–disease is a potential complication following an allogeneic bone marrow or stem cell transplant. Although oral manifestations are reported in up to 90% of patients with graft-versus-host disease, little literature exists which documents management protocols in the paediatric patient. This case report describes the management of OGvHD in two paediatric patients. **CASE REPORT(S)** Two children (Child A: Male 2-years-old; Child B: Female 6 years-old) with confirmed OGvHD resulting in oral pain and ulceration were referred to the Department of Paediatric Dentistry. Intensive dental prevention regimens, topical antiseptic mouthrinses and courses of oral low level light therapy (LLLT) were prescribed for both children. Child B also received adjunctive oral topical corticosteroid therapy. Both children reported symptomatic relief following LLLT. **FOLLOW-UP** Both patients continue to have regular dental and medical follow-up. Child A is now 2 years post-transplant and OGvHD symptoms have resolved. Due to significant systemic disease, child B continues to undergo regular treatment with courses of LLLT as required, to manage any acute exacerbation of her OGvHD. **CONCLUSIONS** LLLT, as described in this case report, has been shown to significantly relieve patient oral discomfort and aid healing in children with OGvHD. This report highlights the need for more research into both the management of OGvHD in the paediatric patient and further applications of LLLT.

O8.5 **Parents` perceptions on dental care of Dutch children with autism spectrum disorder**

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AIM To assess if Dutch children with autism spectrum disorder (ASD) regularly visit a dentist and to evaluate the satisfaction of their parents with the dental care provided. **METHODS** Parents or caregivers of ASD children aged between 2 and 18 years old were invited to complete a survey. The invitation was performed online, using Dutch ASD communities, and face to face during ASD conferences. The survey consisted of questions regarding severity of ASD, frequency of dental visits, history of dental pain, type of dental practice and parents` satisfaction related to dental care provided. Results were analysed using Chi square tests (á=5%). **RESULTS** Of the 232 returned questionnaires, 19 were excluded because they were incomplete or the child didn`t have an ASD diagnosis confirmed. All of the children had visited a dentist at least once. For 6% of the children the last visit was more than 12 months ago. Parents reported that 16% of the children did not receive proper dental care when they had a toothache and 20% of the parents stated they were not satisfied with the dental care their child currently receives. Chi-square tests showed no difference between satisfied and unsatisfied parents for gender of the child, severity of ASD and type of dental practice ($p>0.05$). The children of unsatisfied parents reported more often pain during the last year ($p=0.017$).

CONCLUSIONS The majority of Dutch ASD children investigated regularly visited a dentist and 20% of the parents were not satisfied with the dental care provided for their child

O8.6 Oral health status in patients with mucopolysaccharidoses

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AIM To evaluate oral health status of patients with MPSs. **METHODS** Mucopolysaccharidoses (MPSs) are a group of lysosomal storage disorders caused by deficiency of different lysosomal hydrolases required for glycosaminoglycan (GAG) catabolism. Impaired degradation of GAG leads to GAG accumulation in various tissues and biological fluids causing a wide range of severe clinical manifestations. All patients with MPSs were referred to Hacettepe University, Faculty of Medicine from the Section of Paediatric Metabolism. All patients were evaluated by oral clinical examination but only 12 patients were evaluated radiologically. **RESULTS** A total of 30 patients (17 males and 13 females) were evaluated, with the ages ranging from 4 to 27 years. On oral clinical examination of patients delayed tooth eruption, open bite and diastemas were observed. Radiographically, molar taurodontism, root dilacerations, enlarged dental follicles, short mandibular ramus, alterations of condyle, mandibular ramus, flat mandibuler notch and styloid ligament were observed. The prevalence of dental caries was found to be 90%. DMFT, DMFS, dmft and dmfs indices of all patients, and gingival (GI) and plaque indices (PI) of 21 patients were evaluated. The mean of DMFT, DMFS, dmft, dmfs, PI, GI indices were recorded as 2.12±3.33; 2.94±4.59; 5.27±3.37, 13.77±13.86, 1.0±0.48, 1.22±0.65 respectively. Some 43% (13/30) of the patients did not own a toothbrush and they reported having never brushed their teeth. **CONCLUSIONS** Different oral findings can be encountered in patients with MPS. Disturbances in oral health may lead to other health problems.

O8.7 Striking abnormal tooth shape and hypodontia in undiagnosed XLHED twins. The role of the paediatric dentist.

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BACKGROUND Ectodermal dysplasia (ED) is a group of disorders characterised by abnormalities in two or more ectodermal structures (skin, nails, hair, teeth). A common type is the X-linked hypohidrotic ED (XLHED) presenting with full expression in males, while females are heterozygous with frequently minor defects. Patients may have defective EDA1 genes on the X chromosome. The main characteristics are hypodontia and small pointed teeth, hypotrichosis, hypo/anhidrosis and asteatosis. Two cases with XLHED, with long term follow-up, are presented. **CASE REPORT(S)** Twin sisters aged 8 years old, with uneventful medical history, were referred due to the unusual shape of their teeth. The patients presented small pointed anterior and posterior teeth in both dentitions and hypodontia. In both cases, mandibular 2nd molars and 2 or 3 second premolars were missing. Additionally, hypotrichosis was evident in both patients. Provisional diagnosis of XLHED was recorded and the unaware family was referred for genetic testing and evaluation that confirmed the diagnosis. Patients undertook

the required dental treatment and then were referred for orthodontics. **FOLLOW-UP** Seven years later, the patients are under regular dental preventive recall schedule and the required orthodontic treatment is almost completed. Wisdom teeth appear also to be missing. Aesthetic restorations of the anterior pointed teeth will be performed following the completion of the orthodontic treatment. **CONCLUSIONS** The XLHED may be presented with mild medical manifestations especially in females. Therefore, the paediatric dentist should be aware of the disorder, as dental abnormalities might be the first clinical sign guiding parents to seek help.

O8.8 Parental oral health knowledge and oral findings in children with Prader-Willi syndrome in Ireland

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AIM To carry out oral assessment of children with Prader-Willi syndrome (PWS) and to assess the parents' oral health awareness with a questionnaire. **METHODS** Following ethical approval, 21 children (aged 1 to 18 years) were examined in a tertiary hospital setting. Parents completed a previously validated questionnaire prior to dental examination. The following aspects were assessed: overjet, overbite, saliva quantity and quality, visual caries, restorations and attrition. The body mass index (BMI) and history of obstructive sleep apnoea (OSA) were recorded. The data collected was used to ascertain whether there was a correlation between the patients BMI, saliva, parents' oral health awareness and their caries status. **RESULTS** Caries was noted in 24% of patients and the estimated clinical dmft/DMFT range was 1 - 3.3. However, the majority of patients (86%) with caries/past caries experience also had an increased BMI and 43% were deemed to have inadequate saliva. OSA had been diagnosed in 67% of children and 79% of those with OSA were also noted to have a malocclusion. Attrition was recorded in 38% of patients. Parental oral health knowledge was rated average to poor in the majority of parents of children with caries (71%). **CONCLUSIONS** Early and regular dental visits should be mandatory for children with PWS and this should be emphasised to the medical team who care for them. Prevention of caries in these children is essential as management under general anaesthesia can prove challenging. Children with clinically inadequate saliva, OSA or an increased BMI are at higher risk of developing caries.

Session O9 - Prevention

O9.1 Evaluation of different remineralisation agents in the treatment of incipient enamel lesions in primary and permanent teeth

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AIM To compare the efficacy of different remineralisation agents on remineralisation of artificial caries lesions and to evaluate density, reflection of apatite and crystal size of the newly formed remineralised structure in primary and permanent teeth in vitro. **METHODS** Caries-free permanent and primary molars, were divided into seven groups (n=20): G1-Deionised water, G2-Colgate Cavity Protection, G3-Sensodyne Rapid Relief, G4-GC MI Paste Plus, G5-Clinpro Tooth Creme, G6-Clinpro 5000, G7-Sensodyne Repair and Protect. pH cycling was performed on artificial enamel caries of the samples for 28 days. Agents were applied twice a day. Samples were evaluated using DIAGNOdent, polarised light microscopy and X-ray diffraction. **RESULTS** Greatest decrease in DIAGNOdent measurements was observed in G6 for both primary and permanent teeth. In permanent teeth, there were no significant differences between G2, G4, G5 and G6. Also, in primary teeth, no significant differences were observed between G4 and G6 ($p>0,05$). With polarised light microscopy, depth of caries lesions were found to be lower in G6 than the other groups. No significant differences were observed between G2, G4 and G6 ($p<0.05$). XRD evaluation showed that the most intensive and high quality crystallographic values after remineralisation was detected for G6 for both primary and permanent teeth. **CONCLUSIONS** This in vitro study demonstrated that Clinpro 5000 seems to be more efficient in remineralisation of incipient enamel lesions than the other agents.

O9.2 Salivary factors modifying dental erosion in children

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AIM To identify the salivary risk indicators of dental erosion in children. **METHODS** This is a cross-sectional case-control study. A sample of 1,320 healthy 6-14 year old schoolchildren were examined. A total of 113 children were diagnosed with dental erosion. An age and gender matched 113 children were randomly selected as a control group. Stimulated and unstimulated whole saliva samples were collected from all participants and examined for flow rate, pH, buffering capacity and consistency. Samples were analysed for total protein and calcium and phosphate content. Data was statistically analysed using Chi square and t-tests. A final multivariate logistic model was constructed to explore possible salivary risk markers with dental erosion. **RESULTS** The mean unstimulated and stimulated salivary flow rates, pH, phosphate and protein concentration were not significantly different between the study and the control groups ($p>0.05$). In the study group significantly more subjects had viscous saliva ($p=0.05$) and

lower buffering capacity (p=0.007). The calcium content in stimulated saliva was significantly lower in the study group (p=0.02), otherwise phosphate and protein content were almost similar in both groups. Flow rate of stimulated saliva was significantly lower in severe cases of erosion and correlated well with the number of eroded teeth (p=0.04, 0.003). Multivariate analysis identified viscosity, salivary pH, low and moderate buffering capacity and reduced calcium concentration as risk indicators of dental erosion in children. **CONCLUSIONS** Stimulated saliva consistency, pH, buffering capacity and calcium concentration are risk indicators for dental erosion in children.

O9.3 Effect of a new fluoride varnish in preventing enamel erosion

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AIM This was to investigate the effect of a fluoride varnish with added casein phosphopeptide-amorphous calcium phosphate (CPP-ACP) treatment on the prevention of enamel erosion and compared to the results of other fluoride varnishes. **METHODS** Fifty enamel specimens obtained from bovine incisors were randomly divided into five groups (n=10) according to surface pretreatment: intact enamel (Grp 1); intact enamel+erosive cycles (Grp 2); intact enamel+MI varnish+erosive cycles (Grp 3); intact enamel+Clinpro White varnish+erosive cycles (Grp 4); intact enamel+Duraphat varnish+erosive cycles (Grp 5). Specimens were stored in artificial saliva at 25°C for 6 h and varnish was then carefully removed with a plastic scaler. Specimens were immersed in 1.0% citric acid (pH=3.6), using separate containers (10 mL/specimen), for 90 seconds 4 times/day. Specimens were rinsed thoroughly with deionised water and immersed in artificial saliva (pH=6.8) for 2 hours between erosive challenges and overnight. The surface roughness was evaluated by atomic force microscopy. Results were statistically analysed by one-way ANOVA and Tukey's tests. **RESULTS** The mean surface roughness values in each group initially were not significantly different (p>0.05). Grp 1 had the smoothest surfaces. After erosion cycling, the greatest surface roughness values were observed for Grp 2, followed by groups 5, 4 and 3 respectively. Statistically significant differences were observed among all groups (p<0.05). **CONCLUSIONS** It was concluded that the application of fluoride varnish had some positive effects on preventing enamel erosion; however the most effective agent was fluoride varnish with added CPP-ACP.

O9.4 Withdrawn

O9.5 Association of non-rinsing after toothbrushing and caries increment in school children: a cluster randomised clinical trial

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AIM To explore the association between non-rinsing with water after toothbrushing with fluoridated toothpaste and caries increment in school children. **METHODS** A total of 122 5th- and 6th-graders of two primary schools, regularly provided with 1450 ppm F toothpastes (6+ Colgate Toothpaste, Colgate Palmolive), were included in a 3-year cluster randomised blinded clinical trial. Test group children received regular instructions not to rinse after toothbrushing; control group children received no specific rinsing instructions. ICDAS was used for caries detection. For statistical analysis, t-test and logistic regression were used. **RESULTS** At the age of 11.2 (SD 0.6) years, the baseline mean D3MFT and D1MFS values were 1.4 (SD 1.8) and 5.3 (SD 4.7). The mean 3-year D3MFT increments in test and control groups were 1.0 (SD 1.4) and 1.5 (SD 2.1), respectively. The corresponding values for D1MFS increments were 5.7 (SD 6.0) and 6.8 (SD 7.1), respectively. The differences were not statistically significant. A borderline statistical significance between the groups was detected only for D3MFT increments in canines, premolars and second molars: 0.6 (SD 1.0) vs. 1.0 (SD 1.7) (p = 0.086). premolars and second molars: 0.6 (SD 1.0) vs. 1.0 (SD 1.7) (p = 0.086). For the presence of D3MFT increment, a multivariate regression model showed significant associations with regular fluoride gel application (OR 0.27, 95%CI 0.10–0.74, p = 0.010) and baseline caries experience (%D1MFS), affecting ≥ 8% of tooth surfaces relative to the reference value 0–2.1% (OR 7.69, 95%CI 2.05–28.85, p = 0.002). **CONCLUSIONS** In children, regularly instructed not to rinse after toothbrushing with fluoridated toothpaste, non-significantly lower 3-year caries increments were observed.

O9.6 Determinants of oral self-care practice in adolescents after the social learning theories guided dental education

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AIM A cluster randomised trial sought to identify determinants of oral self-care practice (OSC-P) in adolescents after two types of dental preventive instructions. **METHODS** A total of 206 children aged 15-16 years from four schools agreed to participate (recruitment rate 81.1%). Two schools were randomly allocated into a control group which received a one-time conventional dental instruction, and the other two schools into an intervention group that received five individualised dental instructions. The following determinants were tested: oral self-care skills (OSC-S), socio-demographic characteristics and a number of psychological characteristics. OSC-P/OSC-S were measured as % oral cleanliness scores at the baseline, 6-months and 12-months observations. Complete data from 147 adolescents (follow-up rate 71.4%) was available for the analyses. **RESULTS** Several significant determinants were found in bivariate analyses but their patterns emerged through testing of linear multiple regression models. At 6 months, the significant determinants of OSC-P were: the type of dental instruction (β=0.458, p<0.001), baseline OSC-S (β=0.450, p<0.001) and self-efficacy motivation (β=0.211, p=0.001). At 12 months, the significant determinants of OSC-P were: type of dental instruction (β=0.196, p<0.001), baseline OSC-P levels (β=0.590, p<0.001) and 6 months OSC-S (β=0.361, p<0.001). **CONCLUSIONS** The most important determinants of OSC-P were: the type of dental instruction, baseline/6 months OSC-P OSC-S and self-efficacy motivation. Findings revealed a

necessity to establish adequate oral self-care skills in adolescents in order to facilitate their good oral self-care practice.

O9.7 The comparison of caries risk factors in 1 year old infants with very low birth weight and physiologic birth weight.

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AIM To identify caries risk factors and cariogenic bacteria in 1 year old infants delivered prematurely with very low birth weight (VLBW) and in their full term (FT) peers. **METHODS** Altogether 189 of 1 year olds (102 VLBW and 87 FT) were included in the study. Children were examined clinically and unstimulated saliva was taken from both children and their mothers. Cariogenic bacteria were identified using cultivation and serological techniques. Chi^2 and Pearson tests were employed for the statistical analysis ($p<0.05$). The ethical committee approval and parents´ informed consent were obtained. **RESULTS** Bed time sugar drinks and no oral hygiene onset were significantly more frequent in VLBW compared to FT group (38% vs. 23% and 25% vs. 17.2% respectively). No statistical differences in the proportion of S. mutans among other streptococci in VLBW and FT children were found, S. viridans (47.8% vs. 38.9%) and S. sanguinis (30.7% vs. 43.5%) being the most frequently identified streptococci. S. mutans prevalence (13.2 vs 48.8%) was significantly lower in VLBW compared to FT children. The proportional growth of S. mutans among other streptococci in mother-child pairs correlated significantly in both VLBW and FT children. S. mutans serotypes (c, e, f or k) nearly perfectly matched (kappa 0.832) in both VLBW and FT mother-child pairs. **CONCLUSIONS** This study confirmed the higher prevalence of caries risk factors in VLBW children and early acquisition of cariogenic bacteria in both VLBW and FT children. The above risk factors identification is important for caries risk assessment in early childhood. Supported by IGA MZCR, NT-14336-3.

O9.8 Dental caries status of children and their parents' willingness to invest in children's oral health

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AIM To investigate the relationship between parents' willingness to invest in their child's oral health (pwti) with oral hygiene behaviours (OHB), the children's dmft, the mothers' level of education and ethnicity (Dutch or immigrant). **METHODS** Dmft scores of 630 children aged 6-years from six paediatric dental centres in the Netherlands were extracted from their dental records. A parental questionnaire collected data on level of education, ethnicity, OHB and pwti. Three components of pwti were measured: 1) in terms of money (euros/month) 2) in terms of time (minutes brushing/day) and 3) in terms of number of dental visits/year. Data were analysed using linear regression, Kruskal-Wallis and Chi-square tests. **RESULTS** The dmft was lower in children whose parents were willing to brush more minutes/day ($p=0.004$). Parents of children with a higher dmft were more willing to invest in terms of money ($p=0.041$) and

number of dental visits (p=0.001). Higher pwti in terms of money and time were significantly associated with better OHB, including higher brushing frequency and younger age at which brushing started. Lower educated parents and immigrant parents were less willing to invest time in brushing (p=0.002 and p<0.001, respectively), but not in terms of money or dental visits. **CONCLUSIONS** Children's dmft and OHB are related to parents' willingness to invest in their children's oral health in terms of time, money and number of dental visits, but the direction of the relations are different, suggesting that children are better off when parents are willing to invest in self-care.

O9.9 Paediatric health care providers' knowledge, behavior and confidence regarding oral health

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AIM to assess the knowledge, behaviour and confidence of paediatric health care providers working in child welfare centers (CWC) in the Netherlands regarding young children's oral health. **METHODS** A questionnaire was sent to CWCs in the region of Rotterdam Rijnmond (the Netherlands). The questionnaire assessed the knowledge of CWC-health care workers regarding early childhood caries (ECC), if and how attention is paid to oral health at the CWC and the level of confidence (score 1-5) with this subject. The questions concerned knowledge of bacterial transmission from mother to child, prevention of dental caries, dietary recommendations, the use of a dental protocol, intra-oral inspection and timing of the first dental visit. **RESULTS** Thirty CWCs were willing to cooperate and 48 fully completed questionnaires were returned. The respondents were physicians, nurses and CWC assistants. Of these 85.1% believed that parents could prevent ECC; 74.5% reported to give advice with regard to dietary habits when needed. Advice regarding the number of bottle- or breastfeeding moments was 61.7%. Of the respondents 29.8% never performed an intra-oral inspection. Almost half of the respondents (47.8%) indicated not having a dental protocol. Most of the employees (80.4%) believed they were able to influence the prevention of ECC. The mean level of confidence to identify plaque and caries was 3.13 (SD=1.1) and to advise parents 3.70 (SD=1.1). **CONCLUSIONS** Based on these results the impression is given that there is room for improvement of the dental knowledge of CWC health care workers and support of their oral health information.

Session O10 - Epidemiology

O10.1 Association between obesity in paediatric patients and erosive tooth wear: A case-control study.

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AIM To compare the prevalence of erosive tooth wear (ETW) between a group of obese and non-obese paediatric patients and to determine possible associated risk factors. **METHODS** A case-control study was performed in paediatric patients attending Belgian schools. Obese children selected as cases were recruited from a special boarding school for obese patients in the region of Flanders and non-obese children were selected as controls according to the WHO guidelines for BMI-for-age-Z-scores. Before the examination a questionnaire related to diet and oral hygiene was completed to identify risk factors. For data analysis, logistic regression analyses assessed the association among diet-related variables. Additionally, Kendall's tau b tests were used for correlation between BEWE index (basic erosive wear examination) and the presence of plaque. **RESULTS** A total of 125 children of which non-obese (n=54, mean age 14.80 ±0.39 years) and obese individuals (n=71, mean age 14.83±0.22 years) were recruited for the study. Differences in prevalence of ETW lesions among obese (BEWE=1.70) and non-obese patients (BEWE=2.26) were not significant (p=0.243). No correlations were found between presence of plaque and BEWE index (p=0.18) and the diet analysis showed that obese patients had a higher consumption of fruit juices and soda after tooth brushing (p= 0.031). **CONCLUSIONS** Even though obesity has being previously associated with a higher prevalence of GI, this study did not find a positive association with ETW lesions in these patients. Further research is needed to elucidate the influence of obesity in the oral health status of adolescents.

O10.2 An audit to analyse patient demographics and attendance for repeat dental general anaesthetics in children in North Yorkshire

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AIM To investigate patient demographics and attendance for children who received two or more dental general anaesthetics (DGAs) in the North Yorkshire Salaried Dental Services. **METHODS** All children requiring more than one DGAs in York and North Yorkshire between October 2002 and July 2015 were identified from electronic patient records. Information regarding the demographics and clinical history were retrieved and entered into an excel database. Descriptive statistics examined the characteristics of this group of children. Index of multiple deprivation (IMD) was analysed using children's postcodes. **RESULTS** The sample included a total number of 160 patients, with a mean age of 6 years 1 month at initial GA. The average interval between repeat GA was 3 years 6 months 6days. Of these children 37.5% had a

significant medical history, with 21.8% having behavioural conditions noted; including ADHD and autism. It was observed that 9.9% of the children were looked after, 19.5% of total appointments in the service were cancelled or not attended by these patients, 33% of children were in IMD quintiles 1 and 2, 24% of children in quintile 3 and 43% of children in quintiles 4 and 5. **CONCLUSIONS** The following predictors can be used to identify those children who are at risk of having a second general anaesthetic and therefore at high risk of dental decay: poor attendance rate, looked after children and those children with behavioural conditions. It is therefore imperative that we focus on these groups. Surprisingly place of residence was not a predictor.

O10.3 The prevalence of deleterious oral habits in a group of children aged 6-12 years living in Istanbul Turkey

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AIM To determine the prevalence of deleterious oral habits among Turkish children in the mixed dentition. **METHODS** The present study was conducted for 840 schoolgoing children between 6-12 years of age who attended randomly selected elementary schools at Sarıyer, Besiktas and Gaziosmanpasa towns in Istanbul, Turkey. This study investigated the oral habits including digit sucking, lip sucking, tongue thrust, forearm sucking, mouth breathing, habit of biting on objects, nail biting and bruxism. **RESULTS** The results showed that the prevalence of deleterious oral habits was 54.9%. Nail biting was the commonest habit (29.8%) while tongue thrust (1.2%) and forearm sucking (1.2%) were the least prevalent habits. Prevalence of digit sucking was 5.4% while lip sucking was 10%, mouth breathing was 9%, habit of biting on objects was 11.3% and bruxism was 13.1%. Deleterious oral habits were more common in girls than boys. **CONCLUSIONS** Deleterious oral habits are a common clinical problem that concerns both general dental and specialist paediatric dentists. It is important to recognise and intercept deleterious oral habits to prevent irreversible harm of dento-facial structures.

O10.4 Oral hygiene and periodontal status of 12- and 15-year-old Greek adolescents. A National Pathfinder Survey

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AIM To investigate the oral hygiene and periodontal status of 12- and 15-year-old Greek adolescents in regard to socio-demographic and educational factors. **METHODS** A stratified cluster sample of 1,252 and 1,228 12- and 15-year-old Greek adolescents were randomly selected from 24 urban and rural areas of the country. All children were examined with a CPITN probe by five calibrated examiners (inter and intra examiner agreement 85-87%). The socio-demographic and educational factors, brushing frequency the periodontal (CPI, DI-s) and oral hygiene status (CI-s) were assessed. Non-parametric tests were used to analyse the data and

significance was set at p≤0.05. **RESULTS** The DI-s mean values were 0.68 and 0.54 and the CI-s 0.24 and 0.26, in both groups respectively. Only 30.9% of the 12-year-olds and 31.6% of the 15-year-olds had a completely healthy periodontium, with 46.8% and 44.3% of them having calculus. Bleeding on probing was found in 22.2% and 21.0%, with only 3.1% with periodontal pockets in the 15-year-old group. The healthy periodontium of the children was associated with gender and parental educational level, with girls and those with parents of higher education levels. Oral hygiene related to poorer brushing habits was worst in the younger age group and strongly related to parental education. **CONCLUSIONS** The presence of a healthy periodontal status for Greek adolescents was still low. A more rigorous intervention with better targeting of preventive programs at a national level is required. The study was funded by the EU NSRF 2007-2013 program for development.

O10.5 Caries and fluorosis prevalence of 6- and 12-year-old children in South Ecuador

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AIM To determine caries and fluorosis prevalence among 6- and 12-year-old schoolchildren of Zamora Chinchipes, the most south-eastern province of Ecuador. **METHODS** Data were obtained from 6- and 12-year-old children attending 13 schools (7 from rural, 6 from urban areas) from 4 cantons (Zamora: n=5, Yantzaza: n=4, Centinela: n=2, El Pangui: n=2). Caries and fluorosis were assessed according to the international caries detection and assessment system (ICDAS) and the tooth scoring index of fluorosis (TSIF) respectively. Filled and missing surfaces due to caries were also scored (dmft/-s, DMFT/-S indices). Fluoride concentrations in drinking water (mgF-/l) of each school location were calculated with high-performance liquid chromatography (HPLC). Data were analysed (SPSS) using descriptive statistics, t- and χ2-tests. **RESULTS** A total of 364 children aged 6 years and 360 aged 12 years were examined. For 6-year-olds mean dmf-s/-t were 10.73±9.36 and 6.12±4.15, respectively. Among 6-year-olds, girls had lower dmf-s/-t values than boys (t-test; p=0.02). For 12-year-olds mean DMF-S/-T were 2.91±4.22 and 1.76±2.12, respectively. Twelve-year-olds from rural areas had significantly higher DMF-S/-T values than those from urban areas (t-test: p=0.03; p=0.04, respectively). Fifty-seven percent (n=345) of the children showed at least a mild form of fluorosis (TSIF 1-4). Majority of the water-samples (62%, n=13) showed low fluoride concentrations (<0.1 mgF-/l). Mean concentration among samples with higher fluoride levels (≥0.1mgF-/l; n=8) was 0.15±0.05mgF-/l. **CONCLUSIONS** Caries and fluorosis prevalence in the examined cantons of one province in Ecuador were slightly higher compared with other countries in Europe.

O10.6 Premature extraction of primary teeth in schoolchildren

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AIM To determine the prevalence of prematurely extracted primary teeth in schoolchildren aged 5-7 years. **METHODS** This study included 520 children aged 5-7 years from urban and rural

towns of Bulgaria. An age criteria for reporting the premature loss of primary teeth was used. DMFT and dmft indices were determined. Examinations were performed at randomly chosen schools in the classrooms under daylight. The number and the type of prematurely lost teeth were also registered. The results were statistically analysed by calculating the chi-square for significant difference between the variables. **RESULTS** Prevalence of premature loss of primary teeth in children aged 5-7 years was 6.4 ± 0.55%. There was no statistically significant difference between the percentages of premature loss of primary teeth by gender. The greatest number of prematurely extracted teeth were located in the lower jaw (64.20 ± 1.99%). The second primary molars were the most often extracted teeth (60%), followed by the first primary molars (35%) and canines (5%). The percentage of prematurely extracted teeth was significantly higher among rural than urban children (59.5% and 40.5% respectively). **CONCLUSIONS** The percentage of prematurely extracted second primary molars was the greatest and that of the canines the least of all examined children. There were significantly more mandibular teeth prematurely extracted. The predominance of prematurely extracted teeth among the rural children should determine a strategy for specific prevention. Prevalence of prematurely extracted teeth in children should be considered for caries-risk assessment.

O10.7 Molar incisor hypomineralisation (MIH) type enamel defects on the other teeth of adolescents

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AIM To find the prevalence of demarcated opacities and other MIH-type enamel defects on all permanent teeth, beyond those called MIH index teeth (1st permanent molars and incisors) and seek possible interrelations with MIH. **METHODS** Random samples of high schools from 3 Greek cities were selected from which 1,156 children aged 13-14 years were examined in the classroom with a dental mirror and a penlight, following supervised tooth brushing. Enamel defects in accessible surfaces of all teeth were recorded using the 2003 EAPD criteria. Data were statistically analysed and also presented in a descriptive manner. **RESULTS** A total of 244 (21.1%) children had MIH with 259 (22.4%) that had MIH type defect(s) in at least one MIH-non-index tooth. This was in 47.5% of the children with MIH and in 15.7% of those without (association between MIH and presence of similar defects in non-index teeth: $p<0.001$). From the 116 children with MIH and other affected teeth, 56% had mild and 44% severe MIH. Over 95% of the defects on non-index teeth were opacities, of the mild type in MIH terms. The most commonly affected non-index tooth was the second permanent molar (31.1%), followed by the first premolar (26.4%), canine (25.4%) and second premolar (17.1%). **CONCLUSIONS** The prevalence of MIH type, mostly mild, defects in the MIH-non-index teeth of adolescents was as high as that of MIH. Interrelations warrant further investigation as to MIH causality and possible reconsideration of terminology.

O10.8 Visits to a paediatric emergency department for caries-related complaints: Ten-year utilisation trends

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AIM To determine the annual frequency of caries-related visits to a paediatric hospital emergency department (ED) over a 10 year period and to describe characteristics of the children that presented to the ED. **METHODS** A retrospective review of the health records of all children who presented to the ED at The Hospital for Sick Children, Toronto, Canada with caries-related complaints from January 1, 2003 to December 31, 2012 was completed. Eligible records were those complaints where the principal diagnosis at discharge was coded using the international classification of disease block code K00-K14 (diseases of oral cavity, salivary glands and jaws). Data were abstracted on age, gender, comorbidity and postal code. Time series analysis was applied to explore trends. **RESULTS** During the 10 year period, 2,032 caries-related visits to the ED were recorded. Over the study period, the numbers of visits for caries-related complaints increased by 48% ($p = 0.001$). Characteristics of children that attended the ED were being male, under 5 years old, low socio-economic status and no associated co-morbidity. These remained stable over the study period. **CONCLUSIONS** There was a statistically significant increase in caries-related visits to this paediatric hospital ED. It appears that EDs are becoming an increasingly important site for families whose children have caries-related complaints, particularly for children of pre-school age and low socio-economic status.

Session O11 - Oral Health & Nutrition Award (O11.1-11.4)/Cariology

O11.1 Investigation of caries prevalance and BMI correlation in Down syndrome children

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AIM To determine the prevalence of dental caries and oral hygiene status and the correlation to the body mass index (BMI) in Down syndrome children compared to healthy children. **METHODS** A cross-sectional study was conducted of 75 Down syndrome individuals attending rehabilitating centres and schools in Istanbul, Turkey who were examined for dental caries, oral hygiene status and BMI. Data was gathered through the use of completed questionnaires including dental and medical records of the children and clinical observations. The statistical analyses were made by SPSS (Statistical Package for Social Sciences) for Windows 17.0 program. The significance level was set at 95% ($p<0.05$). **RESULTS** Comparing the children´s age group percentages, they were very similar between the DS and the non-DS groups. Approximately half of the sample was male (47.5%). Comparing the BMI index of both groups, the DS group had a higher BMI index in general and also no child under a BMI of 18.5 was detected in this group compared to the control group. The rate of the children with a BMI index more than 24.9 was 49.2% in the DS group and 15.3% in the control group. Statistically, the result was significant $p<0.05$. **CONCLUSIONS** Down syndrome individuals are at more risk for obesity and systemic disease than the general population. The higher the BMI of both groups the higher the rate of caries prevalence.

O11.2 TAS1R2 Genotypes Associated with Dental Caries

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AIM To evaluate the effects of sweet taste gene receptor submit TAS1R2 which is considered an important factor in sugar and food consumption on caries and clinical parameters. Dental caries is influenced by a complex interplay of genetic and environmental factors. We developed the hypothesis that genetic variations in the sweet taste gene (TAS1R2) may be associated with dental caries risk and/or protection. **METHODS** A total of 178 (97 girls, 81 boys) healthy children aged 5-16 years were genotyped TAS1R2 (rs 4920566) polymorphisms DMFT/dmft determined in an outside setting using a probe and a mirror, according to WHO criteria. Clinical parameters including plaque index (PI), gingival index (GI), simplified oral hygiene index (OHI), salivary flow rate (SFR) and salivary pH were determined for each child. Associations between genotypes and clinical parameters were analysed using Student's t test. **RESULTS** The results showed that children with GG genotype (rs 4920566) had significantly higher GI, PI and SFR values than the chidren with genotypes GA and/or AA (respectively, $p= 0.024$, $p=0.025$, $p= 0.004$). There were no association between the three genotypes and caries (DMFT means: GG= 2.77 ±3.22, GA= 2.92 ±3.95, AA= 2.23 ±2.88). **CONCLUSIONS** This study shows that TAS1R2 genotypes are associated with GI, PI and SFR. Moreover, polymorphisms in the TAS1R2 (rs 4920566) gene are not associated with caries.

O11.3 Black stain in children: a systematic review

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AIM To systematically review the causative and/or contributing factors to dental black stain production in children. **METHODS** Black stain (BS) is an extrinsic tooth discolouration, characterised as a dark pigmented line, usually localised following the contour of the gingival margin. A systematic electronic search was performed using four databases: PubMed, Cochrane Library, ISI Web of Science and Embase. Data were collected using keywords related to "black stain", "tooth" and "children", without time limit. Papers were selected after a review of their title, abstract and full text. Case reports, reviews, non-English articles and irrelevant studies were excluded. The included articles were based on: BS prevalence, BS aetiology, factors associated (caries, plaque/salivary microbiota, hygiene/dietary habits) and mechanism of BS formation. Manual screening was conducted on the bibliographies of the remaining papers to identify relevant articles. **RESULTS** The initial search found 206 eligible papers, 26 were electronically selected, then 5 were manually added: finally, 31 articles were included. The BS prevalence varied from 1.6 to 18%, with no difference between boys and girls. Children with BS had less caries, an oral microflora with a predominance of Actinomyces, more calcium and phosphate in saliva and dental plaque. Dietary habits (dairy or iron-rich food consumption), socio-economic status and iron supplementation seemed to be correlated with BS. Ferric sulphide could be responsible for the dark colour. **CONCLUSIONS** Further studies are needed to elucidate the mechanism of BS formation and to determinate if BS could be the signal of oral iron overload.

O11.4 Home-based toothbrushing practices by parents of young children to reduce dental caries: a systematic review

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AIM To review the literature on parental supervised toothbrushing (PSB). **METHODS** Studies investigating parental involvement in toothbrushing in children under eight years old and their impact on caries were searched from nine electronic databases (including MEDLINE, EMBASE, PubMed, Web of Science, PsycINFO, Scopus and the Cochrane Library), references and unpublished literature databases. This review investigated current practice, interventions and facilitators and barriers associated with PSB. Identified facilitators and barriers were then categorised using the theoretical domains framework (TDF). Quality of the studies was assessed using a validated quality assessment tool. **RESULTS** Of 3303 identified studies, 95 met the inclusion criteria. There was substantial variation in current toothbrushing practices by parents with their young children, which might be influenced by socio-economic status and ethnicity. A wide array of barriers and facilitators to PSB were identified, which when mapped on to the TDF reflected knowledge, beliefs about consequences (attitudes), and the environmental context and resources as some of the key determinants of toothbrushing behaviour. At present there are few interventions promoting PSB of young children's teeth and most lack an underlying guiding theory. The quality of the studies ranged between 8 and 39 (minimum and maximum

scores ranged between 0 and 48). **CONCLUSIONS** The current review is the first to utilise a unifying framework to map the barriers/facilitators of each paper, and identify the active components of existing interventions. Overall, it has been highlighted that action is needed to address the poor practice of PSB.

O11.5 Effects of ER:YAG laser and APF gel application on surface microhardness, fluoride uptake and acid resistance of enamel

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AIM To evaluate the surface microhardness, fluoride uptake and acid resistance of artificially demineralised bovine enamel subjected to APF gel application and Er:YAG laser irradiation. **METHODS A total of** 60 enamel samples prepared from 15 bovine incisors were exposed to a 2 ml of 2.0 M acetic-acetate solution at pH 4.5 for 1 h for artificial demineralisation. The samples were divided into 5 groups: C: no treatment, F: only APF gel, LF: Er:YAGlaser+APF gel, FL: APF+Er:YAGlaser, L: onlyEr:YAGlaser. The surface microhardness values (VSN) were measured at baseline, after softening and after treatment. Another 60 enamel samples were used for the determination of KOH-soluble fluoride uptake and acid resistance. The KOH soluble fluoride uptake of enamel was measured using a fluoride specific electrode connected to an ion analyser. The acid resistance was determined by analysis of calcium, magnesium and phosphorus ion concentrations after immersion of enamel samples in the HCl solution using inductive coupling plasma mass spectrometer (ICP-OES). **RESULTS** APF application after Er:YAG laser irradiation (FL) was determined as significantly the most effective method for increasing the surface microhardness of enamel ($p<0.05$). The highest amount of fluoride uptake was found in Er:YAG + APF group (LF). The concentration of dissolved Ca in HCL solution was found to be significantly lower in the APF group (F) compared to the other study groups ($p<0.05$). **CONCLUSIONS** APF gel application followed by Er:YAG laser irradiation increases the surface microhardness and KOH soluble fluoride uptake of the demineralised enamel surface.

O11.6 Use of ordinal valuation tasks with children and young people for the valuation of a caries-specific measure

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AIM Currently there is no suitable child-centred measure for use in economic evaluation of dental treatment or prevention programmes. One solution is to develop a preference-based measure from an existing caries-specific measure of oral health related quality of life (OHRQoL) using children's preferences. This project sought children's opinions of the suitability of ordinal techniques for use in valuation of a caries measure. **METHODS** Ten children aged 6-16 years, from different socio-economic backgrounds and ethnicities, with varying caries experience, participated in informal interviews. Children were asked to complete discrete choice experiment (DCE) and best-worst scaling (BWS) tasks using health states from CARIES-QC whilst 'thinking aloud'. Additionally, they were asked which task was easier, how many tasks they could manage, their preferred format and whether example tasks and leaflets would be beneficial. **RESULTS** Children preferred the BWS tasks, with those under 10 years finding the

DCE tasks too difficult. Younger children principally made their selection based upon pain. Children without caries experience struggled to imagine the health state, and found the accompanying leaflet and "holiday" example helpful. Children of all ages felt they could comfortably only manage five questions at once and would prefer an online format. **CONCLUSIONS** Ordinal tasks have potential for use with children over 10 years for the valuation of a caries-specific OHRQoL measure. Further research is required with more children to clarify the age range. An engaging leaflet would help children with no prior experience of caries, and the format should be online.

O11.7 Dutch paediatricians` knowledge, attitude and practices regarding dental caries

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AIM To investigate the knowledge, attitudes, practices and dental education of Dutch paediatricians regarding dental caries. **METHODS** In this cross-sectional observational study, a survey containing 20 questions was distributed via mail to the paediatric departments of 92 hospitals in the Netherlands (1148 paediatricians). The survey comprised of questions regarding knowledge on risk factors, recognition of dental caries and practices towards dental caries. Descriptive analysis was used to evaluate the knowledge, attitudes and practices of the paediatricians. **RESULTS** Of the 381 surveys distributed, 30 were returned (8%). Many (57%) of the paediatricians reported to examine their patients` teeth regularly and reported seeing at least one child with severe dental caries every two months or less. All of the paediatricians advised caregivers to visit the dentist when seeing a child with dental caries, but only one paediatrician reported making a formal dental referral. Although more than 75% of the paediatricians thought they had an influence on the prevention of oral disease, not all of them felt confident identifying tooth decay. Only one paediatrician had knowledge about the earliest signs of a new caries lesion. Less than 45% of paediatricians had received oral health education in medical school, residency, or continuing education. **CONCLUSIONS** Many Dutch paediatricians examine their patients` teeth and they have a generally positive attitude toward their influence on the prevention of dental caries; therefore it is important that paediatric dentists and paediatricians join forces to improve the oral health of children in the Netherlands.

O11.8 Child-reported discomfort of ART and Hall technique for the management of occluso-proximal caries lesions in primary molars

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AIM Atraumatic restorative treatment (ART) and Hall technique (HT) have both been shown to be well accepted by children, compared to conventional restorative treatment. However, these have not been directly compared. Thus, the aim of this study was to compare child self-reported discomfort for ART restorations compared to HT. **METHODS** This two-arm, parallel group, patient-randomised controlled, superiority trial was carried out in schools in Brazil. Inclusion criteria: schoolchildren (n=127, age 5-10 years) with at least one occluso-proximal

carious lesion in a primary molar. Children were randomly allocated to treatment of a single tooth with occluso-proximal cavitation into dentine. Self-report discomfort was recorded before and after treatments using the Wong-Baker scale (WBS), an ordinal six-point scale ranging from WBS 0; a smiling face (no discomfort) to WBS 5; a crying and sad face (high discomfort). Mann-Whitney test compared discomfort between the two groups. Ordinal Logistic Regression Analysis (á=5%) was used to analyse the influence of: gender, operator (experienced/inexperienced), jaw (upper/lower) and molar (1st/2nd molar). **RESULTS** There was no statistical difference (p=0.055) in child-reported discomfort between ART (mean ± SD= 0.52 ±0.87; median= 0; range= 0-3) and HT (mean ± SD= 0.85 ±1.22; median= 0; range= 0-5). The Ordinal Logistic Regression Analysis showed no influence of any clinical factor in child-reported discomfort. **CONCLUSIONS** Child-reported discomfort levels were low, and similar for ART and HT.

O11.9 Performance of an automated caries detection system in classifying occlusal caries from digital images in vitro in ICDAS-II system

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AIM To evaluate the performance of the automated caries detection system (ACDS) on the detection of occlusal caries of permanent posterior teeth in comparison to experienced examiners. **METHODS** One hundred posterior permanent teeth were evaluated by two experienced examiners and based on the ICDAS II visual criteria they reached a common and final decision for each occlusal surface. This final decision was registered into the system. Weighted kappa statistics were used to evaluate the agreement of ACDS with the examiners and sensitivity, specificity accuracy and precision were calculated. **RESULTS** Examiners identified 425 areas of interest with 89 surfaces as ICDAS 0 and 85, 135, 78, 2, 35 and 1 as ICDAS 1, 2, 3, 4, 5 and 6 respectively. ACDS identified 340 surfaces correctly, 118 surfaces were false positive and 85 false negative. From the 118 surfaces 42 were classified by the examiners as caries (ICDAS ≥3) and 76 as incipient caries (ICDAS 1 or 2). Sensitivity, specificity accuracy and precision were found to be 0.89, 0.97, 0.82 and 0.83 while k=0.78. When classification categories were reduced to three: sound (ICDAS 0), initial lesions (ICDAS 1 and 2) and cavitated lesions (ICDAS ≥3) the sensitivity, specificity accuracy and precision were found to be 0.89, 0.93, 0.88 and 0.86 while k=0.78. **CONCLUSIONS** The results showed that ACDS presented a very good agreement with the visual assessment of the experienced examiners, offering a possibility for an objective system for classifying occlusal caries of posterior teeth while eliminating the subjectivity of the dentist.

O11.10 Prevalence and severe early childhood caries risk indicators of 5 year-old Greek children: A national pathfinder survey.

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AIM Early childhood caries (ECC) and severe ECC (S-ECC) is a complex interaction between socio-economic, psychological and behavioural factors of parents affecting children's oral health status. Aim of this study was to investigate prevalence and severe early childhood caries risk indicators of 5 year-old Greek children. **METHODS** A total of 1,222 five year-old Greek children were selected randomly (15 rural, 9 urban regions) for this national, cross-sectional survey and examined by calibrated examiners (intra-examiner reliability: 87%, inter-examiner reliability: 85%). Caries prevalence was registered with the visual ICDAS=d0-6 criteria and caries experience with the mft/s component of WHO and both were expressed with a combined index d3-6mft/s and S-ECC was defined as d3-6mfs≥ 6. Information on children's gender, parental educational level, residence area, tooth brushing habits, sugary snacks consumption, infant-feeding practices was obtained via a structured questionnaire. Data were analysed with SPSS and risk factors associated with S-ECC were evaluated using logistic regression analysis. **RESULTS** Of the sample 57.6% presented with ECC and 17.7% (216 children) with S-ECC, while 29% of children with caries presented with S-ECC. The risk indicators for S-ECC were the child's gender (females less likely than males, Odds ratio=0.73, p=0.049), fathers' educational level (high level less likely than low, Odds ratio=0.47 p=0,041), tooth brushing frequency (2 or more times/day less likely for S-ECC, Odds ratio=0.52, p=0.019) and consumption of sugary snacks more than two times a day (Odds ratio=1.74, p=0.017). **CONCLUSIONS** Promoting good oral hygiene practices and enhancing mothers' knowledge of oral health may help reduce further, the risk for Severe ECC in the preschool population.

Oral Poster Presentations with Discussion (OPD)

Session OPD1- Dental Trauma I

OPD1.1 Pulp revascularisation of necrotic immature permanent incisor after intrusive luxation injury: a case report.

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BACKGROUND The aim of this case report is to present the pulp revascularisation treatment management of necrotic immature intruded maxillary incisor. Intrusion of permanent teeth is one of the most severe types of traumatic injuries and pulp necrosis is the common sequel in the intruded teeth. **CASE REPORT** A 8-year-old girl patient was referred to Paediatric Dental Clinic of Ondokuz Mayis University, 4 days after trauma. Clinical examination revealed an approximately 3 mm intrusion of the immature permanent maxillary right central incisor. The treatment chosen was to watch and wait for spontaneous re-eruption. During a 6 month period, the intruded tooth showed spontaneous re-eruption. However, in that period the tooth became necrotic and radiographic examination revealed a periapical radiolucency. After the possible treatment options were discussed with her parents, a regenerative endodontic treatment protocol was agreed by using platelet rich fibrin (PRF). The root canal was gently irrigated with 2.50 % sodium hypoclori de without instrumentation, and then medicated with modified antibiotic paste (clindamycin, ciprofloxacin and metronidazole) for 4 weeks. The antibiotic paste was removed and the freshly prepared PRF from the patient's own blood was condensed in the root canal to the cementoenamel junction. The final restoration was completed with mineral trioxide aggregate and composite resin. **FOLLOW-UP** At an 18-month follow-up, the radiographic examination showed continued thickening of root canal walls, and apical closure by narrowing of the apical foramen. **CONCLUSIONS** Regenerative endodontic treatment is a viable alternative to conventional apexification with periapical inflammation in intruded teeth with open apices.

OPD1.2 Factors associated with oral health-related quality of life for Turkish preschool-aged children with dental trauma

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AIM This was to assess the effect of traumatic dental injuries (TDI) on oral health-related quality of life (OHRQoL) of Turkish preschool-aged children. **METHODS** The study population consisted of 210 parents/caregivers of Turkish children with TDI who were attending the Istanbul University Faculty of Dentistry, Clinics of Paedodontics, from September 2013 to November 2015. Data were collected through clinical examinations and self-completed questionnaires including the Early Childhood Oral

Health Impact Scale (ECOHIS), children's dental trauma history, and socio-demographic characteristics of parents and child. Data were analyzed using descriptive statistics, Mann Whitney U test, and Spearman correlation coefficient.
RESULTS Cronbach's alpha coefficient of the ECOHIS was 0.71. Significant gender differences were found in two subscales of child symptoms (p=0.04) and child psychology (p=0.028). The child impact section (p=0.027), child psychology (p= 0.022), total ECOHIS scores (p=0.039) were significantly correlated with parents' age, while parents' educational level was correlated with the total ECOHIS (p=0.037), and some domain scores. Children with complicated TDI had higher scores in the child/family effect section (p<0.01) and total ECOHIS scores (p<0.01). Children with treatment needs had higher scores in the child/family effect section (p<0.01) and total ECOHIS scores (p<0.01). **CONCLUSIONS** The OHRQoL scores of children with TDI were associated with the presence of complicated traumatic dental injuries and treatment needs, as well as socio-demographic factors of children and their parents.

OPD1.3 Use of mouth guards by amateur basketball athletes in Greece and USA.

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AIM This was to evaluate mouth-guard use and relative knowledge by Greek and collegian American amateur basketball athletes. The use of mouth-guards is proposed for effectively reducing the consequences of oral trauma in sports with intense physical contact. **METHODS**
In total 210 questionnaires were completed by equal numbers of athletes of similar mean age (20.5 years) from mainland Greece and central USA colleges. They included close and open ended questions on the awareness, usage, acceptance and effectiveness of mouthguards. Answers were listed and analyzed with descriptive statistics and chi-square tests. **RESULTS** The use of protective mouth-guards in basketball was low (13% in both samples) despite a high percentage (>50%) of informed athletes. Television and the internet predominated as sources of information in both samples (>30%), while teammate influence was similar (16%). Dentists and team coaches played a significantly more active role in promoting mouth-guards in the USA (40%) than in Greece (11%, p<0.001). The order of frequency of injuries reported was identical in both USA and Greece, lip injuries being most frequent, followed by trauma to the teeth and tongue. All athletes wearing a mouth-guard felt it protected them from more serious injury, while 1/3 experienced some discomfort with speech and breathing. **CONCLUSIONS** Awareness and acceptance of mouth-guard use by both samples of young amateur basketball athletes were low. There is ground for increased mouth-guard promotion by dentists, more so in Greece.

OPD1.4 Withdrawn

OPD1.5 Dentists` knowledge and attitudes about traumatic dental injuries in a Paediatric population

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AIM To evaluate dentists' knowledge and attitudes concerning dental trauma emergency treatment in children and adolescents, and to identify the factors that can affect the successful treatment outcome. **METHODS** The study was carried out on 200 dentists, general practitioners (GDP and Paediatric dentists (PD) from Iasi county (Romania) who answered to a questionnaire with open and closed questions. The data were analyzed with the SPSS 18.0 system for Windows (SPSS Inc. Chicago, IL, SUA). Differences between groups were assessed by the Pearson chi-square test at the 0.05 level. **RESULTS S**howed that GDPs had less knowledge about dental trauma compared with PD (school dentists), and the level of information by families was also reduced. Other factors were identified that may have negative effects in a successful treatment of dental traumatic injuries in children and adolescents, such as reduced professional experience of the dentists, their attitude to avoid such patients, dentists fear of failure and complications, lack of cooperation from parents and children and a lack of ability to cope with additional costs. **CONCLUSIONS** It is necessary to have continuous medical lectures on the topic of dental trauma, to develop appropriate guidelines on this topic and to introduce in school curricula oral health educational programmes that provide useful information to both parents as well as teachers.

OPD1.6 Different approaches in treatment of tooth avulsion in patients of the same age

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BACKGROUND Tooth avulsion is very rare and represents only 0.5-3.0% of all dental traumas with considerable functional and aesthetic problems and treatment options are challenging especially in children. In cases where replantation is impossible, treatment options most often include implant placement and prosthetic solution. Depending on age and orthodontic status, other solutions are possible, such as autotransplantation. **CASE REPORT** A 9-year-old girl was referred to the Dental Polyclinic in Zagreb for management of an avulsed left maxillary central incisor (21). Therapy was started with mobile orthodontic plates with an acrylic tooth 21 built in. When the patient was 15 years old, a fixed orthodontic appliance therapy was started. When the child was 17 years old, a hand-wrist radiograph showed completion of the skeletal growth. The guided bone regeneration was complete and therefore an implant placed. As a final step, a porcelain crown was provided. The second patient had an reimplanted tooth. **FOLLOW-UP** Patient 1 at 2 years follow-up, showed a stable osseointegrated implant. Patient 2, 7 years follow-up with satisfactory aesthetical and functional autotransplanted tooth. **CONCLUSIONS** Avulsion in children of the same age group can be treated in different ways, depending on their orthodontic status.

OPD1.7 Multidisciplinary treatment of maxillary central incisor associated with open apex and periapical lesion: a case report

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BACKGROUND This case report aims to present the management of a tooth with open apex and periradicular lesion with MTA apexification and indirect restoration using CAD-CAM technique. **CASE REPORT** A 9-year-old female patient was referred to our clinic with the complaint of tooth fracture of tooth #11. A history revealed that a traumatic injury to the same tooth at age 7 years. Clinical examination revealed complicated crown fracture and tenderness to percussion and a nonvital pulp. Radiographic examination showed an immature apex and periapical radiolucency. The tooth was prepared endodonticaly and 2 weeks later the tooth was asymptomatic. MTA apical plug was placed to the 2/3 of apical third of the root canal. Sterile moist pellet was placed upon MTA and the tooth was restored temporarily. One day later, setting of MTA was checked and the tooth was restored with fiber post and composite resin core. Digital impression was obtained for crown restoration and the tooth was reconstructed with CAD-CAM.
FOLLOW-UP An 18th months post-treatment revealed that the periapical lesion was healed and the tooth was asymptomatic. **CONCLUSIONS** MTA apexification technique is a safe and effective treatment option for the management of teeth with an open apex following root canal disinfection. In Paediatric dentistry, for aesthetic and durability CAD-CAM restorations can be used safely to increase tooth survival.

OPD1.8 Withdrawn

OPD1.9 Long-term results of crown fragment-reattachment technique for fractured anterior teeth (a 4 year follow-up)

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AIM This was to evaluate the long-term survival of fragments bonded to teeth during the treatment of non-complicated crown fractures (CF). **METHODS** 32 children aged 7 – 14 years old diagnosed with non-complicated CF of permanent central and lateral maxillary and mandibular incisors were selected from subjects attending a private dental centre. One operator completed all dental examinations and treatment. Reattachment was conducted up to 24 hours after the trauma with a small chamfer prepared from the palatal/lingual surface of each tooth. Fragments were fixed with flowable composite resin (GransdioSO, Voco) after etching and application of the bonding agent Futurabond DC (Voco). 36 teeth with CF were treated with this approached and were evaluated during the observation period. **RESULTS** The “survival” rate of 36 reattached incisor fragments was 88.9% after 4 years. The techniques used for treated teeth were considered successful according to the following criteria: healthy pulpal and periodontal status, excellent fragment stability and colour matching, no pathological signs on radiographs. Four tooth fragments debonded from teeth within 6 months after the treatment and the pulp complication was diagnosed at one of those 4 cases.

CONCLUSIONS Crown fragment-reattachment technique can be considered as a safe and minimally invasive treatment approach with satisfying long lasting results.

OPD1.10 Factors associated with oral health-related quality of life for Turkish children aged 11 to 14 years with dental trauma

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AIM This was to assess the oral health-related quality of life (OHRQoL) of Turkish children aged 11-14 years who had suffered from traumatic dental injuries (TDI). **METHODS** This cross-sectional study was carried out involving 290 children (142 girls, 148 boys) attending Clinics of Paedodontics (Istanbul, Turkey), from September 2013 to November 2015. All children having no-caries and malocclusions were chosen. Data were collected through clinical examinations and self-completed questionnaires including the translated Turkish version of the Child Perceptions Questionnaire (CPQ 11-14), each child`s dental trauma history, and socio-demographic characteristics of parents and children. Data were analyzed using descriptive statistics, Mann Whitney U test, and Spearman correlation coefficient. **RESULTS** Cronbach`s alpha coefficient of the ECOHIS was 0.91. The total CPQ 11-14 and its all subscale scores were positively correlated with the self-reported satisfaction with dental appearance ($p<0.05$) and self-rated oral health ($p<0.01$). Poor subjective well-being was worse OHRQoL ($p<0.05$) as well as impaired emotional ($p<0.05$) and social function ($p<0.05$). The mothers` educational level correlated positively with the functional subscale ($p=0.04$), whereas fathers' was negatively correlated with the total and its subscales except for the functional subscale ($p<0.05$). Children who had previously sought treatment had better OHRQoLin the social well-being subscale. **CONCLUSIONS** The OHRQoL of children with TDI was associated with parental educational level and the treatment needs in children only with uncomplicated TDI as well as subjective evaluations of oral health, general well-being and satisfaction with dental appearance.

OPD1.11 Avulsion of upper permanent central incisor

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BACKGROUND Tooth avulsion is defined as complete displacement of a tooth from its socket severing pulpal blood supply and exposing cells of periodontal ligaments to the external environment. It is seen in 0.5 – 3 % of all dental injuries. The extra oral time and the stage of root development significantly affect the outcome and the prognosis for the tooth. **CASE REPORT** A 6-year-old girl, presented to her GDP following avulsion of her maxillary right permanent central incisor; the GDP replanted the tooth. Total extra-oral time was 15 minutes. Clinical and radiographical follow-up revealed necrosis of the pulp of the 11 and a vital apical part of the root, which continued to develop. There were probably remnants of Hertwig's Root Sheath, which allowed further apical root development. One year after the avulsion injury, the patient sustained another trauma to the 11. Infection was initially difficult to control; however, the tooth was retained in situ and regular FOLLOW-UP continued until the patient was 16 years-of-age. **FOLLOW-**

UP The patient has been seen biannually. A dental implant is to be considered when growth has ceased. **CONCLUSIONS** Maintaining and preserving traumatised teeth in situ, can preserve bone and allow good prognosis for future implant placement.

OPD1.12 Delayed treatment of dental trauma

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BACKGROUND Dental trauma is a common phenomenon in Paediatric Dentistry, which can produce stress for parents, children and the dentist. This is especially the case as most cases present as an emergency. A dentist needs to decide immediately to spend time straight away or postpone treatment to a later stage. Sometimes an immediate treatment is needed but hardly possible in an anxious traumatized child. **CASE REPORT** An 11 years-old boy was referred to the Paediatric dentist for treatment of his traumatized maxillary front teeth. Dental history showed a crown fracture of the 21 more than a year previously. One week ago, this boy fell in the swimming pool while on holiday. The immediately consulted dentist examined the child, but postponed further treatment. When attending our clinic a complicated crown fracture of the 11 and a lateral luxation/ intrusion with an uncomplicated crown fracture of the 21 was diagnosed. A periapical radiolucency was seen on the root apex of 21. **FOLLOW-UP** Over a period of 6 months the teeth were followed, to supervise healing of alveolar bone and gingiva around the 21. **CONCLUSIONS** Though the dental situation sometimes would indicate to start a treatment immediately, it can sometimes be helpful to give affected children's teeth some extra time. Modern trauma protocols are more flexible and take the child's coping into consideration.

OPD1.13 Management of a 9-year-old child with a complex dento-alveolar trauma

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BACKGROUND Avulsion of permanent teeth accounts for 0.5-3% of all dento-alveolar injuries and are often seen in children of a young age resulting in life-long effects. Treatment planning of complex dento-alveolar injuries can be challenging taking in to account the severity, initial management, age and growth stage of the dentition. **CASE REPORT** **F**ollowing dental trauma a 9-year boy was referred by his family dentist for treatment. Examination revealed avulsion of all four maxillary central incisors (11, 21, 12 and 22), which had not been replanted. In addition he had different degrees of crown fractures of the following mandibular incisors; 31, 41 and 42. 31 and 41 also had perapical pathology and 42 had reversible pulpitis. Treatment was started urgently due to aesthetic concerns and the danger of further deterioration of mandibular incisors. A URA was designed to immediately improve aesthetics. Endodontic treatment was carried out for 21 and 41 and all fractured lower incisors were restored up with composite resin. The entire treatment was carried out using behaviour management under local analgesia. **FOLLOW-UP** The child remains asymptomatic In the future he will be considered for auto-transplantions in case he develops any malocclusion, otherwise for implantations at the appropriate time. **CONCLUSIONS** Complex trauma

may occur in young children, which may be complicated because maxillary anterior teeth had not been replanted, leading to bone atrophy in that region. Avulsed teeth should be replanted and if they ankylosed de-coronation should be carried out to preserve the height and width of the alveolar bone.

OPD1.14 Case Report: Delayed replantation of avulsed permanent immature teeth with 15 hours extra oral time

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BACKGROUND Avulsion is one of the most serious dental injuries which is most commonly seen affecting maxillary incisors of young children. Immediate transplantation of any avulsed tooth is recommended treatment and results in good prognosis although this may not be always possible. **CASE REPORT** A 7 -year-old healthy female patient was referred to Paediatric dentistry clinic 15 hours later with a history of dental trauma to the maxillary central incisors due to an accidental fall, that occurred 15 hours before her referral. Extra-oral examination showed swelling of the lips and soft tissue injuries. Intraoral examination revealed gingival laceration along with clinically missing maxillary central incisors .The avulsed teeth had been kept in moist cotton throughout the night and then stored in saline solution until patient was referred to the clinic. Access opening was prepared on the same day for each tooth and pulps were extirpated from the root canal, which was filled with gutta percha and apex was sealed with MTA. The teeth were placed in the socket under local analgesia and splinted using multiflex wire from first primary right molar to left molar for 4 weeks. Six months later apical resection was needed to 21 because of the radiolucency in the apical area. **FOLLOW-UP** After a 12-month follow-up period, the teeth were asypmtomatic. **CONCLUSION** Formation of an appropriate apical barrier following the disinfection of root canal system effects survival period of avulsed tooth in oral cavity.

Session OPD2 - Miscellaneous I

OPD2.1 Neonatal haemochromatosis: Demonstration of iron deposition in lower lip minor salivary gland biopsy helps establish diagnosis.

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BACKGROUND Neonatal haemochromatosis, a rare disorder of new-borns, is defined as liver failure with extrahepatic iron deposition that spares the reticuloendothelial elements. It is thought to occur as a consequence of complement-mediated injury to hepatocytes in utero. Prognosis is poor and the condition is often fatal without timely intensive medical intervention. Diagnosis is difficult and relies on demonstration of extrahepatic iron deposition in the setting of liver failure in the new born. Minor salivary glands are one of the common sites of extrahepatic iron deposition in neonatal haemochromatosis and histopathological examination from a lower lip biopsy may help establish the diagnosis. **CASE REPORT** A 2 day old female baby with a history of thrombocytopenia, coagulopathy, hypalbuminaemia and progressive liver dysfunction was referred to the children's hospital. A biopsy of the minor salivary glands for diagnostic work up was requested by a paediatric gastroenterologists. An intraoral biopsy of the right paramedian aspect of the lower lip was undertaken under general anaesthesia with appropriate haematological support. Histopathological examination revealed iron deposition in the minor salivary glands. An abdominal MRI revealed the presence of intra and extra hepatic siderosis and together with histopathological evidence of iron deposition in the minor salivary glands the diagnosis of neonatal haemochromatosis was confirmed. **FOLLOW-UP** Treatment involved IV immunoglobulin infusion, double exchange transfusion and the patient's function returned to normal. **CONCLUSIONS** The demonstration of iron deposition in the lower lip minor salivary gland biopsy helped establish the diagnosis of neonatal haemochromatosis in this infant.

OPD2.2 The stress evaluation of premolar shaped primary 2nd molar without successor: 3D FEA study

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AIM This was to evaluate the stresses on the root and supporting tissues of premolar shaped primary second molar without successors using 3D Finite Element Analysis.. **METHODS** Primary second molar transformed into premolar using composite resin and mandibular second molar without any restoration were used as a control and mathematically modeled using Rhinoceros 4.0 (, Seattle, WA, USA) software. Following that, a 601.83 N. mastication force was applied on the occlusal surface using foodstuff element for each model. Analyses were completed using Algor Fempro software (ALGOR, Inc. Pittsburgh, USA). Minimum and maximum principle stresses were used to compare each model. **RESULTS** For both models, especially the internal and the external surfaces of the roots and furcation area, showed similar stress values. **CONCLUSIONS** Transformation into premolar form of the primary molars without successors which are planned to

be kept for a long term did not cause any extra stress inducing root resorption or ankylosis on the root and supporting tissues.

OPD2.3 The utilisation of general anaesthetic theatre time for paediatric dental procedure at Chelsea and Westminster Hospital

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AIM This was to investigate the use of general anaesthetic theatre time for dental treatment of paediatric patients. **METHODS** A retrospective study of the length of time needed for paediatric dental procedures under general anaesthesia. Data was gathered from records retrospectively over a three month period. Exclusion criteria were treatments of minor oral surgery and tooth extractions only. **RESULTS** 122 operating lists were examined and 377 paediatric patients were treated, 108 lists finished on time and 16 lists finished late. The median for lists that ran beyond the allotted time was 27 min. Active treatment was completed within 79% of theatre time. The median anaesthetic time (30 min) was longer in those operating lists that finished late. **CONCLUSIONS** The utilisation of operating theatre time overall was very good, although when lists finished late the anaesthetic time was the significant factor. This could be attributed to the fact that training junior anaesthetists was undertaken in these sessions. It also relies on accuracy of time recording.

OPD2.4 A qualitative study of knowledge and understanding of dental health terms in parents of preschool children

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AIM To assess parents' knowledge and understanding of language used by dental health professionals. **METHODS** Oral Health Education sessions were delivered by a paediatric dentist at children's centres and on a children's centre information day in Dorset and Bristol, (UK). During these sessions, parents were interviewed, given questionnaires regarding dental language and encouraged to ask questions about their children's dental care. Parents were invited to discuss their preferences regarding specific words and phrases used by dental professionals. **RESULTS** In total, more than 50 parents attended the 3 sessions and were interviewed. The word 'fluoride' was well known and understood by parents, and most knew that fluoride (F) was present in toothpaste and protective for their children's teeth. Almost none had heard the terms 'fissures', 'fissure sealants' or 'fluoride varnish'. When explained, some remembered application of F varnish but few parents had any knowledge or experience of fissure sealants. The technical terms 'caries', 'permanent teeth', 'primary teeth' and 'deciduous teeth' were also not well known or understood. However, parents recognised and understood their plain language equivalents; 'decay', 'rotten teeth', 'adult teeth', 'baby teeth' and 'milk teeth'. The meanings of 'general anaesthetic' and 'local anaesthetic' were often confused. Plain language was generally better understood and preferred by parents, but for extractions technical terms were preferred. **CONCLUSIONS** For the parents interviewed, commonly

used dental health terms were not always fully understood. Clear communication using plain language equivalents or explanations helped to improve parent understanding.

OPD2.5 Clinical application of dental lasers in the different cases of Paediatric dentistry

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BACKGROUND Many dental problems in children can be treated with the assistance of dental lasers that offer innovative and minimally invasive dental therapies to improve the quality of dental care for children and adolescents, which could favour the treatment in order to reach successful final results. Lasers provide a simple and safe alternative for children while at the same time reducing the chances of infection, swelling, discomfort, besides fear and anxiety that are common symptoms related to this specific group in surgical procedures. **CASE SERIES** A case series of 4 children aged between 7 to 10 years-of-age were treated for various dental problems including exposure of unerupted central incisors, treatment of eruption haematoma associated with a maxillary central incisor, labial frenectomy and root canal disinfection of mandibular incisor teeth which had a chronic fistula. Er:YAG (2940 nm) and Nd:YAG (1064 nm)dental lasers were used for the treatments. **FOLLOW-UP** Patients were followed up for 12 months after treatment. **CONCLUSIONS T**he positive results of using dental lasers and positively points the 'Laser Assisted Dentistry' concept. Laser surgery techniques facilitates obtaining the cooperation of Paediatric patients makes behavior management by the Paediatric Dentist easier. It is essential to have a good knowledge of laser operation and of which type of laser is most appropriate for each treatment.

OPD2.6 Assessment of ergonomic risk among paediatric dentists

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AIM This was to assess ergonomic risk level, which occurred among Paediatric Dentists during their everyday work. Many studies have shown that musculoskeletal disorders are very frequent among dentists at all, especially Paediatric Dental specialists. **METHODS** The study included 10 Paediatric Dental specialists, age (43±3.4 years). The surface electromyography (EMG) was recorded from both left and right, shoulder muscles: trapezius descedens (TD), back muscles: erector spinae (ES), and neck muscles: sternocleidomastoideus (SCM) and splenius capitis (SC), in order to evaluate ergonomic risk level. **RESULTS** High risk particularly occurred in muscles SC on both sides of the body in a sitting position. The medium ergonomic risk level occurred in the same muscles on both sides in standing position. Left and right TD muscles in both, sitting and standing, working positions were under medium ergonomic risk level. Muscles SCM on left and right side of body in both working positions were under low risk level. In a sitting position medium risk level occurred in muscles ES on both body sides, while in standing position low risk level occurred in the same muscles. **CONCLUSIONS** Paediatric Dentists are exposed to ergonomic risk. Dentists should take

preventive measures, such as taking physical activity, usage of ergonomically designed equipment to reduce risk.

OPD2.7 Adhesive bridge reinforced with fiber post in treatment of premature tooth loss

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BACKGROUND Premature loss of permanent teeth in children can lead to both aesthetic and functional problems. If not treated it can lead to occlusion problems and alveolar bone resorption. Adhesive bridges present a good functional and aesthetic solution to the frontal teeth loss in children. **CASE REPORT** A male patient (16 years) reported to the clinic for Paediatric and Preventive Dentistry in Belgrade, with crowns of his central and lateral left incisors completely destroyed by caries. After repeated unsuccessful treatment attempts, left central incisor was extracted. Left lateral incisor root canal was treated, and obturated with gutta percha points. Dental impressions were taken; plaster models were cast, articulated and analyzed. Two-crown adhesive bridge was designed, and built with composite resin material. Left lateral incisor root canal was reinforced with a fibre post. Left lateral incisor crown of the adhesive bridge was hollowed out to match the post, and bonded to it with composite resin. Left central incisor crown of the adhesive bridge was bonded to the right incisor using fibre-reinforced composite resin. A composite veneer was also designed on right central incisor. **FOLLOW-UP** was performed over a 3 months period, with no loss of stability or function. **CONCLUSIONS** Adhesive bridges present a good functional and aesthetic solution to the frontal teeth loss in children.

OPD2.8 Evaluation of antimicrobial effects of ozone therapy on some cariogenic bacteria

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AIM This was to evaluate the micro-morphologic changes of dentine samples in deep caries after the application of ozone treatment and chlorhexidine (CHX) application by sing scanning electron microscopy (SEM). Bacteria remaining underneath restorations are regarded as one reason for secondary caries and restoration failures. **METHODS** In the ex vivo study the patients of the age group 7- 15 years were selected at the Dept.of Paediatric Dentistry. All subjects were diagnosed with deep dentine caries lesion on vital permanent first molars, which were to be treated with ozone and/or CHX prior to final restoration. Group 1 (20 patients), ozone application (OzonytronXP, Mymed, Germany) for 120s; Group 2 (20 patients), 2% CHX solution (Cavity Cleanser, Bisco) application for 30 seconds. A sample (from dentine samples prior and after ozone application/from dentine samples prior CHX application) was spread on Mitis Salivarius Agar and Rogosa Agar plates. The plates were incubated for 48 hours in anaerobic conditions at 37 °C. **RESULTS S**tatistical differences were found for antimicrobial activity of ozone and chlorhexidine application on S. mutans and Lactobacillus spp. The statistical processing showed that the mean values of the number of bacteria prior to ozone and CHX treatment and number of bacteria after the treatment

display significant statistical difference (p<0.05). **CONCLUSIONS** Success in elimination of S. mutans and Lactobacillus spp. bacteria using ozone treatment and CHX application ex vivo condition.

OPD2.9 Oral aspects in children with nephrotic syndromes

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AIM This was to assess the oral health status, oral habits and socio-demographic factors in children with nephrotic syndromes and compared results with a control group. Nephrotic syndrome (NS) is one of the most common glomerular diseases in children and treatment of this disease should be long-term use of steroids is also known to be related to changes in calcium and vitamin D. **METHODS** The study was carried out in the Department of Paediatric Dentistry and Paediatric Nephrology. Ethical clearance was obtained from the institutional review board. The study group consisted of 38 children (11.5±4.86 years) with nephrotic syndrome and 52 healthy children (11.673±4.64 years) a control group. A questionnaire, which included information on oral habits and socio-demographic factors, was used for assessment. Comparisons between control and nephrotic syndromes children were made using chi-square and student T test. **RESULTS** Enamel hypoplasia on a child was present in the study group. The study group dmft, DMFT, and plaque, gingival indices were 3.857, 3.172, 1.62±0.794 and 1.14±0.631 respectively. The control group dmft, DMFT, and plaque, gingival indices were 5.458, 3.736, 1.19±0.93 and 0.63±0.715. **CONCLUSIONS** Although dental treatment need is not high compared with control, these children should receive dental health education, including oral hygiene instruction, in order to improve their overall oral health.

OPD2.10 Dental treatment under general anaesthesia in a sample of patients attending a university clinic

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AIM To assess dental procedures performed under general anaesthesia (GA) in a sample of patients from Paedodontics Department, Carol Davila University Bucharest and to compare the procedures used in special needs patients and healthy uncooperative children. **METHODS** Cross-sectional study upon a sample of 122 patients (82 boys, 40 girls) aged between 2-18 years (mean age=7.52±3.46 years) requiring dental treatment under GA during 2014-2015. Patients were divided in 2 groups according to their medical condition: group H (healthy): 66 children (44 boys) and group SN (special needs) and 56 children (38 boys). Dental procedures (extractions, cavity preparations, pulp treatments) performed for each patient were recorded. Data was processed using ANOVA tests (p<0.05). **RESULTS** a) 57.57% of healthy patients had severe early childhood caries; 48.21% of special needs patients had mental disorders; b) mean age – group H=6.14±2.55 years, group SN=9.14±3.70 years (SS, p=0.00); c) mean number of dental procedures/patient=6.18 (group H=4.52, group SN=8.14, SS, p=0.00); d) mean number of extracted teeth – group H=4.00, group SN=4.30 (NS); primary teeth=3.63, permanent teeth=0.51 (SS, p=0.00); e) mean number of teeth

with cavity preparation – group H=0.35, group SN=3.39 (SS, p=0.00); f) mean number of teeth with pulp therapy – group H=0.17, group SN=0.32 (NS). **CONCLUSIONS** Special needs patients were statistically significant older than healthy ones. Special needs patients received more dental procedures/patient and more cavity preparations and more extractions were performed in primary teeth.

Session OPD3 Miscellaneous II

OPD3.1 Retrospective audit of morbidity experienced by children awaiting dental treatment under general anaesthesia in Yorkshire

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AIM To audit the waiting time for paediatric patients awaiting comprehensive dental care under general anaesthesia (CDGA) and analyse any morbidity experienced by the children in this time. **METHODS** Retrospective review of dental records of patients who received CDGA at a District General Hospital in Yorkshire over a 21 month period. Data was collected by retrospective review of records, then analysed to establish the date each patient was placed on the waiting list and the date of their CDGA, including identification of any interim dental visits, pain experienced and any prescriptions, treatment or advice given to the patient. **RESULTS** From the 92 patients whose records were assessed, 31.5% attended unscheduled appointments due to pain/infection whilst awaiting treatment, with half of these requiring antibiotics. The mean waiting time was 16.25 weeks and all children who reported more than one episode of pain waited more than 16 weeks. Waiting times >16 weeks was strongly associated with an increased risk of pain/infection and multiple emergency episodes. CDGA had been postponed at short notice for 17 patients, which consequently increased mean waiting time. **CONCLUSIONS** Children commonly required emergency management of pain/infection whilst waiting for DGA. Longer waiting times were associated with an increased risk and multiple episodes of morbidity. Waiting times should be as short as possible for CDGA to reduce the risk of morbidity.

OPD3.2 Dental pulp stem cells

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AIM This was to study isolation and phenotypic characterization of the postnatal human DPSCs and SHEDs. Stem cells are neural crest-derived cells with an outstanding capacity to differentiate along multiple cell lineages. **METHODS** The wisdom and primary teeth used in this study were collected, after informed consent, under a protocol reviewed and approved by the Ethics committee of children's Hospital of Queen Fabiola, The stem cells were isolated and separated for a flow cytometry analyses (FACS) and immunofluorescence (IF). **RESULTS** The presence of stem cells of mesenchymal origins was confirmed by both methods. The flow cytometry analyses and immunofluorescence for various markers showed similar results for both DPSCs and SHEDs. **CONCLUSIONS** The main advantages of dental pulp stem cells are high profileration rate and their

multifaceted differentiation. They are a promising source for regeneration protocols and application as osteo-odontogenic differentiation and biomineralisation.

OPD3.3 Pocket-like crevices in erupting permanent teeth: does it favour the presence of putative periodontal pathogens?

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AIM This was to assess the prevalence of putative periodontal pathogens bacteria in erupting permanent incisors and molars. Pocket-like crevices in erupting teeth are sometimes deep enough to create anaerobic conditions that could favour the growth or survival of. Such bacteria. **METHODS** Samples were collected using sterile paper points placed within the pocket-like crevices of erupting teeth in healthy children without caries and whose gingival index (GI, Loe, 1967) never exceeded 2 for any tooth. To identify bacteria, DNA was extracted using the Bionobis Migtration 12GC plus extractor instrument (Bionobis, France). DNA-DNA hybridization was performed using the Micro-Ident kit and MicroIdent plus (Hain Lifescience, Germany) according to the manufacturer's instructions (detection limit < 103). The same experiment was conducted on one contra-lateral fully erupted tooth from the same arch (control).
RESULTS Samples were obtained from 32 children aged 6 to 11 years of age, involving 18 incisors and 14 molars in the study group. The mean pocket depth was 4.7 ± 1.2 mm vs 2.5 ± 1.3 in the control teeth, with a GI of 0, 1 or 2 in respectively 20, 9 and 3 cases (28, 3 and 1 in the control teeth). In both groups (erupting or fully erupted teeth) putative periodontal pathogens were rarely found. Fusobacterium nucleatum was the most frequently found. **CONCLUSIONS**
These data suggest that in healthy children the main periodontal pathogens are rarely present in erupting permanent teeth.

OPD3.4 Withdrawn

OPD3.5 In vitro performance of ultrasound enamel preparation compared with classical bur preparation on pit and fissure sealing.

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AIM To evaluate the effects of two different enamel surface preparation techniques for pit and fissure sealing in permanent molar teeth in vitro. **METHODS** A total of 60 extracted sound third molars were used. For each tooth, the mesial half of the fissures was treated with T1 ultrasound tip (DentSurgTMPiezo-Intra-Lock, Germany), while the distal half with conventional diamond bur (D1 Intesiv, Dental Trey, Italy). Then, the teeth were randomly assigned into 2 groups (n = 30/each). Group 1 samples were stored in distilled water at 4°C. For group 2 samples, the sealant (3M ESPE Clinpro Sealant) was applied on the occlusal fissures after phosphoric acid etching, according to the

manufacturer`s recommendations. Bucco-lingual cuts parallel to the long axis of the tooth were made in order to separate the two different types of preparations. The effects of the executed procedures were assessed with SEM. **RESULTS** SEM analysis revealed that the surfaces widened with ultrasound system appeared more irregular with the permanence of residual debris than surfaces prepared with traditional bur system. Furthermore, images showed the presence of cracks on the bottom and on the walls of the ultrasound prepared fissures. **CONCLUSIONS** Conventional bur surface treatment showed a better performance when compared to ultrasound preparation and could ensure superior sealant retention.

OPD3.6 Local anaesthesia during dental treatment in children under general anaesthesia: survey of Dutch Paediatric dentists

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AIM This was to evaluate the use of LA during GA and the postoperative procedures in Dutch children. Worldwide there are no guidelines on the use of local anaesthesia (LA) during dental treatment under general anaesthesia (GA). **METHODS F**or this evaluation, an email survey was sent to all Dutch Paediatric dentists (PD) registered by the Dutch Society of Paediatric Dentistry (n=52). A structured questionnaire was used to record data concerning the dental treatment during GA. Questions were asked regarding the use of LA and postoperative procedures. Results were analyzed using the Mann-Whitney U test (α=5%). **RESULTS A** total of 38 PD's responded and 68% (26/38) reported to perform dental treatment in children under GA. From this group, 69% (18/26) always administered LA, and 27% (7/26) used LA some of the time. PD's working in private clinics used LA more often with restorations (U=18.5; p=0.006), pulpotomies (U=28.0; p=0.005), crowns (U=11.5, p=0.000) and extractions (U=42.5; p=0.024) during GA in comparison to PD's working in hospitals. For PD's working in hospitals the decision to use LA was more dependent on the type of treatment in comparison to PD's working in private clinics (U=24.5; p=0.013). The majority of PD's reported following a postoperative protocol (96%). Analgesics were prescribed after GA by anaesthetists or PD (92%). **CONCLUSIONS** The majority of PD's used LA in children under GA and followed a postoperative protocol. PD's working in a private clinic used LA more often during GA in comparison to PD's working in a hospital.

OPD3.7 Development of an analgesic protocol for children undergoing dental treatment under general anaesthesia

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AIM To establish an appropriate analgesic regime for children undergoing paediatric dental general anaesthetic (PDGA) at East Surrey Hospital (ESH). **METHODS** Data was collected prospectively for all children placed on PDGA lists at East Surrey Hospital from December 2014-February 2015. Data was recorded by one of two Paediatric dental surgeons carrying out dental surgery. Children were

excluded whose data collection questionnaires were not fully completed. Data was collected for 34 patients. Ten notes were reviewed at random to validate data collection. **RESULTS** 53% of children were not provided with a recommended analgesic regime in accordance with national guidance. **CONCLUSIONS** Children were not being provided analgesia for PDGA in accordance with national guidance. The results were presented at a regional meeting. A protocol for the delivery of analgesics for children undergoing PDGA was therefore developed stating that ideally analgesics should be given prior to PDGA and intra-operatively in line with the national standards. A review of changes to services is planned for February 2016.

OPD3.8 Comparing the intubation effectiveness of the McGrath MAC and Macintosh laryngoscope in patients with cerebral palsy

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AIM This was to compare the intubation efficacy of Macintosh laryngoscope with that of the McGrath MAC video laryngoscope in patients with cerebral palsy. **METHODS** 40 patients with cerebral palsy, who were scheduled to undergo dental treatment, were included. Intubations were performed in patients randomly assigned to the McGrath MAC video laryngoscope or the Macintosh laryngoscope. The characteristics of the patients, mean arterial blood pressure, heart rate, end-tidal carbon dioxide, and peripheral oxygen saturation were measured. The intubation success, intubation time, Cormack and Lehane grades, number of trials, need for neck extension, and complications were recorded. **RESULTS** When both groups were compared in terms of the glottic view, intubation time, and need for neck extension, there was no significant difference ($p = 0.542$, $p = 0.779$, and $p = 1.000$, respectively). All the intubations were performed successfully at the first attempt in both groups, and no complications were recorded. **CONCLUSIONS** There was no evidence of intubation difficulty in either group of patients, and cerebral palsy, with its existing deformities, did not affect the intubation success or complication rate. No additional advantages of using video laryngoscopy in patients with cerebral palsy were found.

OPD3.9 Means, acceptability and outcomes of dental management of special needs patients in a private clinic in Bucharest, Romania

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AIM To evaluate dental compliance of special needs patients, factors that may influence it, means of providing dental care to this category of patients and overall treatment outcomes. **METHODS** A retrospective study using dental records of 77 special needs (SN) patients (age 1-18years, mean 7.36yrs [3.60]) that sought treatment in a private clinic in Bucharest, Romania (Jan 2012-Dec 2014). Personal data, initial behaviour (by Frankl's scale), initial indication of clinical approach, treatment provided and subsequent dental behaviour were recorded for each subject. Data was processed with SPSS22.0. **RESULTS** 79.2% of the subjects were initially uncooperative (Frankl 1-2). For 62.3%

sedation (oral midazolam and/or nitrous oxide) or general anaesthesia (GA) were initially proposed (56.2% of which was due to the complexity of dental treatment needed). For 24.7% of the parents refused the proposed treatment. Treatment: 35% under usual circumstances, 26% under conscious sedation and 14.3% under GA. Follow-up: 46.7% never returned for follow-up; 53.2% were followed in office for 12-36 months. Of the 31 subjects initially treated under sedation/GA, 16 needed further interventions under special conditions while 15 were subsequently treated under common circumstances. Dental compliance improved with time: number of cooperative subjects (Frankl 3-4) rose from 16 to 26. **CONCLUSIONS** Dental management of special needs patients sometimes implies special conditions. Complexity of needed treatment increases the need for sedation/general anaesthesia. Parents' awareness regarding the importance of prompt and proper dental care and regular follow-ups can contribute to improve dental compliance of special needs patients.

OPD3.10 An integrative treatment approach to regional odontodysplasia in a girl with chromosome 3 deletion and Autism Spectrum Disorder.

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BACKGROUND Regional odontodysplasia (ROD) is a rare, nonhereditary developmental anomaly of dental hard tissue that affects a localised region of the dentition. Behavioural management issues complicate the dental care of these patients. **CASE REPORT** A 5 year old girl was referred to the Dublin Dental University Hospital with multiple carious lesions and hypocalcification of teeth in the maxillary right quadrant (URQ). Her medical history revealed micro-deletion of chromosome 3, Autism Spectrum Disorder and dyspraxia. **FOLLOW-UP** Over the past six years, multiple dental issues have arisen where management was influenced by the autistic behaviour. Enucleation of the unerupted affected teeth was timed to maximise alveolar growth but prior to symptoms. Orthodontic treatment is unlikely to be tolerated. A series of dentures were provided for aesthetics and function. **CONCLUSIONS** Patients with ROD require multidisciplinary treatments and long-term follow-up. Management can be complicated by behavioural difficulties such as the diagnosis of autism in this child.

OPD3.11 Withdrawn

Session OPD4 - Behaviour Management

OPD4.1 Physiological and emotional responses to different caries removal methods

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AIM To evaluate and compare the physiological and emotional responses of Paediatric patients during cavity preparation with Erbium:YAG laser versus rotary instruments. **METHODS** A group of 62 6-12-years-old patients with matched carious lesions (D3 threshold, WHO system) was divided into two equal treatment groups. In the intervention group the cavities were prepared by Erbium:YAG laser 2940nm and in the control group mechanically, without anaesthesia. Each child`s response was assessed using a combination of three different measures: modified version of the Faces Anxiety Scale, heart rate and oxygen saturation. **RESULTS A s**ignificantly lower degree of dental anxiety was found at the end of dental treatment in the study group ($p<0.05$). The analysis of the self-reports of anxiety on the Faces Anxiety Scale showed a significantly lower degree of dental anxiety in the intervention group ($p<0.01$), while in the controls the results were unconvincing ($p=0.05$). The mean heart rate in the intervention group (103.26±13.48) demonstrated significantly lower degree of dental anxiety compared to the control group (109.74±8.65), ($p<0.005$). There was no statistically significant difference in oxygen saturation levels ($p>0.05$). **CONCLUSIONS** The simultaneous evaluation of the physiological and emotional responses demonstrated that Er:YAG lasers have considerable advantage as an alternative method for caries treatment regarding stress and anxiety reduction during the period of middle childhood compared with the conventional drilling method.

OPD4.2 The effects of mother's personality on dental anxiety of 3-6 year old children

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AIM This was to determine the effects of mothers' personalities on the dental anxiety of children aged between 3-6 years old and who had their first dental visit. **METHODS** Mothers of 230 children aged between 3-6 years old who had their first dental visit and applied to the Dept. of Paediatric Dentistry at the Ondokuz Mayýs University included in this study. To determine the dental anxiety of the children, Frankl's Behavioral Scale was used. Accordingly, 150 children were identified as a dental anxiety group. The control group consisted of 80 children. Mothers were informed about the study and administered the Temperament and Character Inventory (TCI) that is a 240-item self-administered questionnaire constructed to assess four temperaments (Novelty Seeking, Harm Avoidance, Reward Dependence, and Persistence) and three character dimensions (Self-Directedness, Cooperativeness, and Self-Transcendence). All data were determined statistically by using SPSS 21.0 software program with Shapiro Wilk test, Student t test and Mann Whitney- U test. **RESULTS** Temperament dimension in the dental anxiety group had significantly higher scores on novelty seeking, reward dependence and persistence ($p<0.05$). There was no statistically difference

in the harm avoidance dimension. Scores of all character dimensions were significantly higher in dental anxiety group compared to the control group ($p<0.05$). **CONCLUSIONS** Mothers' personalities were important associated factors in the dental anxiety of children aged between 3-6 years old.

OPD4.3 Withdrawn

OPD4.4 Withdrawn

OPD4.5 Management of hypomineralised and carious primary molars using a biological approach

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BACKGROUND Hypomineralisation of primary molars is not uncommon and is a risk factor for dental caries. A biological approach in caries management of primary teeth aims to seal carious lesions to arrest progression. This effective and conservative approach is a preferred by children, parents/carers, and dentists as it does not involve local analgesia (LA) and tooth preparation. It is important to note that this approach carries a risk of lesion progression if treatment is not successful. **CASE REPORT** A 3-year-old, fit and healthy patient presented with asymptomatic, hypomineralised primary molars with secondary arrested caries and excellent oral hygiene. The patient was unable to cooperate, accept radiographs and treatment under LA. As the dentition was asymptomatic, all treatment options were discussed including the use of Hall technique (HT) preformed metal crowns (PMC). Treatment consisted of a prevention visit and acclimatisation, followed by two visits of sealing the hypomineralised primary second molars via PMC using the HT. An occlusal discrepancy (Increase in OVD) was apparent immediately after crown cementation but the patient was symptom-free and able to function. **FOLLOW-UP** After 1.5 years the patient remained asymptomatic and the occlusal discrepancy from the PMC had completely resolved. Ongoing follow-up includes careful monitoring of the eruption of first permanent molars to avoid impaction. **CONCLUSIONS** The biological approach using HT is an effective way of managing asymptomatic hypomineralised or carious primary molars in a very young patient. However, it is important to clinically and radiographically review these patients and provide ongoing prevention.

OPD4.6 Effect of parents' academic background and time of the first dental visit on children's behaviour

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AIM This was to find out if children's behaviour during dental treatment is more influenced by the time of the first dental visit or their parents' academic background. The effects of both factors on oral health were reviewed. **METHODS** 68 parents participated in the study (7 men and 61 women, 76% of them with a degree and the rest only with secondary education). The questionnaire consisted of different parts: parents' professions, time of first dental visit and fear-related

questions. Children were graded according to the oral health-related quality of life scale (OHRQoL). Results were statistically analysed. **RESULTS** The time of children's first dental visit influenced the children's behaviour ($p<0.05$). Children who visited dentists early showed a more cooperative behaviour ($p<0.05$). The dental health, however, was affected by both factors. Parents with an academic background were often associated with children who showed a good oral health ($p<0.05$). Children who visited the dentist at an early age were also more likely to have fewer decayed, missing or filled teeth ($p<0.05$). **CONCLUSIONS** Parents with academic background are often better informed about oral hygiene measurement and prophylaxis. Their children often have better results in their dental health. An early visit to the dentist enables the child to have a playful approach in the dental treatment process that promotes cooperation at further life stages.

OPD4.7 Dental fear in children… What about it?

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AIM This was to review the published scientific literature to quantify the prevalence and mean score of dental fear/anxiety (DFA) in children / adolescents and its variation according to several variables. **METHODS** Cross-sectional and cohort studies published from 2000 to 2014, that measured DFA in children /adolescents (aged 0-19 years), in the general population, or visiting private or public dental services (General or Paediatric) or attending school and kindergarten, were searched, with specific terms, in 3 electronic databases (Medline, Embase, Web Of Science). Primary data, collected with specific questionnaires with demonstrated reliability and/or validity, were extracted. **RESULTS** After screening 738 abstracts and evaluating 159 full-text publications, 32 articles were selected. Dental fear/anxiety prevalence rates were 12.2%, 10.0%, 12.2%, 11.0% and 20.0% for the CFSS-DS, DAS, MCDAS, DFS, and DFSS-SF scores, respectively. In the studies that used CFSS-DS ratings, the prevalence and the mean score of dental fear/anxiety was lower in Northern Europe than the remaining countries, the prevalence decreased with increasing age and the frequency was higher in females than males. **CONCLUSIONS** Dental Fear/Anxiety is a common problem in children/adolescents worldwide, new strategies to overcome this relevant children/adolescent condition should be encouraged.

Session OPD5 - Cariology

OPD5.1 In vitro assessment of antibacterial activity of Pomegranate juice and peel extracts on mutans Streptococci

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AIM This was evaluate the antimicrobial activity of hydro-alcoholic extracts of the peel and juice of pomegranate (Punica granatum L.), already known for its antimicrobial activity, against microorganisms considered aetiologic agents of dental caries. Several medicinal plant extracts have been shown to inhibit the formation of dental biofilms by reducing the adhesion of microbial pathogens to the tooth surface. **METHODS** A microbiological test was performed, using hydroalcoholic extracts of peel and pomegranate juice. To evaluate the antibacterial effect of the extracts, assays of growth and survival were made, utilizing the dilution tube method. After incubation at 37 ° C for 72h, from each tube the samples were used to determine the optical density at 600 nm. Then, the minimum inhibitory concentration (MIC) and the minimum bactericidal concentration (MBC) were evaluated against the strain ATCC 25175 of mutans Streptococcus (MS), obtained from samples of Paediatric patients' dental plaque. **RESULTS**
Using extracts of pomegranate juice, the value of the MIC obtained against the strain ATCC 25175 of MS has been 25µg/µl and the MBC of 40µg/µl. The pomegranate peel extracts showed a greater inhibitory effect than juice extracts against MS, with a MIC of 10µg/µl and a MBC of 15µg/µl. **CONCLUSIONS** Preliminary results of microbiological tests performed indicate that the hydro-alcoholic extracts of the peel and juice of Punica granatum L. showed inhibitory effect on the growth and survival of MS.

OPD5.2 The dental caries experience among Albanian pre-school children, nationwide data 2016

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AIM This was to determine the dental caries experience and treatment needs among the pre-school children of Albania. **METHODS** The present cross sectional study was conducted in Tirana among 2039 pre-school children, 5 years old. Children`s residency were divided into 3 main regions as South, West/Central and North. The WHO diagnostic criteria were used and dental caries was recorded at cavity level d3 Regarding statistical calculations, Mann- Whitney test, one way ANOVA and Tukey post hoc tests was used in the comparison of groups. **RESULTS** The mean age of the children was 5.4 ± 0.47 years. The caries prevalence (dmf>0) was 84.1%. The proportion of caries-free children (dmf=0) was 15.9% (n 324) overall, prevalence of children without cavitated lesions (d=0) was 20.1%. The mean caries experience was dmft=4.41 ± 3.83, (95%CI 4.24-4.58). **CONCLUSIONS** The Albanian preschool children assessed in this survey had a high dental caries experience in the primary dentition.

OPD5.3 Full Mouth Aesthetic Rehabilitation of ECC: A case report

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BACKGROUND Early Childhood Caries **(**ECC) is a public health problem that affects infants and preschool children. It presents carious lesions that can go up to destruction of the primary dentition. Full mouth rehabilitation including the aesthetic restoration of severely affected primary teeth has always challenged dentists, because of limitations of available materials and techniques but also because of cooperation with young children. Full-mouth rehabilitation with general anaesthesia (GA) can offer many dental benefits, but contributes towards the improvement of general and psychological well being of children. **CASE REPORT** A 3.8 year-old male patient reported to a private clinic with a complaint of pain in multiple severely decayed teeth. The patient was emotionally immature and highly uncooperative. Intraoral examination revealed multiple carious lesions, with 55, 54, 52, 51, 61, 62, 64, 65, 74, 75, 84 and 85 showing pulp involvement and crown grossly destructed. All teeth were restored. **FOLLOW-UP At** 3/6 months recall showed good retention of crowns, good aesthetic and function. Teeth 51 and 61 showed external resorption on middle third of the root. **CONCLUSIONS** The patient was very happy with the functional and aesthetic results. Full-mouth rehabilitation with GA can offer not only dental benefits, but contributes towards general and psychological well-being of a patient.

OPD5.4 The comparison of the biocompatibility and antibacterial effects of different commercial mouthwashes

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AIM This was to compare the biocompatibility of 12 different commercial mouthwashes (Meridol, Elmex, Colgate-2 in1, Colgate Plax-Multi Protection, Colgate Optic White, Sensodyne-Pronamel, Oral-B Pro-Expert Multi Protection, Kloroben, Curosept, SmileGuard-Hello Kitty, Listerine Cool Mint, Listerine Zero) and to evaluate antibacterial effects against mutans Streptococcus (MS) and Lactobacillus rhamnosus (LR). **METHODS** Human gingival fibroblast cell lines obtained from healthy individuals were used. Cytotoxicity of the agents was analyzed by using the real time xCELLigence System Analysis. Apoptosis was evaluated by using AnnexinV and CASPASE3 test methods. H2AX test method was used for the evaluation of genotoxicity. Antibacterial effects of the agents were examined by using modified microdilution test. Statistical evaluation: sigmoidal dose-response analysis was used to compare the toxicity of mouthwashes. Data obtained from apoptosis and genotoxicity test results were evaluated statistically by using chi-square test and odds ratio analysis. **RESULTS** The least cytotoxic effect was with Listerine Zero compared to the other products. Colgate Plax-Multi Protection, Kloroben, SmileGuard-Hello Kitty and Oral-B Pro-Expert Multi Protection mouthwashes were observed to have significant effect in inducing apoptosis in AnnexinV test($p<0.05$).No significant apoptotic effect was found for all the study groups in CASPASE3($p>0.05$). According to the genotoxity test results, no significant genotoxic effect was found for all the study groups ($p>0.05$). Colgate Plax-Multi Protection, Sensodyne-Pronamel and Kloroben were found

more effective mouthwashes against MS. Colgate Plax-Multi Protection was the most effective mouthwash against LR. **CONCLUSIONS** The biocompatibility and antibacterial effects of mouthwashes varied according to their contents. It can be recommended to prescribe least toxic mouthwash on oral mucosa while having more antibacterial effect.

OPD5.5 Oral health related quality of life in children following dental treatment under general anaesthesia - a systematic review.

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AIM To evaluate the changes in parent-assessed oral health related quality of life (OHRQoL) in young children following dental treatment under general anaesthesia based on a systematic review. **METHODS** A comprehensive literature search was employed using the PubMed, Embase, Cochrane Library, Web of Science and CINAHL databases. Two observers rated these articles according to set exclusion and inclusion criteria. Descriptive data pertaining to the study design, sample size, instruments used for assessment, follow-up period and the study findings were compiled for each of the studies included in the final analysis. **RESULTS** Eleven articles were included in the final analysis. The common reasons for exclusion were; use of inappropriate instruments, reports not based on parent perceptions of child OHRQoL, and the lack of pre-operative assessments. All studies exhibited good construct validity in all aspects of the parent perceptions of their child`s OHRQoL. **CONCLUSIONS** Dental treatment of children under general anaesthesia was associated with a significant improvement in the child`s OHRQoL as assessed by their parent or caregiver.

OPD5.6 Study of oral cavity's environment and dental indifference scale in mixed dentition

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AIM To determine if conventional tests of saliva and cariogenic micro-organisms can predict the carious activity in terms of Dental Indifference Scale. **METHODS** The study 117 patients aged between 6 and 12 years, from Bacau County, Romania. Recording of carious lesions was for dmft and DMFT systems. Saliva-Check Buffer salivary kit was used for testing the saliva samples and for obtaining the salivary pH level, salivary flow rate and buffering capacity. Dental Indifference Scale was used for assessing the dental indifference. **RESULTS** Dmft index value, , was greater than 0 at a rate of 76.9% and coincided with the presence of mutans Streptococcus (MS) in saliva. Between the child's score of Dental Indifference Scale and area of origin ($r = 0.22$, $p < 0.05$) and the presence of MS was correlated with a low significance ($r = 0.294$, $p < 0, 01$). The presence of MS was inversely proportional to salivary biomarkers ($r = -0.420, -0.457, -0.237, -0.481$ respectively and $p < 0.01$ except for the buffering capacity at $p < 0.05$); the same inversely proportional ratio applied to DMFT scores in relation to the salivary tests. **CONCLUSIONS** Cariogenic micro-organisms are good indicators for caries. There is a strong correlation between DMFT scores and MS in saliva and dental

plaque. Dental Indifference Scale was found to be an easy method to use for oral health assessment.

OPD5.7 Withdrawn

OPD5.8 Effects of laser and casein phosphopeptide-amorphous calcium phosphate on caries resistance

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AIM This was to evaluate the effects of Erbiyum: Ýtriyum-Alüminyum-Garnet (Er:YAG) laser, Casein Phosphopeptide-Amorphous Calcium Phosphate (CPP-ACP) paste, and Er:YAG laser combined with CPP-ACP paste treatments on caries resistance of permanent teeth enamel. **METHODS** Enamel samples were obtained from permanent teeth and randomly divided into four groups (n=22) each according to surface treatment: control (Grp 1), CPP-ACP paste (Grp 2): Er:YAG laser (Grp 3): Er:YAG laser combined with CPP-ACP paste (Grp 4). Specimens were stored in distilled water at 37°C for 24 h and then submitted to pH cycling. Caries resistance of samples was assessed by measuring lesion depth with a polarized light microscope, and by evaluating structural changes with a scanning electron microscope (SEM). Results were analyzed by ANOVA and Tukey's tests. **RESULTS** The greatest lesion depth occurred in the Grp 1 (51.12±10.79), followed by the Grp 4 (45.17±9.84), Grp 3 (37.49 ±11.50) and Grp 2 (36.33±10.61). There was no statistically significant difference between the Grp 2, 3, and 4 ($p>0.05$). No differences were also noted between Grp 1 and Grp 4 ($p>0.05$). SEM examination also revealed obvious morphological changes in all groups. **CONCLUSIONS** CPP-ACP paste and Er:YAG laser treatments had positive effects to enhance the caries resistance of permanent teeth enamel. *Supported by Ondokuz Mayýs University Scientific Research and Development Support Programme (PYO.DÝS.1904.11.010).*

OPD5.9. A 7-year follow-up of minimally invasive treatment of a child with Early Childhood Caries - case report.

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BACKGROUND The study reports 7- years follow-up of patient with Early Childhood Caries (ECC) and dental anxiety managed with the use of minimally invasive approach. . A Polish study of children from 2 to 5 years has demonstrated that 35- 60% ECC. **CASE REPORT** A 9-yr old female patient with no relevant medical history suffered from EEC and dental anxiety. Initial clinical examination showed carious lesions on existing primary teeth, gingival inflammation and plaque accumulation. Dietary and hygiene habits had a significant impact on oral health. Cooperation with the patient was difficult by the high level of dental anxiety. **FOLLOW-UP** Over the next 7 years the patient showed an increase in cooperation and the gradual acceptance of more invasive dental procedures. During subsequent clinical examinations no signs of infection and pain were detected. **CONCLUSIONS** There is growing evidence that minimally invasive approach can arrest caries

progression such that the involved primary tooth can remain in the mouth until exfoliation without causing the child pain and infection.

OPD5.10 Withdrawn

OPD5.11 Evaluation of efficiency of optical magnification in the early detection of dental caries in children and adolescents

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AIM To evaluate whether the dental loupes are able to improve the visual-tactile method of caries detection and the clinician`s ability to detect incipient caries. **METHODS** The data required for this study were obtained through initial (not assisted by dental loupes) and secondary (assisted by Ergonoptix Galilean 2,5X Loupes) consultations conducted on a group of 128 patients aged 3 years and 4 months and 17 years and 8 months with a mean age of 8.76 ± 0.2 years, which presented for examination and treatment at the Paedodontics Clinic of the Faculty of Dental Medicine, Bucharest, over a period of 6 months. **RESULTS** Through the use of loupes magnification have been observed 2.44% (n = 284) more marmorations and 1.6% (n = 109) more incipient caries than without it ($p < 0.001$). There were statistically significant correlations between the number of cavitation caries detected and the type of determination only in caries located on one dental surface ($p < 0.05$), while in the case of cavitated caries located on multiple surfaces the use of loupes has not provided benefits. **CONCLUSIONS** Visual magnification proved to be a more effective method for early detection of caries compared to traditional methods.

OPD5.12 Influence of social environment on occurrence of early childhood caries (ECC)

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AIM This was to **e**xamine the effect of social environment i.e. monthly income and oral health awareness of parents on occurrence of the early childhood caries (ECC) in their children. **METHODS** 130 parents who lived in the municipality of Tivat were included in the study sample. Dental examinations of children were conducted using the method of Drury (probe and dental mirror). **RESULTS S**tatistically significant differences in the incidence of early childhood caries in children in relation to the employment status of their parents were found. 56.4% of children of working parents, 36.2% of children whose parents are unemployed and 31.4% children of temporary employed parents did not have ECC, which was more frequent in children of temporary employed in relation to children of employed and unemployed mothers. There was also a statistically significant difference in occurrence and severity of ECC in children in relation to oral health awareness of their parents. Employed parents in 76.4% of cases were well informed about oral health as opposed to parents who were being unemployed or temporarily employed where that percentage was 43.3%. **CONCLUSIONS** There was a direct correlation between employment status, monthly income and

oral health awareness of parents in relation to severity and occurrence of early childhood caries in their children.

OPD5.13 Dental general anaesthesia treatment among children: a follow-up study

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AIM This was to assess dental general anaesthesia (DGA) treatment performed for young children in Lithuania and to evaluate children's oral health status at the six-month recall. Young children, suffering from severe dental caries, often have to be treated under general anaesthesia (GA). **METHODS** This was a prospective clinical follow-up study among young Lithuanian children (<6 years) receiving DGA treatment at the University Hospital during 2010-2012. Data was used from the clinical dental examinations at time of the DGA and at six-month recall, and patient records (including dental status and treatment provided). The dmft index and Silness-Loe plaque index (PI) served for assessment of children's oral health. Wilcoxon signed-rank test served for statistical analyses. **RESULTS** Complete baseline and follow-up data were obtained for 144 and 108 participants respectively (75% follow-up rate). The children's mean dmft prior to the treatment was 12.9 (SD 3.5). A clear majority of the patients (80%) had poor oral hygiene (PI ≥2). The average number of treatments provided per patient was: 6.13 (SD 3.41) fillings, 0.84 (SD 1.16) pulpotomies, 4.33 (SD 2.96) extractions and 2.47 (SD 2.93) preventive procedures. Most patients had new caries lesions (90%) and poor to satisfactory oral hygiene (75%) at the six-month recall. **CONCLUSIONS** Young Lithuanian children with high treatment need receive comprehensive DGA care including multiple caries treatments and extractions. The relapse rate of caries 6 months after DGA treatment is very high and children's oral hygiene is insufficient.

Session OPD6 - Epidemiology

OPD6.1 The effect of a dental charity in Iraq on the average number of decayed and filled teeth in school children

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AIM To evaluate the relationship between the number of visits by GKF to the school at each location and the average number of decayed and filled teeth. Global Kindness Foundation (GKF) is a Canadian based charity, which provides dental treatment to children in developing countries around the world. In April 2015 GKF visited Iraq for the 7th year to carry out dental treatment at three schools located in Baghdad, Kerbala and Najaf. This was the 1st visit to Baghdad, 2nd to Kerbala and 7th to Najaf. **METHODS** Rubber dam is used when carrying out a range of treatments including fissure sealants, restorations, pulpotomies, preformed metal crowns and extractions. For patients who are anxious, oral sedation is used. Oral hygiene instruction, dietary advice, toothpaste and toothbrushes are given as part of the preventive programme. 449 dental charts completed by 10 dentists in Baghdad (n=130) Kerbala (n=159) and Najaf (n=177) were analysed. **RESULTS** The average decayed and filled rate per person was 4.5 and 0.2 in Baghdad, 3.3 and 0.7 in Kerbala and, 2.0 and 1.2 in Najaf respectively. Correlation coefficient analysis demonstrated a very strong negative relationship (r=-0.98) between number of visits and average number of decayed teeth and a very strong positive relationship (r=+0.97) between number of visits and average number of filled teeth. **CONCLUSIONS** The GKF visits have a positiveeffect in improving the oral health and quality of life of school children.

OPD6.2 WITHDRAWN

OPD6.3 Prevalence of non-carious lesions in children

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AIM This was to determine distribution of these lesions in the group of schoolchildren. Non-carious lesions (NCL) gain increasing clinical attention, while their etiology requires further clarification. **METHODS** A total of 59 children aged 14 years of age were included in the present investigation. Two independent clinical dentists examined the teeth of each subject to determine NCL and affect teeth were diagnosed with dental examination and TWI index. **RESULTS** 59 children with permanent dentition were included in this study. Non carious lesions found in 57.1% of boys and 20.8% of girls (statistically significant (p=0,012)). TWI index showed that minimal enamel loss was localised in teeth crowns in inter-canine region. The most common loss was in incisors 94.6% and canines 4.3%. **CONCLUSIONS** Non-carious lesions were significantly more frequent in boys than in girls and usually presented on teeth in the inter-canine region which can be linked with an incorrect occlusion. The significant distribution of non-carious lesions demands further research about their aetiology

OPD6.4 First permanent molar status in schoolchildren from Pitesti (Romania)

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AIM To assess the eruption and the status of first permanent molar (FPM) in 7 years old schoolchildren from Pitesti, an industrial city from Romania. **METHODS** A cross-sectional study was conducted upon 123 schoolchildren (59 girls, 64 boys; mean age 7.55±0.27 years) examined in the school dental office. The status of erupted FPM: sound, presence of caries (at the level of cavitation), fillings and teeth missing due to caries were recorded. Mean values and confidence intervals for: prevalence index (IpFPM), DMFT/SFPM, SiCFPM Index for the entire group and separately for boys and girls were calculated. Data were analyzed using dedicated software. **RESULTS** Erupted FPM – all four in 81.30% of children, three in 6.5% of children, two in 8.95% of children, none in 3.25%. FPM caries free (%) - entire sample: 53.65; boys: 48.44, girls: 59.33 (NS p=0.313). IpFPM (%) - entire sample: 46.34; boys: 51.56, girls: 40.67. DMFTFPM - entire sample: 0.84±1.09; boys: 0.96±1.15, girls: 0.69±1.00 (NS, p=0.165). SiC30FPM - entire sample: 2.09±0.91; boys: 2.68±1.33, girls: 1.89±0.87 (NS, p=0.848). DMFSFPM - entire sample: 0.92±1.3; boys: 1.03±1.35, girls: 0.79±1.21 (NS p=0.316). Caries distribution (%) - 71.17 occlusal, 19.82 proximal, 6.31 buccal and 2.70 oral. **CONCLUSIONS**
Most of the FPM were erupted. Almost half had caries in both sexes and almost three half had occlusal caries. Early individualised local preventive strategies, addressing schoolchildren from the first grade, can have better efficiency in helping decrease caries prevalence at FPM.

OPD6.5 Eruption Cysts: A Clinical Report of 66 New Cases

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AIM Eruption Cysts (EC) are reported in 53 patients with who were diagnosed at 3 different centres in Turkey, between 2014-2015 years. EC is a benign cyst associated with a primary or permanent tooth which is developmental in origin. **METHODS** During a one year period 31 male and 22 female children with EC were diagnosed and treated. The mean age of patients was 5.73 years (minimum 5 months, maximum 11 years). Clinical examination and periapical radiographs were used to establish diagnosis. Age, gender, site and the type of treatment provided were recorded. **RESULTS** The analysis of the 66 EC cases, corresponding to 53 patients revealed that their most frequent location was in the maxillary permanent dentition (56.6%). Maxillary central incisors were the most commonly associated teeth with EC (30.3%). Of 53 cases 14 children showed multiple eruption cysts. Two other patients had been previously diagnosed with EC in primary dentition and presence of trauma in primary teeth had been reported in three patients. The type of treatment provided was one of the following: no treatment (46 cases, 86.8%) and surgical treatment (7 cases, 13.2%).

CONCLUSIONS Eruption cysts are usually asymptomatic lesions and do not require treatment. However, if the cyst is symptomatic, it should be treated with simple surgical excision.

OPD6.6 Labial frenum attachment in Greek children: An epidemiologic assessment

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AIM To present the prevalence of labial frena attachment types in 5 and 12 years old Greek children. **METHODS** A stratified cluster sample of children, aged 12 (n=139) and 5 (n=221) years, was examined by 3 calibrated examiners. Labial frenum attachment was classified according to the Mirko classification (mucosal, gingival, papillary and papillary penetrating). Statistical analysis was performed with univariate and multivariate ordered regression analysis.
RESULTS Most frequent frenal attachment type in 12 yea- old children, for both maxilla (57%) and mandible (58%), was gingival while in 5 year olds mucosal (38%) and gingival (57.5%). Multivariate ordered regression for the maxillary frenum indicated that being older (12 year old group; OR: 2.05, CI:1.38-3.04) and female (OR:1.45, CI:0.99-2.12) increased the likelihood of having a more coronal attachment. Age remained a significant predictor of mandibular frenum more coronal attachment (OR: 6.6, CI:4-10.7). Higher mandibular attachment was associated with more coronally attached maxillary frenum (OR: 2.2, CI:1.54-3.24) in the entire sample; this association remained significant for the 12-yr group (OR:2.4, CI:1.3-4.7). **CONCLUSIONS**
In a nationally representative sample of Greek children, the most frequent labial frenum attachment was the gingival type for the 12 yr while for the 5 yr the mucosal for the maxilla and the gingival for the mandible. *"Assessment and promotion of oral health of the Hellenic population" programme of the Hellenic Dental Association, funded by a National Strategic Reference Framework (NSRF) Grant of the EU.*

OPD6.7 Dental caries polarisation and its association with early childhood determinants: an epidemiological study

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AIM To evaluate polarisation of dental caries among 15-year-old Lithuanians and to identify any association with early childhood determinants. **METHODS** This cross-sectional dental caries study was carried out among 15-year-old Lithuanian schoolchildren in 2014. The sample size was calculated using the Paniott`s formula. A cluster sampling method, with schools as clusters, was used. Two trained and calibrated examiners (inter-examiner Kappa =0.92) examined 1,072 15-year-old Lithuanians. DMFT index was assessed according to WHO criteria and a SiC index was calculated. Parents were asked to complete the questionnaire about early childhood determinants. Student`s t tests, chi-square tests, and multivariate logistic regression (with SiC as the outcome), were performed. Statistical analysis was performed using SPSS software (version 22). **RESULTS** A mean DMFT score was 2.57 (±2.59), mean SiC score - 5.06 (±2.26)and the proportion of "caries free"

subjects was 24,7% in the study sample. A higher SiC index was registered in rural areas 5.41 (SD=2.54; p<0.001) in comparison with 4.82 (SD=2.02; p<0.001) in urban areas. Mean DMFT of SiC positive subjects reached 5.06 (±2.26) and mean D was 1.56(±1.92) while mean DMFT was 0.86(±0.83) and mean D was 0.27(±0.54) of SiC negative subjects (p<0.0001). The only one early childhood determinant independently associated with the "SiC positive" outcome was “report of decayed primary teeth" [OR=1.739(95% CI 1.337 to 2.263], p<0.001. **CONCLUSIONS** Higher SiC score was registered in rural areas. SiC was associated with “report of decayed primary teeth”.

OPD6.8 Prevalence of early childhood caries in children referred to a University Paediatric dentistry clinic in Istanbul

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AIM This was to assess the prevalence of Early Childhood Caries (ECC) in Turkish children. **METHODS** 310 children aged between 12-69 months who attended Paediatric Dentistry Department of Marmara University between January – June 2015 were studied. Information about oral hygiene practices, dietary habits, breast and bottle feeding duration, socioeconomic status were collected relying on parents’ responses to questionnaires. The status of dental caries was recorded according to the World Health Organization criteria. Collected data were analyzed by using Mann Whitney U and Kruskal Wallis tests and Pearson correlation analysis. **RESULTS**
267 children (86,1%) had experienced severe ECC, and 17 children (5,5%) ECC. 284 (% 91,6) of the children had dental caries with mean dmft and dmfs scores of 8,65 ± 4,77 and 17± 13,45, respectively. ECC significantly increased with age. Children whose parents had lower education level and had less monthly income showed higher dmft scores. A significant increase in dmft scores was found in children who had been bottle fed for longer duration and nighttime after one year. Caries also increased significantly when snacks were consumed more than 3 times a day. However, parental supervision during tooth brushing decreased dmft scores. No association was observed between dmft scores and gender, previous fluoride application, maternal smoking exposure. **CONCLUSIONS** The prevalence of ECC in the study group was high. Promoting good oral hygiene practices and enhancing mothers’ knowledge of oral health may help to reduce the risk of ECC in the study group.

OPD6.9 Evaluation of black stain prevalence, associated factors and parental awareness status in 3-6 years old children

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AIM To evaluate the black stain (BS) prevalence of 3-6 years old children attended to Karadeniz Technical University, Faculty of Dentistry, Department of Paediatric Dentistry between October 2014 and October 2015. **METHODS** As a cross sectional study, 257 patients were visually analysed

by single operator in cases of black stain presence (BS+) and absence (BS-) by also applying the parental questionniare including socio-demographic factors, dietary and oral hygiene habits, professional dental care, systemic disease and parental awareness status after providing ethical approval. Statistical analyses were completed with Mann Whitney U, Chi-Square and multivariate logistic regression tests. The significance level was set as $p<0.05$. **RESULTS** The presence of BS (+) was found as 15.6% (n=40/257) during observation period. No significant differences were found regarding socio-demographic factors, oral hygiene habits, professional dental care ($p>0.05$), however significant differences were obtained in cariogenic ($p<0.01$) and protein based dietary habits ($p<0.05$), systemic disease ($p<0.05$) and also dmft index ($p<0.05$) between BS (+) and BS (-). Lower dmft scores ($p=0.011$; OR=0.882) and systemic disease ($p=0.042$; OR=2.319) patterns were found as determinant factors related to the BS prevalence. The BS (+) parental awareness ratio was found as 82.5% (n=33/40). Parents showed significantly higher ($p<0.001$) awareness status at lower age groups. **CONCLUSIONS** The lower caries experience and systemic disease problems could be considered as related factors for BS prevalance. Future studies are warranted to evaluate the specific factors associated with BS prevalence.

OPD6.10 Evaluation of the prevalence, severity and treatment needs of MIH in 8- and 11-year-old children in Ankara, Turkey

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AIM To evaluate the prevalence of molar-incisor hypomineralisation (MIH), and compare the severity of the defects and treatment needs in MIH-affected teeth of children in two different age groups. **METHODS** A total of 4,018 children in Ankara, Turkey participated in the study. A younger group was comprised of children aged 7-9 years (median age: 8.0), and an older group aged 10-12 years (median age: 11.1). MIH was diagnosed based on the EAPD criteria. The data was analyzed using Pearson's Chi-square, Fisher's Exact, Spearman's correlation and McNemar's tests **RESULTS** 7.7% of the children were affected with MIH to in different degrees of severity; and no difference was found between the genders. MIH was found to be prevalent at a significantly higher rate ($p<0.05$) among the younger group (8.5%) when compared to the older group (6.5%). Positive correlation was found between seriously affected first permanent molars and number of the both affected incisors and FPMs ($p<0.001$; $p<0.01$). Mild defects (white-cream and yellow-brown demarcated opacities) affecting FPMs were significantly higher in the younger age group ($p<0.05$), whereas atypical deep, large cavities, atypical restorations and extracted first permanent molars were significantly higher in the older age group ($p<0.05$). **CONCLUSIONS S**everity of lesions increased with age in MIH. The affected children should be watched closely from the beginning of the eruption of the FPMs.

OPD6.11 Modified World Health Organisation (WHO) checklist adherence in the paediatric dental department at Eastman dental hospital

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AIM To eliminate clinical errors, and ensure correct-site surgery is carried out for all patients undergoing irreversible and invasive dental procedures. This audit aimed to determine if the modified WHO checklist was completed accurately in full before the dental treatment commenced, and stored in the case notes. **METHODS** Inclusion criteria: patients attending the department for invasive dental treatment during 2 cycles: 6th-30th January 2015 and 1st-30th June 2015. Exclusion criteria: New patients; reviews; patients requiring non-invasive/reversible treatments such as fissure sealants and fluoride varnish. **RESULTS** 196 and 150 notes were audited in cycle 1 and 2 respectively. In cycle 2, 93% of the notes had a checklist available compared to 82% in cycle 1. Consent obtained and team confirmed patient, procedure and site in 100% of notes in both cycles. In cycle 2, 74% of the checklists were completely filled compared to 59% in cycle 1. In cycle 2, allergy recording, ASA grade, and planned procedure were completely filled compared to cycle 1. **CONCLUSIONS** The modified WHO checklist was introduced to the department in December 2014. It is every clinician's responsibility to complete the checklist. It is essential to ensure that the correct site surgery checks are in place prior to invasive dental treatment, to reduce the potential of serious incidents occurring, to ensure good practice, and to enable future comparison of outcomes on national or international level.

OPD6.12 Relationship between birth weight and deciduous tooth eruption among children of Nepal

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AIM To evaluate the relationship between birth weight and eruption time of 1st primary tooth among children. **METHODS** This was a cross sectional study done among 464 children of age (5-60 months) at Dept of Paediatrics who came for vaccination. Children were divided 3 groups according to birth weight as: normal weight - equal or more than 2.5kg: as, low birth weight- below 2.5kg: very low birth weight - below 1,500gm. Children were examined using mouth mirror. Parents were asked about the birth weight and the gestational time in weeks. Data were entered using SPSS Student t test and Anova were used for statistical analysis. **RESULTS** Out of 464 children, only 373 children were included, of whom 54.7% were male and 45.3% female. The mean gestational age was 39.8 ±1.3 weeks and birth weight 3.26 ± 0.58 kg. Among males, mean age of tooth eruption was found to be 8.36 ±1.67 months and among females 7.82±1.48. The first tooth to erupt in the oral cavity was found to be mandibular incisors among both boys and girls. No significant difference was found between tooth eruption time with the birth weight of the children. **CONCLUSIONS** The first tooth to erupt was found to be mandibular central incisors among both male and female. The mean age of first tooth eruption was 7 .82 months in female and 8.36 months in male. No statistical significant difference was found in relationship between first tooth eruption and birth weight.

OPD6.13 An audit of prescribing practices of the department of paediatric dentistry, Eastman dental hospital.

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AIM This was **t**o assess the antibiotics prescribing in the following areas; 1. 100% correct dose was prescribed according to the age of the patient, the temperature should always have been taken for children suffering fever and facial swelling. 2. All patients` details should have been recorded properly in each patient`s notes and prescription book. **METHODS** The method was divided into four main sections: 1. Review of guidance and standard setting: 2. Collecting data and analyzing them: 3. Intervention to improve the outcomes: 4. Repeat the cycle and compare the results. **RESULTS** Number of patients who had antibiotics prescribed, diagnosis, temperature, doses and recording patients` details were checked. There were 45 (90%) patients out of 50 who had antibiotics prescribed in the first cycle while only 25 (78%) out of 32 required antibiotics in the second cycle. In both cycles, an abscess was the most common reason for prescription (33% and 40% respectively). In cycle 2, 4% of patients with facial swelling had their temperature taken compared with 0% in cycle 1. A correct dose was prescribed for 96% children in cycle 2 compared with 69% in cycle 1. In cycle 2 100% of patients` details were registered properly in the prescription book. This compared with 87% in cycle 1. **CONCLUSIONS** The required standards were partially met. Prescribing is an integral part of good clinical governance and a third cycle will be carried out.

Session OPD7 Dental Trauma II/Endodontics

OPD7.1 Decoronation for untreatable traumatized anterior maxillary teeth

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BACKGROUND Dental trauma is reasonably common especially in children between 8-10 years old and maxillary incisor teeth are the most affected teeth (80%). One of the most serious injuries is crown root fracture, which damages both the pulp and the periodontal ligament. Decoronation. Is an optional treatment for the maxillary incisor teeth with an infraposition of over 1 mm and which could not be restored. Decoronation is a safe treatment where the root is left in alveolar socket for the development of alveolar bone, after the crown extraction. **CASE REPORT** A male patient aged 11 years old applied to Dept. of Paediatric Dentistry with a trauma history. The patient was diagnosed with enamel-dentine fracture in 11 and horizontal root fracture in 21. An aesthetic restoration was applied to 11 central with composite resin. Moreover, 21, which would normally have an extraction indication, was treated with a decoronation procedure in order to prevent the loss of alveolar bone due to early tooth extraction. Missing tooth space was restored with modified Nance appliance. **FOLLOW-UP** These were at 12 and 6 month intervals. No loss on the alveolar bone level and no infection has been observed at the decoronated area during the follow-up periods. **CONCLUSIONS** Decoronation is a safe and optional treatment for the ankylosed teeth instead of extraction that prevents the alveolar bone loss. As in this case, with the appropriate indication, this technique can also be applied to non-ankylosed teeth too.

OPD7.2 Management of combination dental injuries in the developing dentition.

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BACKGROUND Combination injuries in the developing dentition often present a management challenge for clinicians. It is important to manage the acute trauma and plan for medium and long-term outcomes, particularly when considering teeth with a questionable or hopeless long-term prognosis. Maintaining space, aesthetics and bone is a priority to optimise long-term results. **CASE REPORT** A 14-year-old male presented on an emergency basis at the Paediatric Dental Dept. University Dental Hospital, Manchester, following a fall from a skateboard. Extra-oral examination revealed extensive facial contusions and abrasions. Intra-oral examination revealed avulsion of 21. Tooth 11 presented with a complicated enamel-dentine fracture. Both 12 and 22 presented with subluxation injuries. Radiographs revealed a vertical root fracture of 11. **FOLLOW-UP** On review 8 weeks following initial presentation, 12 and 22 had been asymptomatic and periapical radiographs did not show any evidence of periapical pathology. Denture stability, space maintenance and aesthetics were assessed and the denture adjusted. 12 and 22 both tested reliably positive to sensibility testing. Long term, the patient will be kept under regular clinical and radiographic review with multidisciplinary assessment at age 16 to assess suitability for implant restoration of 11/21.

CONCLUSIONS This case highlights the importance of space maintenance and the restoration of aesthetics following traumatic injury to the developing dentition.

OPD7.3 Endodontic favourable outcome after complicated dental trauma in a teenage hockey player

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BACKGROUND During sports activities dental trauma (DT) can occur and may lead to loss of pulp vitality. Pulp necrosis after DT can lead to internal dental staining, which may be increased by endodontic materials (such as endomethasone). **CASE REPORT** A 21 year old patient arrived at a dental office with provoked, sometimes spontaneous pain episodes and staining of tooth 41. A history revealed frontal DT during a hockey game three years previously with uncomplicated crown fractures (UCF) at 21, 22 and subluxation of 41.One week after DT endodontic treatment was performed on 41 but 21, 22 were not restored. One year after DT, the patient requested a crown restoration of 21, 22 and complained about staining as well as intermitant, weak pain at 41. The UCF were restored with composite resin and for 41 a follow-up procedure was recommended. **FOLLOW-UP** Clinical and radiographic follow-up at 3, 6 and 9 months confirmed a reduction of the symptoms and chromatic stability. Two years furthermore the patient returned with persistent pain of 41 and a radiograph revealed an incomplete root canal filling. Dissolution of the endomethasone sealant was noted and 41 was retreated (ESE protocol). The root canal was filled with vertically compacted warm gutta percha. At the next appointment internal dental bleaching was applied (hydrogen peroxide 35%). **CONCLUSIONS** Inappropriate DT treatment can lead to unfavourable effects on a long term perspective and can generate high costs and material treatment. Internal dental bleaching achieved rapid and adequate aesthetic restoration.

OPD7.4 Outcomes of traumatised primary teeth - a 12 year retrospective study

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AIM This was to investigate any complications and survival rates of traumatized primary teeth. **METHODS** The sample consisted of dental trauma records over a 12 years period at the Dept. of Paediatric and Preventive Dentistry, Dental Clinic of Vojvodina, Novi Sad. Data were analyzed in order to obtain the following: gender, age, type of trauma, the type and timing of treatment received. **RESULTS** The retrospective study included records of 161 children, with 324 traumatized primary teeth. The occurrence of trauma was higher in male patients (58.4%) and in children up to 4 years of age. Luxations were more frequent (84.5%) compared to isolated teeth fractures (13.3%), while the two types of injury combined were rare (2.2%). One year following dental trauma 172 teeth (0.67) developed complications. Falls were the main cause of trauma (68.9%) and the presence of more than one traumatized tooth was frequent. 61.4% of children received dental care during first 24 hrs after the injury. Overall survival rate after injury was 0.79 at the moment of

accident, 0.63 within 24 hours, 0.49 at 7 days, 0.48 after a month, 0.39 after three months, 0.33 at 6 months and 0.24 after one year post-injury. **CONCLUSIONS**
Survival of injured primary teeth is relatively low, regardless of trauma type, time interval between injury and treatment and the type of provided treatment.

OPD7.5 A standardised approach to traumatic dental injuries follow-up: improvement of data collection.

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AIM This was to analyse the interest of introducing a structured paper history (SPH) for the data recording of traumatic dental injuries (TDI). This SPH was designed for use during an emergency consultation and then, at each follow-up visit and may help young dental practitioners, as a reminder, in their dental examinations of patients. **METHODS** This study was performed from January to December 2014, in the paediatric dentistry department of the Rothschild Hospital, Paris, France. Data were extracted from all records of children with TDI: age, gender, traumatised tooth, diagnosis, care process, waiting period and follow-up. **RESULTS** This retrospective study, from medical files, covered 454 patients and 710 traumatised teeth and 300 patients attended for TDI in primary teeth with an average age of 3 years old and 60% were boys. The main consultation cause was luxation injuries, 154 patients came for TDI in permanent teeth, mainly for fracture of the teeth with an average age of 9 years old and 70 % were boys. The SPH was completed for half of these patients. Moreover, 46% of the patients did not come to their follow-up care appointments. **CONCLUSIONS** The proportion of different types of TDI was similar to recent literature, although TDI in primary teeth were twice as frequent. The display of written guidelines to help the young dental practitioners to complete the SPH might increase its use. Attendance at the follow-up appointment might be increased using a recall system included in the SPH.

OPD7.6 Reliabiliy of electro-odontometry in immature permanent teeth

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AIM To evaluate and compare the accuracy and applicability of root canal working lengths determined with electro-odontometry and radiographic methods in immature permanent teeth. **METHODS** The research was conducted at the Dental Clinic of Vojvodina in Novi Sad, Dept. of Paediatric dentistry. A sample of 30 canals were selected derived from young permanent teeth for the research. Inclusion criteria were: need for endodontic treatmant, young permanent teeth, teeth with incomplete apex formation according to Demirijans stages F and G assessed by radiograph. Exclusion criteria: more than 3 years from eruption, pathological and iatrogenic resorption of the apex. Electronic measurements were completed using Raypex 5 electronic apex locator, with canal file K20. The canal lengths were noted when a constant signal on EAL was obtained. Radiographic measurements with a suitable file in canal were carried out next, using Bisecting angle technique

and digital radiograph. A comparison of the results of electronic and radiographic measurements of working lengths was made. **RESULTS** The success rate of the procedure using the EAL and radiographic measurements were quite similar with average difference between two methods not exceeding 0.6mm. **CONCLUSIONS** Further studies are needed to justify the superiority of electro-odontometry.as the most precise diagnostic method for working length determination in immature permanent teeth.

OPD7.7 Comparison of different irrigation protocols for smear layer removal in primary teeth root canals: a SEM study

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AIM This was to compare the smear layer removal efficiency of different irrigation solutions in primary teeth root canal via SEM. **METHODS** 40 single rooted primary teeth were instrumented with K file up to #35. Subjects were assigned to 4 groups according to final irrigation solutions. Grp-1 received saline during every instrumentation. Grp-2(NaOCl), Grp-3(EDTA) and Grp-4(%6 Citric acid) were irrigated with NaOCl during every instrumentation. Final irrigation was performed with NaOCl in Grp-2: EDTA in Grp-3: 6% Citric acid in Grp-4. Coronal, middle and apical thirds of the roots were evaluated under SEM by the presence or absence of the smear layer. Kruskal Wallis, Dunn`s Method and Student-Newman-Keuls Methods were used for statistical analysis. **RESULTS** In coronal and middle thirds, EDTA and Citric acid showed statistically significant differences compared with saline and NaOCl. Smear layer removal at coronal and middle thirds were significantly more efficient than apical thirds in all groups. Erosive defects were detectable under SEM in NaOCl and EDTA groups especially in coronal and middle thirds. **CONCLUSIONS** EDTA and Citric acid were significantly more efficient compared with NaOCl and saline. EDTA was not better than Citric acid with regard to smear scores. Citric acid may be an alternative to EDTA in regards to its less erosive effect.

OPD7.8 Management of a necrotic premolar with buccal cellulitis using regenerative endodontic treatment

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BACKGROUND Regenerative endodontic treatment is defined as a biologically based treatment alternative for necrotic mature and immature teeth. This report describes the management of immature permanent tooth with buccal cellulite which was used for regenerative endodontic treatment (RET). **CASE REPORT** An 11 years old boy, who was hospitalized for buccal cellulites of odontogenic origin was referred to Paediatric Dentistry dept. A clinical examination disclosed a trismus of 1 cm and an extra-oral sinus tract at the left side of mandible. The radiographic examination showed that the left mandibular second premolar tooth had an open apex and a periapical radiolucent lesion. The examination findings suggested RET, which was initially treated with irrigation of the canal by using NaOCl 1.25% for 5 minutes. After a dried environment was provided with paper points, modified triple antibiotic paste (metronidazole, ciprofloxacin and

clindamycin) was left in the canal for 3 months. After 3 months resolution of the extra-oral sinus tract as well as the patient`s symptoms was obtained. Next, the antibiotic paste was removed, bleeding was induced in the canal, and MTA was placed over blood clots. The last restoration of tooth has been completed with composite resin by covering the MTA with glass ionomer cement at same appointment. **FOLLOW-UP** In radiographic and clinical following appointments the left mandibular second premolar tooth was asymptomatic and functional, periapical radiolucency was healed, and root continued to develop.
CONCLUSIONS RET has the potential to be used to treat the teeth with buccal cellulites.

OPD7.9 Is haemostasis at an exposure site crucial for radicular pulp inflammation in primary teeth with carious exposure?

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AIM This was to investigate whether haemostasis at an exposure site reflects the inflammation level in the radicular pulp tissue of primary teeth with carious pulp exposure. **METHODS** A total of 40 mandibular primary molar teeth with reversible pulpitis in 38 children aged between 5 to 9 years were included and divided into two groups: in Group A (n=20), haemostasis was able to be achieved at the exposure site in 5 min and in Group B (n=20) haemostasis was unable to be achieved at the exposure site in 5 min. IL-1β, IL-2, IL-6, IL-8, IL-10, TNF-α, PGE2 levels were detected with ELISA in all of the blood samples harvested from the exposure sites and canal orifices. The statistical differences between groups were determined using the Mann-Whitney test. The Pearson and Spearman correlation tests were used to examine the correlations. **RESULTS** IL-6 level was significantly higher in Group A compared to Group B at the exposure sites ($p=0.029$). There were no significant differences in the rest of the cytokines at the exposure sites ($p>0.05$). There were no statistically significant differences in the cytokine levels at canal orifices between two groups for any of the markers ($p>0.05$). **CONCLUSIONS** It can be concluded that hemostasis at the exposure site does not provide accurate information for the level of radicular pulps inflammation and may be misleading in the diagnosis for vital pulp amputation in primary teeth with carious pulp exposure. *Supported by The Scientific and Technological Research Council of Turkey (TUBITAK). Project number:114S780.*

OPD7.10 Apexification of an immature tooth : gutta percha versus MTA. A case report.

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BACKGROUND According to various studies, the prevalence of dental traumatism is estimated at 17.5% of the child populations. Among the different dental traumas observed, enamel-dentine fractures with pulp exposure can be found and may lead to pulp necrosis. Apexogenesis or apexification should be performed on an immature tooth to induce apical closure. **CASE REPORT** An 8 year-old girl on a chair an tooth 21, which was immature, sustained a coronary fracture with pulp exposure. A general dentist performed an endodontic treatment using gutta percha as a root canal

filling. After 4 months, the patient attended our paediatric dentistry clinic for a consultation for acute dental pain. The different clinical and radiological examinations led to a diagnosis of acute apical periodontitis on tooth 21. After rinsing with NaOCl 1.5%, the canal was temporarily filled with Ca(OH)2 and a temporary coronal filling was placed. During the second session, the root canal was rinsed with NaOCl, dried and filled with MTA. **FOLLOW-UP** Subsequent visits were conducted after 2 weeks, 3 months, 6 months, 1 year and 2 years. Radiological assessments have shown resolution of the peri-apical lesion and bone reshaping were observed after 3 months. **CONCLUSIONS** The use of MTA on immature teeth with pulp necrosis seems to be a material of choice to achieve apexification.

OPD7.11 Withdrawn

OPD7.12 Disappearance of Metapex root canal fillings from pulpectomised primary molars.

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BACKGROUND Metapex contains calcium hydroxide and iodoform, and is commonly used for root canal filling in non-vital primary molars that have been treated with the pulpectomy technique. There is little literature on whether root fillings containing calcium hydroxide and iodoform dissolve from the root canal or are retained inside the root canal long term. **CASE REPORT** Two cases, where second primary molars that were non vital were treated with the pulpectomy technique are reported. Patient A was 5 years old (patient A) and was treated under general anaesthesia and patient B was 5 year old and treated under local analgesia. Standardised pulpectomy techniques were used and conventional files to clean the root canal system. Root canals were filled with Metapex. In patient A the tooth was restored with preformed metal crown and in patient B with composite resin (SonicFill). Both patients remained asympomatic and were followed up clinically and radiographically. **FOLLOW-UP** Follow-up radiographs 15-18 months post-operatively showed that the Metapex had disappeared completely from the root canals in both patients. The furcation bone remained healthy and patients remained asymptomatic throughout the follow up period. **CONCLUSIONS** These cases show that it might be common for Metapex to completely disappear from root canals in a follow-up period but this does not compromise the success of the technique as both patients showed healthy furcation bone and remained asymptomatic. Clinicians should not consider refilling the root canals in these cases.

OPD7.13 Regenerative endodontic treatment of necrotic primary molars with missing permanent successors

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BACKGROUND Regenerative endodontic procedures have become an emerging alternative treatment option for management of immature necrotic permanent teeth, while there appears to

be no published data on their implementation in primary teeth. The present report describes the biologically-based treatment of necrotic primary molars using a regenerative endodontic treatment protocol (revascularisationn). **CASE REPORT** Four primary teeth with missing successor premolars presented chronic apical periodontitis. The teeth were treated with a regenerative endodontic protocol utilizing a modified triple antibiotic paste (clindamycin, ciprofloxacin and metronidazole). This was followed by induction of apical bleeding, subsequent clot formation and placement of an intra-coronal mineral trioxide aggregate barrier. The cavities were restored with acid-etch composite resin or amalgam. The teeth were followed clinically and radiographically for up to 18 months. **FOLLOW-UP** All teeth demonstrated radiographic evidence of complete peri-radicular healing in the absence of clinical symptoms. **CONCLUSIONS** On the basis of an 18-month follow-up period, the present cases demonstrated a favourable outcome of the regenerative endodontic procedure employed in necrotic primary molars with missing successors.

Session OPD8 Prevention/Orthodontics/Growth & Development

OPD8.1 Management of the severely submerged primary molar: A case report

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BACKGROUND Submergence defines the condition that is frequently seen in primary molars which remains below the occlusal plane and is often used synonymously with “ankylosis” or “infra-occlusion”. Management of the submerged teeth may vary according to the severity of the case. Rarely, in some severe cases, surgical interventions may be required. Tooth type, severity of infra-occlusion, degree of the adjacent teeth tipping and presence of the permanent tooth germ. Conservative or surgical treatments can be carried out according to the characteristics of cases. **CASE REPORT** A 7 year-old girl was referred to the Paediatric dental clinic due to the missing her maxillary right first primary molar (54) which was reported by her parents. It was clinically seen that the tooth had become embedded in bone and the adjacent tooth had tilted towards it. Radiographically it was severely submerged with its roots close to the permanent tooth germ. Both mandibular first primary molars were also moderately infra-occluded. Surgical removal of the submerged tooth was carried out. **FOLLOW-UP** Infra-occluded primary molars and the root development of the successor premolar were clinically and radiographically followed up at 3-month intervals. **CONCLUSIONS** The treatment depends on factors such as each patient`s age, position of the tooth, severity of infra-occlusion, amount of the adjacent teeth tipping and presence of the permanent tooth germ. Conservative or surgical treatments can be carried out according to the characteristics of cases.

OPD8.2 Changes in fluoride varnish acceptance in young children after 6 applications

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AIM To investigate the acceptance of treatment with fluoride varnish (FV) (Fluor Protector S, Ivoclar Vivadent, Schaan, Liechtenstein) in young children. **METHODS** Children, 14 to 33 months of age, presenting with least one carious lesion at a dental examination, were randomly assigned for FV (n=28) or a placebo group (n=29). Children received 6 varnish applications by the treating dentist over 15 months. All parents were instructed on proper oral hygiene using fluoridated toothpaste. Each child’s behaviour during FV or placebo (water) application was monitored using the St Andrews Behavioural Interaction Coding Scheme (SABICS). At the first and last applications, codes were recorded by the investigating dentist, who was “blinded” to the group allocation. SABICS codes were re-coded to “acceptance” when a child was quiet, smiling or “said YES” or expressed non-verbal agreement, or “non-acceptance” if any other code was noted. The effects of the treatment group and time on acceptability of the varnish application were investigated using generalised

estimating equations. **RESULTS** Due to a drop out of 5 children, analysis was performed for 26 children in each group. Varnish application was more accepted at the end (n=34) of the study than at the beginning (n=15) (OR = 5.12; 95% CI 2.42 - 10.85; p<0.001) and by treatment (n=19) in comparison to the placebo (n=15) group (OR = 2.75; 95% CI 1.05 - 7.20; p=0.041). **CONCLUSIONS** The study indicated that children become accustomed to the varnish application and Fluor Protector S was well accepted as a treatment means.

OPD8.3 Oral health in children with diabetes mellitus type I in Montenegro

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AIM This was to determine the state of oral health of children with diabetes mellitus type I in Montenegro. **METHODS** This study included 177 patients aged 10 to 15 years, of both sexes, divided into two groups; the first group D, (87) consisted of children with diabetes mellitus type I. The second, control group K, (90), comprised healthy children. Dental status was recorded with the Klein Palmer system. In order to determine the oral hygiene the Plaque Index of by Silness-Loe and Index of Tartar by Green, and the clinical assessment of the gingiva was applied using Silness-Loe`s index. Assessments were performed and periodontal disease recorded using the CPI index. **RESULTS** In terms of the caries index (DMFT persons, DMFT average), there was no indication of statistically significant differences between diabetic and healthy children. It was interesting to note that the average number of affected permanent teeth per respondent was identical for both groups observed (DMFT = 4.3). Children with diabetes mellitus type 1 had poorer oral hygiene and gingival scores (PI =1.2, CI =0.09, GI =1.2) compared with the healthy children (PI = 1.04, CI = 0.03, GI =0.6). Gingival bleeding upon probing was most frequent in a percentage of the diabetic children, while the percentage of healthy periodontium was better in the control group. **CONCLUSIONS** Montenegran with diabetes mellitus type 1 had worse oral health compared to healthy children of the same age.

OPD8.4 Assessment of antibacterial efficiency of ozone on biofilms

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AIM This was to evaluate the efficiency of single or combined application of ozone and two different varnishes on thickness and microorganism viability of biofilm in-situ conditions. **METHODS** 10 children aged between 11-14 years were included in this study without any tooth loss on maxilla; 5 with high risk of caries (Group-1) and 5 without any carious lesions (Group-2). 6 specimens were embedded in buccal ridge of acrylic plaques prepared for maxilla. By using sectioning device specimens with a size of 2x3mm were obtained from a bovine tooth and then sterilized. Participants were requested to carry plaques for 6, 24 and 48 hours. At the end of every interval the specimens were changed with others obtained from the same bovine tooth. After these intervals, 1st, 2nd and

3rd specimens were rinsed with saline then applied with Cervitec® Plus, Duraphat® Polish and ozone(OzonyTronX) respectively with a final saline and ozone application. 4th and 5th specimens were applied Cervitec® Plus and Duraphat® polish respectively. 6th specimens were only rinsed by saline. Confocal laser scanning microscope after dying with ethidum bromide and fluorescent diacetate was used to evaluated samples. **RESULTS** Biofilm thickness values of Group-1 were higher when compared to Group-2($p<0.05$). Thickness values increased statistically significantly by time ($p<0.05$). Microbial agents decreased significantly the viability of microorganisms on biofilm in every interval ($p<0.05$), with no change in thickness($p>0.05$). **CONCLUSIONS** Due to its antimicrobial efficiency, ozone application combined by fluoride agents is more effective than its single use.

OPD8.5 The habit of tooth brushing among students from Two Districts in Ankara with different socioeconomic status.

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AIM This was n to study tooth brushing habits of students and any relationship between socio-economical status of their families, in two primary schools present in two counties where known as having different social and financial background in Ankara. **METHODS** Students were given a questionnaire including questions about tooth-brushing behaviours. The questionnaire completed by interview with students1 In total 64 students from the school in Cankaya and from Altindag were accepted into the study. **RESULTS** As a result of the study, it was found that the number of girls using tooth brushing was more than that of boys. Students from Cankaya were found more compliant with oral hygiene than those from Altindag. It was also found students from families' with high socio-economical status brushed more often. No statistically difference was seen amongst students educating in 7th and 8th grade classes. It was also noticed that most of the students used toothpaste during tooth brushing. **CONCLUSIONS** Tooth brushing which is an easily applicable and economical behaviour had to be disseminated through our society by routing amongst childhood ages since it was essential in the prevention of many diseases.

OPD8.6 Liver and serum changes of MDA in fluoride intoxicated rats

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AIM This was to investigate the changes of malondialdehyde (MDA) levels in the liver and serum of the fluoride intoxicated rats. **METHODS** Total, 54 healthy 8-week-old male Wistar rats, were exposed to four doses of fluoride (F) at 10, 50, 100 and 150 ppm in drinking water, for a period of 5 and 10 weeks. MDA was quantified by spectrophotometric method. Data were expressed as means ± SEM. The significance of the difference between means was determined by ANOVA. A value of $p<0.05$ was considered significant. **RESULTS** Statistically significant higher differences in the content

of MDA in the liver of rats during 10th week was clarified between the experimental groups of animals treated with 100 ppm F in comparison to the control (p=0.02) and also between the same dose dependent groups (100 ppm) within 5th and 10th week (p=0.04). Statistically significant higher differences in the content of MDA in serum of rats during the 5th week was obtained between the experimental groups of animals treated with 50 ppm F (p=0.018) and 100 ppm F (p=0.004) through drinking water compared with the control and between the experimental groups of 10th week animals, treated with 100 ppm and 150 ppm F in drinking water (p=0.03) in comparison to the control. **CONCLUSIONS** Determinations of MDA levels provide a good measure of peroxidation, which is among the chief mechanisms of cell damage leading to necrosis or apoptosis. *Supported by grant of Ministry of Education and Science, Republic of Serbia No. III 46009.*

OPD8.7 In vitro remineralisation of enamel by CPP-ACP containing probiotic complex

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AIM To demonstrate the effects of Recaldent (present at 20 mg/lozenge) and that Kariodent™ indeed promotes enamel remineralisation CPP-ACP containing Kariodent™ Probiotic Complexis a novel probiotic product that combines the S. mutans growth inhibition and plaque reduction properties of its probiotic ingredients with the enamel remineralisation effect of casein phosphopeptide – amorphous calcium phosphate (CPP-ACP) or Recaldent® to prevent and slow down caries formation. **METHODS** Extrated teeth were prepared and demineralised in vitro. Samples were then exposed to either: Kariodent™ lozenge in 5 mL of PBS for 10 minutes; Kariodent™ lozenge in 10 mL of PBS for 10 minutes; remineralising solution (5mL) for 18 hours; and PBS 5mL for 18 hours. Surface microhardness (SMH) was assessed with a digital Micro Vickers Hardness Tester at baseline, after demineralization, and after treatments. **RESULTS** The remineralisation solution yielded the greatest SMH after demineralisation (307.6±1.5), after an 18 hour incubation ($p<0.001$). Kariodent™ lozenges significantly increased the surface microhardness after demineralisation, in a concentration dependent fashion, after only 10 minutes of incubation. A single lozenge in 5mL of PBS yielded an average SMH of 287.0±0.89 ($p<0.001$), while a single lozenge in 10mL of PBS yielded an average SMH of 278.5±1.34 ($p<0.001$). **CONCLUSIONS** Kariodent™ may have positive effects on enamel remineralisation. These results warrant future investigation of CPP-ACP containing Kariodent™ in long-term clinical studies.

OPD8.8 Prevalence of uneven root resorption of primary molars in Greek children during pre-orthodontic screening.

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AIM This was is to determine the prevalence of uneven root resorption (URR) of primary molars and detect any possible association in relation to age, gender and occlusion. **METHODS** The convenience

sample consisted of 205 panoramic radiographs of 6-14 years old children, in a private orthodontic clinic before orthodontic treatment, in Volos Greece. Inclusion criteria were to have diagnostic quality radiographs, primary molars with restorations or caries until ICDAS 4. The digitized radiographs were imported into Image J Link 1.4 software for measurements. The level of mesial and distal root resorption of the primary molars was recorded in stages: no resorption, 1/4, 2/4, 3/4, 4/4. Regression analysis with Pearson's correlation coefficient ($p< 0.05$) was used for statistical analysis of the data. **RESULTS** Males presented significantly more URR than females ($p=0.009$). There was a tendency for more URR as age increased ($p=0.07$), but it was not statistically significant. URR was significantly more frequent in the mandible ($p=0.0022$), in the 2nd mandibular primary molar compared with the maxillary primary molars ($p=0.028$, $p=0.003$) and in the distal root ($p=0.035$). No significant statistical difference was present in types of occlusion between primary molars with even and URR. **CONCLUSIONS** URR of primary molars was more frequent in males, in the age group 12-14 years, in the 2nd mandibular primary molar and occurred significantly in the distal root.

OPD8.9 Dental management of a patient with two missing second premolars. A case report

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BACKGROUND Hypodontia implies the absence of a few teeth that failed to develop and is a relatively common finding. As a general rule, if only one or a few teeth are missing, the absent tooth will be the most distal tooth. Therefore, the most affected teeth are: the third molar, the lateral incisor and the second premolar. This case report describes the clinical case of a 7-year-old patient who attended our Paediatric dental clinic complaining of dental pain at 7.5 and 8.5, and after performing an X-Ray we observed that 3.5 and 4.5 were missing. Various studies show that the prevalence of missing teeth is between 3.5%-6.5% in the permanent dentition of Caucasian population, with males and females affected equally. **CASE REPORT** A 7-year-old patient presented complaining of dental pain. Intraoral examination and radiographs showed that: 75 and 85 were extremely affected with extensive dental destruction and bone defect, 85 had a buccal abscess, 75 had a furcal perforation and, 35 and 45 were missing. After endodontically treating the teeth and restoring them with aesthetic materials, crown cracks/fissures were noted and accordingly the teeth were restored with zirconia crowns. **FOLLOW-UP** After 18 months of follow-up, the occlusion was normal, there was gingival health, the bone regenerated and the aesthetics was almost natural. **CONCLUSIONS** Maintaining the primary teeth and placing the zirconia crowns satisfies both function and aesthetics.

OPD8.10 Is Tanaka-Johnson mixed dentition analysis an applicable method for a Turkish population?

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AIM This was to test the applicability of the Tanaka and Johnson prediction method in a Turkish population and to develop new formulas if needed. **METHODS** The sample comprised of dental casts of 425 children (211 females, 214 males; age ranged from 12 to 16 years) obtained from the patients seeking dental treatment. The mesio-distal crown dimensions of mandibular incisors, mandibular and maxillary canines and premolars were measured with digital calipers. Paired t-test was used to determine whether significant differences were present in the actual and predicted tooth sizes obtained by the Tanaka-Johnson prediction method. Correlation coefficient "r" was also calculated between the sum of predicted and actual sum of canines and premolars in both maxillary and mandibular arches. **RESULTS** The differences between the predicted width of the canine and premolars by Tanaka Johnston and actual widths were highly significant for both maxillary and mandibular arches (p= .010 and p= .001, respectively). Pearson correlation "r" of sum of predicted and actual sum of canines and premolars in mandibular and maxillary arch arches were 0.318 and 0.315, respectively. new regression equations were separately formulated in both arches, as follows: Y = 19.1 + .0.2(X) for mandibular arch (R2=10.1), Y = 19.8 + .0.2(X) for maxillary arch (R2=9.9). **CONCLUSIONS** The Tanaka and Johnston prediction equations were found to be not applicable for the studied population and thus new regression equations are need to be formulated.

OPD8.11 Orthodontic therapy in early childhood

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AIM This was to show that the earlier orthodontic treatment starts the better the results are. Because of that interceptive orthodontic measures are of the utmost importance as they treat already occurring anomalies in growth and development during the first dentition and bring them to normal condition taking advantage of the growth potential and development of orofacial system because it is possible only at that time to treat those anomalies whose condition worsen with further growth and development. **METHODS** The research was conducted using data from regular dental check-ups and everyday orthodontic practice in the surgery. **RESULTS** Of the total number of the children examined 58% of them needed some kind of orthodontic treatment. 64% of them had disorders of function of speech, swallowing, tongue position and function of the mouth. In 30% of them open bite, crossbite or jaw tightness were present. The habit of infantile swallowing was often present together with protrusion of upper and retrusion of lower incisors. **CONCLUSIONS** Orthodontic treatment of patients usually begins between the ages of 9 and 14 years, at a time when the craniofacial growth has been completed up to 80 to 90%. Therefore, treatment options

are limited especially in severe skeletal anomalies that are likely to worsen with further growth and development. Because of that early orthodontic therapy is very important.

OPD8.12 Withdrawn

OPD8.13 Success of closed exposire for impacted maxillary canines combined with orthodontic traction: a retrospective study

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AIM This was to evaluate the success of a one-step closed surgical technique for exposing and guiding into occlusion the impacted maxillary canine teeth. Impacted permanent canine teeth occur in 2% of the population. The prevalence of maxillary impaction is 85%, with 8% occurring bilaterally. The prevalence of palatal impaction is higher than buccal impaction. The aetiology of maxillary impaction is unknown, although arch width discrepancy and anterior positioning are frequently cited causes. The condition is managed surgically, either by open or closed exposure techniques. **METHODS** A retrospective review of cases surgically managed with closed exposure of impacted maxillary canine teeth was completed. Data was collected on tooth position, site of gold chain placement and treatment outcome. **RESULTS** 107 cases with full records were identified, 10 patients failed to achieve fully positioned canines (9.3%) with 8 canines palatally impacted and 2 were in the line of the arch. The gold chain was positioned on the palatal aspect in 9 cases and buccally in 1 case. Only 1 chain debonded (0.9% failure rate). The remaining 9 underwent re-operation; 6 for re-bonding, 2 for surgical removal of the tooth and 2 for open exposure. **CONCLUSIONS** The debond rate was 8%, so 0.9% was a satisfactory result. However there is no equivalent data for failure of canine traction. Overall this study had a 90.7% successful alignment rate with closed exposure. The reason for the high failure rate was assumed to be the unfavourable canine position and is the subject of an ongoing prospective study.

OPD8.14 Correlation of body mass index with eruption time of permanent first molars and incisors in children in Serbia

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AIM This was to determine the mean eruption time of permanent first molars and incisors; to compare this with Body Mass Index (BMI). Teeth eruption in the oral cavity occurs over a broad chronological age range and is influenced by various factors like genetics, gender, nutrition, pre-term birth, socioeconomic factors, height and weight, craniofacial morphology, hormonal factors and systemic diseases. **METHODS** This was a descriptive cross-sectional study. A random sample of 100 pre-school and school children of "just erupted" teeth, of age group 5-7, were obtained from 3 different schools and pre-schools of Novi Becej Municipality, Serbia. The inclusion criteria were: healthy children, free from any known disorder affecting growth, mental diseases or congenital anomalies. Weight and height of these individuals were measured and the clinical examination of the oral cavity was done to assess the eruption status of permanent teeth. The correlation coefficient was utilized to find the correlation between BMI and eruption time. **RESULTS** BMI significantly affected eruption time of permanent first molars and incisors ($P < 0.0002$). Eruption time of permanent first molars and incisors increased with a decrease in BMI values. **CONCLUSIONS** Variation in teeth eruption was found to be multi-factorial. This may have clinical importance in the area of preventive dentistry. Alterations in the timing of teeth eruption can significantly impact the oral health in terms of risk for dental caries, due to extended length of time exposed in the oral cavity.

OPD8.15 Pilot Study: The effect of preterm delivery on the oral health status of six-year-old children in Pecs, Hungary

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AIM This was to determine the prevalence of palate morphology, occlusion, tooth development, tooth eruption, tooth structure that may be in 6-year-old preterm children compared to a full-term (early-term) control population, to identify the preventive needs of this population. In Hungary there are about 8,500 preterm deliveries per year (2010 data). Preterm babies have numerous characteristics, with immature organ functions and appearance, accompanied by the complications of the intensive care treatments. Some oral changes may result from preterm delivery or perinatal intensive care. Previously higher caries prevalence was reported in preterm low birth weight children **METHODS** 36 preterm children and 22 full-term, early-term children were included in the study. The examination consisted of an oral screening and impression taking (where possible). The occlusion, palate morphology, caries prevalence and eruption sequence of permanent teeth were investigated. **RESULTS** No significant difference was observed in the caries prevalence of the two groups. No enamel hypoplasia was found in the two groups. First permanent molars erupted significantly later in the preterm group. Rate of malocclusion statistically was not related to preterm

delivery. Palate morphological differences were not detected (naso-tracheal intubation instead of oro-tracheal intubation). **CONCLUSIONS**

It was hypothesized that preterm children have an impaired oral status compared to the full-term population, thereby presenting a greater need for dental prevention. This study did not confirm this theory. It is planned to increase the case numbers to clarify some trends that were found during evaluation, but were statistically not significant.

Session OPD9 Dental Anomalies

OPD9.1 Aberrant teeth morphology in a child with Fanconi anaemia

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BACKGROUND Fanconi anaemia (FA) is a rare autosomal recessive disorder characterized by bone marrow failure, morphologic abnormalities and cardiac defects. Oral manifestations include generalized microdontia, agenesis, taurodontism, enamel hypoplasia, gingivitis, periodontitis and radicular anomalies such as foreshortening, dilacerations and tapering. **CASE REPORT** The subject discussed herein, at the age of 5 years, she was first seen at the Paediatric Dentistry clinic (University Hospitals of Leuven). The primary dentition showed no remarkable findings except dental caries on teeth 55 and 65. The patient was closely monitored with a full preventive programme of care, given the increased risk of infections, higher susceptibility for (oral) malignancies (e.g. leukemia, oral squamous cell carcinoma and leukoplakia) and periodontitis. **FOLLOW-UP** The patient was closely followed up, given the increased risk of infections, higher susceptibility for (oral) malignancies (e.g. leukaemia, oral squamous cell carcinoma and leukoplakia) and periodontitis. **CONCLUSIONS** The case described here presents clinical signs deviating from findings reported in literature: macrodontia of a tooth (rather than microdontia) and atypical root development limited to the first permanent molars only. Whether there is a link with FA or its treatment (HSCT conditioning), remains unclear.

OPD9.2 Dental findings and management of a child with megalencephaly-capillary malformation (MCAP) syndrome.

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BACKGROUND Megalencephaly-capillary malformation (MCAP) syndrome is characterized by primary megalencephaly, cutaneous and internal capillary malformations, overgrowth and/or asymmetry, digital anomalies, developmental delay, hypotonia, connective tissue dysplasia, dysmorphic facial features and specific neuroimaging features, like hydrocephalus. Literature consists of case series and some cohort studies. Oral findings are rarely mentioned. Here we describe a case of MCAP syndrome with distinct orofacial involvement, interfering with dental management. **CASE REPORT** An 11-year-old boy from Turkish origin was referred to the Paediatric Dental department. He presented with large facial port-wine staining, involving the skin of the right mandibular region and the left maxillary, mandibular and frontal region. At the age of 1 year, he developed epilepsy as a complication after ventriculo-peritoneal shunt infection, placed because of hydrocephalus. Capillary malformation of the tongue and orofacial asymmetry entailed reduced masticatory function and open mouth posture. Anti-epileptic drugs and poor oral hygiene induced gingival hyperplasia. The panoramic radiograph showed remarkably enhanced tooth development in

the areas with vascular malformation. Despite advanced root resorption of deciduous teeth in these areas, spontaneous exfoliation failed because of poor oral function. Dental management included oral hygiene instruction, prophylactic cleaning and extraction of primary molars. **FOLLOW-UP** Extractions were planned under general anaesthesia, allowing better haemostatic control. Antibiotic coverage (because of the shunt) and antifibrinolytic medication (tranexamic acid, protection of blood clot) were administered. **CONCLUSIONS** Capillary malformations led to a remarkable difference in tooth development comparing with the non-affected region. These patients pose a challenging situation for dental management.

OPD9.3 A new-born baby with double natal teeth

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BACKGROUND Natal teeth (NT) are those teeth that present at the time of birth and neonatal teeth are those that erupt within 30 days of life. In most instances, they are poorly developed with hypoplastic enamel and dentin, poor in texture, and have a poor or absent development of roots. The decision to maintain or remove NT should be assessed in each case independently.
CASE REPORT An 8-day-old female infant was referred to Marmara University Paediatric Dentistry Department, Istanbul, Turkey with two mandibular NT, only the right one fully erupted. Medical history was non-contributory. Her parents were concerned about the presence of teeth at birth, her mother had no complaint of breastfeeding. Clinical examination revealed sublingual ulceration (Riga-Fede Disease), mild luxation of the right NT. Due to increased complaints at the 20th day it was decided to extract the right tooth to prevent traumatic ulceration, aspiration and inadequate nutrition. Six days later, Riga-Fede reduced. One month later left NT had fully erupted, sublingual ulceration re-occurred more severely. The baby could not be breastfed. That tooth was extracted at that visit. A radiograph was not taken because of the age of the patient. The teeth cannot be considered supernumerary or normal dentition. **FOLLOW-UP** This patient has been followed for 9 months, mandibular incisors have not erupted yet and she is still under our surveillance. **CONCLUSIONS** The decision to maintain or remove NT should be assessed in each case independently.

OPD9.4 Dentists' knowledge and awareness about molar-incisor hypomineralisation and its management in Kuwait

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AIM To assess the perception of general dental practitioners (GDPs) and dental specialists (DSs) in Kuwait regarding Molar incisor hypomineralisation (MIH) prevalence, diagnosis, severity and its clinical management. **METHODS** A questionnaire was distributed to attendees of the 18th Kuwait Dental Association Scientific Conference, Kuwait. There were 310 attendees who were invited to participate in the study. Data concerning demographic variables, prevalence, diagnosis, severity, training demands, and clinical management of MIH were collected. Descriptive statistics and chi-

square test were used. **RESULTS** A response rate of 71.2 % (221/310) were reported. There were 115 GDPs and 106 DSs. 94% of respondents were aware of MIH and noticed it in their practice. Common clinical presentation (>50%) observed was yellow/brown demarcation. Almost half of respondents indicated a prevalence of 10-20%. Resin composite was the dental material often used in treating MIH teeth. A majority of GDP and DSs claimed that child behaviour was a barrier in proper MIH management. Dental journals were the main source of information for DSs whereas the internet was the source of choice for information by GDPs. Respondents supported the need to investigate MIH prevalence and to receive a clinical training. **CONCLUSIONS** MIH is a recognized dental condition by practitioners in Kuwait. Effective clinical training is essential to provide high quality dental care for patients affected with MIH.

OPD9.5 Natal teeth: a report of 4 cases

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BACKGROUND Natal teeth are early or prematurely erupted primary teeth present in the child oral cavity since birth. The most affected are the central mandibular incisors that can occur as an isolated dental finding or be associated with some syndromes and abnormalities. Possible complications arising from the presence of natal teeth are aspiration and deglutition, trauma to the tongue and lip, breast nipple abrasion and feeding difficulties. Indications for natal teeth extraction are symptomatic and supernumerary teeth. In absence of symptoms and tooth mobility, periodic follow-up is recommended, as the majority of natal teeth are part of the normal deciduous dentition. **CASE REPORT F**our infants, 1 to 4 days old, with tooth-like structures in the lower jaw were referred to the department by paediatricians. The patients' medical histories were not-contributory. Clinical examination revealed the presence of natal teeth in the mandibular central region with severe mobility. The teeth were scored 2 and 4 by Hebling. The treatment included extractions under local analgesia and gentle curettage of the tooth socket to remove any remaining developing tissues. The extracted teeth had small and well-shaped crowns without roots. **FOLLOW-UP** After 1 week the extraction sockets were found to be healing well. Eruption of primary teeth will be evaluated on periodic recall. **CONCLUSIONS**
Natal teeth are rare conditions in infants requiring an interdisciplinary approach between paediatrician's and paediatric dentists for early diagnosis, best treatment options and adequate haemorrhage control in new-borns.

OPD9.6 Enamel microstructure in three unrelated patients with hypocalcified amelogenesis imperfecta (AI)

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AIM This was to study enamel microstructure in hypocalcified amelogenesis imperfecta (AI).

The main clinical manifestation of hypocalcified type of AI is profoundly reduced enamel mineralization. **METHODS** Hypocalcified AI enamel, was observed in three patients, descended from three unrelated families, and characterised clinically and microscopically. A primary tooth was obtained upon its physiologic exfoliation from each of the patients. Enamel microstructure of the teeth was observed under light microscope (LM) and scanning electron microscope (SEM). **RESULTS** In all individuals, hypocalcified AI enamel was altered similarly, clinically and in microstructure. Hypocalcified AI enamel of normal thickness was yellow-brownish in colour. Teeth surface was rough and in some parts uneven, resembling "pits" in pitted hypoplastic AI. Enamel also tended to chip away. In all enamel samples, the histology revealed porous and prism-less enamel of unrecognisable microstructure. In the bulk of the enamel samples globular voids of width similar to the enamel prisms were observed. Furthermore, at the cross section through the thickness of enamel of primary molars, two layers of enamel were revealed; with the outer layer being much more porous. **CONCLUSIONS** Characteristics of the enamel microstructure of unrelated patients with hypocalcified AI revealed very porous enamel of unrecognisable but similar microstructure.

OPD9.7 Developmental anomalies of teeth in a patient with autoimmune lymphoproliferative syndrome (ALPS)

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BACKGROUND Autoimmune lymphoproliferative syndrome (ALPS) is a rare genetic disorder. The main clinical symptoms are chronic lymphadenopathy and splenomegaly, and autoimmune destruction of blood cells (hemolytic anemia, thrombocytopenia and neutropenia). Autoimmune disorders can also affect other organs and tissues (e.g. autoimmune hepatitis, glomerulonephritis, uveitis). These patients also have an increased risk of developing lymphoma. In ALPS patients` therapy is carried out continuously and may have an effect on teeth development. Severities of developmental aberration of teeth vary depending on the therapy type and the person`s response to it, as well as patients` age at the time when therapy started. **CASE REPORT** The boy had permanent dentition. On cervical areas of the first permanent molars (FPM) developmental aberrations were observed. Dental panoramic tomogram (OPT) showed incorrect root development of all four FPMs. **FOLLOW-UP** All four FPMs were subjected to extraction due to pulp inflammation and extensive root malformations. Extracted teeth were submitted for histological examination. Comprehensive dental treatment of the patient and the histology results are presented. **CONCLUSIONS** In ALPS patients' therapy is carried out continuously and may have an impact on teeth development. Severities of developmental aberration of teeth vary depending on the therapy type and the person's response to it, as well as patients' age at the time when therapy started.

OPD9.8 MIH – perception, etiological factors and treatment needs in the opinion of polish dentists.

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AIM This was to assess the perception and awareness of MIH based on a questionnaire survey carried out among Polish dentists. **METHODS** The survey covered 123 general dentists participating in a dental conference as well as randomly selected dentists, practicing individually in Poland. The questionnaire was prepared based on existing English version, which was previously used in similar surveys in Iraqi, Australia and New Zealand. Statistical analysis was performed using Chi-squared tests, significance level p = 0.05 has been assumed. **RESULTS** A majority of the respondents (93%) had met with MIH changes in their practice. 57% stated that the number of hypomineralised teeth had increased over previous years. It was statistically often stated by dentists practicing 10-19 years and certified doctors. The most frequently recognised change was yellow-brown demarcation (70.4%), whereas most seldom seen was post-eruptive breakdown (18.3%). This form has been statistically most often recognised by dentists practicing 10-19 years. The respondents designated various aetiological factors potentially responsible for the development of MIH. 88.6% of them selected more than one aetiological factor. Chronic medical conditions affecting the mothers during the gestation period were reported as a more important causative factor (62.6%). Dentists practicing 0-9 years statistically more often had chosen genetic factors (80%). Composite resins and glass ionomer cements were the most often selected materials used to restore MIH teeth. **CONCLUSIONS** There was no clear relation between MIH awareness or perception of the problem in Poland and possession of certificate or number of practicing year of responded dentists.

OPD9.9 Aesthetic rehabilitation of an adolescent patient with molar-incisor hypomineralisation (MIH): a case report

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BACKGROUND MIH is a developmental enamel hypomineralised condition, affecting one or more first permanent molars, with or without involvement of the incisor teeth. Clinically, the defect caused by MIH appears as white, yellow or brown discolouration. Affected teeth often develop advanced carious lesions. **CASE REPORT** A healthy 11-year-old boy was referred to the Dept. of Paediatric Dentistry, UniEvangélica University Centre, Brazil, for the treatment of his dental caries. The medical history revealed fever and infection symptoms during childhood. A clinical examination showed enamel hypoplasia involving anterior and posterior teeth. Direct composite resin restorations were performed to improve the appearance of anterior teeth and restore enamel loss of posterior teeth. Endodontic treatment was indicated on 46 and fissure sealant was applied on 16. This case report demonstrated a minimally invasive, relatively simple and cost-effective option for the aesthetic correction of a case of MIH with direct composite resin restorations. Results seem to be stable. **FOLLOW-UP** This case report has been follow-up for a number of visits and the restorations seem to be stable. **CONCLUSIONS**

Aesthetic rehabilitation was achieved by means of direct composite resin restorations. That treatment option has shown to be effective with a good clinical outcome and the patient was satisfied with the clinical aspect.

OPD9.10 Multidisciplinary restorative management of hypomature amelogenesis imperfecta in two brothers.

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BACKGROUND Amelogenesis imperfecta (AI) is a hereditary condition, which affects the structure and clinical appearance of enamel in both the primary and permanent dentitions. **CASE REPORT(S)** Two brothers aged 11 and 12 years-old presented to the department with concerns about the aesthetics of their teeth, both confided they were being bullied at school. A diagnosis of hypomature AI was made. Clinical examinations revealed caries free dentitions, moderate oral hygiene, generalised short clinical crown height, extensive wear to the first permanent molars and generalised white mottling with yellow/ brown enamel. Radiographically, poor definition was seen between dentine and enamel. The younger brother had delayed eruption of the maxillary first permanent molars. **FOLLOW-UP** The patients have been reviewed for 8 months from the initial phase of treatment, they continue to be satisfied with their appearance and remain symptom free. The patients have been placed on a four monthly review programme to ensure their oral health is maintained. **CONCLUSIONS** Multidisciplinary care and the importance of a minimally invasive approach is crucial when managing young patients with AI.

OPD9.11 Systematic review on primary molar hypomineralisation (PMH)

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AIM This was to review was and search available literature on primary molar hypomineralisation (PMH) concerning its prevalence, association with MIH and the morphology and histology of affected teeth. PMH is characterised by developmental well demarcated defects resembling those in MIH. METHODS A search in PubMed and Google Scholar databases was conducted with relevant keywords for articles published until January 2016. The references of all retrieved articles were additionally searched. Studies were included after assessing their eligibility from the full-text article. RESULTS From 2,710 initially identified publications, 31 were included. The reported prevalence of PMH varied from 1.6-27%. 17 studies focused on PMH on second primary molars alone, while 14 studies recorded demarcated opacities in the primary dentition in general. 10 publications found a relation between the occurrence of PMH and MIH suggesting a shared cause and indicating that, clinically, PMH can be used as a predictor for MIH. Concerning the morphology of the affected molars, it is characterized by opacities or atypical carious open cavities often with an opaque surrounding. No relevant histological study was found, while there was one report with the use of micro-CT showing 30% lower mineral content in yellow opacities. Two studies specifically designed for investigating PMH etiology were identified. CONCLUSIONS There

are a few studies on the prevalence of PMH with some of them supporting a shared cause with MIH. PMH aetiology and histology warrant further investigation.

OPD9.12 Prevalence of molar incisor hypomineralisation in a group of Egyptian children: a cross-sectional observational study

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AIM This cross sectional observational study aimed to estimate the prevalence of molar incisor hypomineralisation (MIH) in a group of Egyptian children aged from 8-12 years, seeking dental care in the Dept. of Paediatric Dentistry, (Cairo and Future Universities in Egypt) from December 2014 till November 2015. **METHODS** After dental screening of children, (MIH) data was scored including 12 indexed teeth using the EDI diagnostic criteria and severity index. The short charting form by Ghanim et al., 2015 was added to the study, which is the most recent attempt to standardize epidemiological data collection for MIH. It included 16 index teeth to be evaluated for their eruption status, clinical status and lesion extension of MIH. This was done to allow extraction of more information by expanding findings into subcategories, which could give suggestive information about patterns of the MIH defects. Statistical analysis was performed using IBM® SPSS® and data was presented as frequency and percentages. **RESULTS** 1,001 children were included in the study (49.85%) males (50.14%) females. The prevalence rate calculated in the studied group was (2.3%); males (39.1 %) and females (60.9 %).The most prevalent clinical defect of MIH was demarcated opacity. Among affected teeth it was found that 77% of the observed affected teeth were mildly affected while 23% were severely affected. **CONCLUSIONS The** Short charting form could provide a promising tool to study (MIH), as it would allow a closer view to the disease, however further studies are recommended .

OPD9.13 Dental management of Amelogenesis Imperfecta (AI): A multidisciplinary approach

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BACKGROUND AI is an inherited defect of dental enamel formation that shows both clinical and genetic heterogeneity. AI may be inherited in an X-linked manner or as an autosomal dominant or recessive trait. However, there are cases where the diagnosis of AI remains tentative in apparently sporadic cases of enamel defects. AI is caused by mutations or altered expression in five genes: AMEL (amelogenin), ENAM (enamelin), MMP20 (matrix metalloproteinaise-20), KLK4 (kallikrein-4) and FAM83H. Three basic types of AI exist: hypoplasia, hypocalcification, and hypomaturation. **CASE REPORT** A 13 year old fit and well boy was referred for the management of his condition. After obtaining a full history as well as clinical and radiographic examinations, a diagnosis of hypoplastic pitted autosomal AI was made. As the tendency for impaction is high in patients with AI, the

maxillary permanent canines and mandibular left permanent canine were impacted due to crowding. As a result, a multidisciplinary approach was adopted in order to manage the aesthetic and functional problems which included comprehensive preventive measures, restoring the maxillary anterior teeth with composite resin, surgical extraction of the impacted teeth and retained maxillary primary canines. **FOLLOW-UP** The patient has been followed-up for 2 years since initial presentation and is currently undergoing orthodontic therapy. **CONCLUSIONS** Dental management of patients with AI usually requires a multi-disciplinary approach due to the complexity of the presenting condition and its long term management. A thorough and detailed history taking and clinical examination are essential to differentiate Al from other forms of enamel defects.

OPD9.14 Effects of third molar tooth germ agenesis on craniofacial morphology

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AIM This was to evaluate the dento-facial morphology of patients with missing third molar germs and to compare the morphological data with those of healthy age- and sex-matched control subjects. **METHODS** This study was performed on the initial lateral cephalograms of 58 individuals missing one or more third molars and 40 individuals without any missing teeth. Agenesis of the third molar was determined using panoramic radiographs. All patients were between 12 and 16 years of age, had not received previous orthodontic treatment, and had no congenital deformities. Patients with third molar agenesis were divided into two groups according to severity of the agenesis: 1) Agenesis of 1 or 2 third molars (36 patients), 2) Agenesis of 3 or 4 third molars (22 patients). 21 Linear, angular and proportional measurements were performed on lateral cephalograms. Inter-group differences for the severity of agenesis were analyzed using analysis of variance (ANOVA) and post-hoc Tukey tests. **RESULTS** Significant decreases were found in anterior total face height (N-Me) and angle N-S-Ba and N-S-Ar angles ($p<0.05$). These differences were greater in the severe agenesis group. **CONCLUSIONS** Patients with third molar agenesis have different craniofacial morphologies. The severity of agenesis has a significant effect. Most significant effect of third molar agenesis was cause a reduced vertical growth pattern.

OPD9.15 Comparison of mesio-distal crown dimensions of maxillary incisors in hypodontia and hyperdontia Patients

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AIM This was is to compare mesio-distal crown dimension of incisor teeth between subjects with or without hypodontia and subjects with or without hyperdontia. Hypodontia and hyperdontia are the most widely reported anomalies in paediatric dentistry and it has been speculated that they may have wider associations in development of dentition including tooth size. **METHODS** Dental casts were collected from 44 hypodontia (22 males and 22 females), 52 hyperdontia (32 males and 20 females) and 46 control patients (23 males and 23 females) aged 7 to 14 years, attending to

Paediatric Dentistry Dept. Marmara University, (Istanbul, Turkey). All tooth agenesis and supernumerary teeth were recorded from panoramic radiographs and all erupted maxillary permanent incisor teeth were measured on the study models with a digital Mitutoyo caliper at level of 0.01mm. Levene's test for equality of variance and t-test were used between groups using SPSSv.23. **RESULTS** In males; mesio-distal crown dimensions were statistically smaller in hypodontia than control patients in tooth numbers 12,11,21,22 (p=0.000; 0.050; 0.046; 0.002 respectively), whereas statistically bigger in hyperdontia than control in 12, 22 (p=0.001; 0.002 respectively). In females; mesio-distal crown dimensions were statistically smaller in hypodontia than control patients in tooth numbers 12,11,21,22 (p=0.000 in all teeth), whereas there were no statistically significant dimension difference between hyperdontia and control. **CONCLUSIONS** Hypodontia and hyperdontia anomalies were correlated with the tooth size of lateral incisors compared to control group.

OPD9.16 Unilateral bimaxillary tooth transposition in a boy with velocardiofacial syndrome

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BACKGROUND Velocardiofacial syndrome (VCFS, OMIM 192430) is caused by a deletion of chromosome 22q11. Affected persons present cardiac defects, developmental delay, immune deficiency, facial dysmorphism and velopharyngeal insufficiency. The prevalence of tooth transposition in the general population remains below 1%; less than one fourth of cases are situated in the mandible (24%). As far as could be determined only one case has been previously described in which this anomaly was present in both jaws. **CASE REPORT** A boy, born in 2005, was diagnosed with VCFS. He underwent cardiac surgery immediately after birth, a procedure marked by difficult intubation. The subject presented with mandibular retrognathia and dysplastic ears, no cleft could be diagnosed. From the age of 2 years, he received regular follow-up of his oral health condition. No abnormalities were found in the primary dentition. At the age of 9, a panoramic X-ray revealed transposition of teeth 14 and 13 and of teeth 42 and 43. **FOLLOW-UP** The retained 82 was removed in order to guide the eruption of tooth 42 in his right position. Follow-up will reveal whether the lower canine will find his way distal from the lateral incisor. **CONCLUSIONS** Transposition of a maxillary canine and first premolar and that of a mandibular canine and lateral incisor are each individually the most common transpositions in respectively the upper and lower jaw. A double transposition is extremely rare, localization in two separate arches is even more exceptional. Aetiology remains unclear. Tooth transposition has not been linked to VCFS.

Session OPD10 Dental Materials

OPD10.1 Withdrawn

OPD10.2 Effect of storage time and immersion media on the elution of Bisphenol A from composite compomer and fissure sealant

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AIM This was to investigate the elution of Bisphenol A (BPA) from composite resin (CR), compomer (COM) and fissure sealant (FS) in artificial saliva and ethanol/water solution for different storage times. **METHODS** Bisphenol A release of CR (Filtek Z250, 3M ESPE), COM (Twinkystar, VOCO) and FS (Grandioseal, VOCO) were tested. 30 disc shape specimens (2x5mm) were made for each material. Half of the specimens were stored in 1 ml artificial saliva and other half of them stored in 1 ml ethanol/water solution (75%). The specimens were analyzed after 1 hour, 24 hours and 1 week of storage. Elution of BPA was analyzed by using a BPA Enzyme Linked Immuno Sorbent Essay (ELISA) Kit. The results were evaluated by ANOVA test using GraphPad statistical program. **RESULTS** All tested materials released BPA in both storage media. The amount of BPA eluted in ethanol/water solution was significant higher compared with artificial saliva ($p<0.05$). CR and COM released significantly higher BPA than FS in artificial saliva ($p<0.05$), while there was no significant difference between materials in ethanol/water solution. All materials in artificial saliva showed the highest BPA elution at first week. **CONCLUSIONS** Storage time, immersion media and material composition was shown to be effective on the BPA elution level of materials.

OPD10.3 Comparison of in vitro cytotoxicity of two different pulp capping materials

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AIM This was to evaluate and compare the cytotoxicity of this material to white ProRoot MTA. Theracal LC is a light cured calcium silicate based pulp capping material in vitro. **METHODS**
Extracts of freshly mixed and set samples were prepared using cell culture medium ratio of 1.25cm2/mL. The extracts were applied to cultured VERO C1008 cells. Dulbecco's modified eagle medium (DMEM) was used as negative control sample. Viability of cells were evaluated at three different times (24, 48 and 72h) by methyl- thiazol-diphenyl- tetrazolium (MTT) assay. Data were analyzed with one-way analysis of variance and Tukey HSD test at a significance level of $p<0.05$. **RESULTS** Percentage of viable cells ranged from 124.6 to 67.9 and decreased with time in all groups. Although both fresh and set MTA extracts showed higher viability than Theracal LC groups these differences were not statistically significant in all time periods. There were no statistically significant differences between set and fresh MTA extracts with all time periods ($p>0.05$). However, fresh Theracal extracts showed higher cytotoxicity than the set counterparts, these differences were statistically significant at 24h and 48h ($p<0.05$). **CONCLUSIONS** Although these findings were

limited to in vitro conditions, the observation that Theracal LC caused a similar cytotoxic effect to MTA suggests that it may be considered as an alternative pulp-capping material.

OPD10.4 Water sorption-solubility and surface roughness of different bulk fill materials

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AIM This was to investigate and compare the surface roughness (SR), water sorption (WS) and solubility (SO) of four different bulk-fill resin based composites (RBCs) and a flowable and a regular RBC. **METHODS** Disc-shaped specimens of three low viscosity bulk-fill RBCs (SureFil SDR flow, X-tra base, Filtek Bulk Fill flow), a high viscosity bulk-fill RBC (Tetric Evo Cream Bulk Fill), a conventional flowable RBC (Filtek Ultimate flow) and a conventional hybrid RBC (Filtek Z250) (n = 10) were prepared. Specimens were randomly immersed into distilled water for 28 days .WS and SO were assessed by mass gain or loss by weighed the specimens using an electronic balance at the end of time period. SR of the specimens were also measured by using surface profilometery. Data were analyzed with one-way ANOVA and Tukey's post-hoc tests ($p = 0.05$). **RESULTS** Significant differences were found in the WS and SO of the materials. Both high filled and low filled bulk fill RBCs were showed better or equal WS and SO values than their conventional counterparts. Both bulk and conventional flowable RBCs were showed lower SR than the high filled ones ($p<0.05$). **CONCLUSIONS** WS, SO and SR of RBCs are material-dependent and highly affected by the filler loading and the type of resin matrix.

OPD10.5 The stress evaluation of occlusally built up infra-occluded primary 2nd molar: 3D FEA study

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AIM This was to evaluate the stresses on the root and supporting tissues of occlusally built up infra-occluded primary second molar without successor using 3D Finite Element Analysis. **METHODS** Primary second molar teeth were restored using 1 mm. composite resin layer on the occlusal surface and mandibular second molar without any restoration used as a control were mathematically modeled using Rhinoceros 4.0 (Seattle, USA) software. Following that, a 601.83 N. mastication force was applied on the occlusal surface using foodstuff element for each model. Analyses were completed with Algor Fempro (ALGOR, Inc. Pittsburgh, PA, USA) software. Minimum and maximum principle stresses were used to compare each model. **RESULTS** For both models, especially the internal and the external surfaces of the roots and furcation area showed similar stress values. **CONCLUSIONS** An occlusal build-up application of the infra-occluded primary molar without successor did not cause any extra stress inducing root resorption or ankylosis on the root and supporting tissues.

OPD10.6 Effectiveness of biodentine versus ferric sulphate as a dressing agent in pulpotomised primary molars: preliminary results

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AIM This was to assess clinically and radiographically the success rate of biodentine pulpotomy in human primary molars and compare it to that of ferric sulphate (FS). **METHODS** 52 maxilary and mandibular primary molars requiring pulpotomy (restorable molars with cariously exposed vital pulp) in patients from 3-9 years (mean age=6y) were included in this study. Random assignment of the pulpotomy dressing agent was as follows: Group I - 32 molars received FS as pulpotomy agent and Group II - 20 molars received biodentine as dressing agent. Teeth were restored using a preformed metal zirconia crowns or using glass ionomer cement (GIC). Subjects were monitored both clinically and radiographically at 6 months. **RESULTS** Group I-100% clinical success, 92.86% radiographical success (2 teeth presented internal resorption). Group II-had 100% of both clinical and radiographic success. Three teeth (2-FS, 1-Biodentine) were excluded from the study due to failure of the patient to present for recall. **CONCLUSIONS** Biodentine pulpotomy is a reliable biocompatible vital pulp procedure. It seems to be a promising alternative for use in pulpotomies of primary molars although studies with longer follow-up times are required to confirm its long-term efficiency.

OPD10.7 Evaluation of surface micro-hardness of restorative materials used in paediatric dentistry

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AIM This was to evaluate the surface micro-hardness of glass carbomer (GCP Glass Carbomer, Leiden, Holland), glass ionomer (SDÝ Riva Self Cure, Bayswater, Australia) and compomer (Dyract Extra, Dentsply, Konstanz, Germany) restorative materials used in Paediatric dentistry in vitro METHODS 25 disk-shaped specimens of each material were prepared using a split teflon mold in size of 5 mm×2 mm. compomer and glass carbomer samples were light-cured with a LED device. The specimens were stored in artificial saliva at 37°C for 24 hours. Micro-hardness test was conducted on top surface using Vickers micro-hardness tester with 200 g load and a dwell time of 17 seconds. Data were statistically analysed by Kruskal Wallis test. The significance level was set at $P \leq 0.05$. **RESULTS** Statistically significant differences were found in surface micro-hardness values between the three types of materials ($p<0,001$). The greater value found in compomer followed by glass ionomer and glass carbomer respectively. **CONCLUSIONS** Glass carbomer, a new restorative material in the field, should be tested for its surface micro-hardness with further studies.

OPD10.8 The effect of finishing-polishing systems on surface roughness of resin restorative materials

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AIM This was to investigate the effects of different finishing-polishing systems on the surface roughness of various resin restorative materials. **METHODS** A compomer (Dyract), a resin composite (Filtek Bulk Fill), and a giomer (Beautifil II) were used to prepare 84 specimens. 28 specimens of each material were prepared 5 mm in diameter and 2 mm in depth. All specimens were stored in distilled water at 37°C for 24 hrs. Each material was randomly divided into four groups. In Group 1 (control), no finishing and polishing procedure was carried out with Mylar Strip. In Group 2, tungsten carbide and Sof-Lex Discs; in Group 3, tungsten carbide and Sof-Lex Spiral and in Group 4, tungsten carbide and Enamel Plus Shiny was used. Surface roughness was evaluated using a profilometer and the Ra values were recorded. The data was analyzed using one-way ANOVA and the two independent samples t-test ($\alpha = 0.05$). **RESULTS** The control group (Mylar Strip) showed the lowest Ra values and was significantly different from other groups ($p<0,05$). Using Sof-Lex Discs, the smoothest surface was obtained on composite resin. Enamel Plus Shiny performed the smoothest surface on compomer and giomer. Overall, the smoothest surfaces were obtained with the use of Enamel Plus Shiny; however there was no statistically significant difference between the test groups. **CONCLUSIONS** Surface roughness values were similar for Enamel Plus Shiny, Sof-Lex Spiral and Sof-Lex Disc and are all suitable for resin restorative materials.

OPD10.9 Clinical and radiographic evaluation of indirect pulp capping application with Theracal material

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AIM This was to evaluate the efficiency of Theracal material and to compare indirect pulp capping materials with Theracal material in primary and permanent molars that have indications for indirect pulp treatment. **METHODS** A total of 300 teeth (second primary molars and first permanent molars) from 4-15 years old healthy and cooperative children with non-clinical and radiographic evidence of infection symptoms and had indications for indirect pulp treatment were included in this study. Teeth were divided into groups consisting of 50. After each lesion cavity was cleaned indirect pulp treatment was applied to the teeth with $Ca(OH)_2$, Theracal and MTA materials. Primary molars were restored with compomer material, permanent molars were restored with composite resin. Clinical and radiographic findings were controlled at 1, 3, 6, 9, 12, 18th months and followed dentine bridge formation. Clinically absence of pain, fistula, abscess, sensitivity; radiographically absence of periapical radiolucent lesion and pathological resorption were the success criteria. Statistical analysis was performed by using the NCSS 2007 Statistical Software package program, descriptive statistical methods (mean, standard deviation), Chi-square and Fisher`s exact tests ($p<0.05$ significance level) to evaluate the data. **RESULTS** There was no statistically significant difference between the three indirect pulp capping materials. Similar results were found between Ca(OH)2,

MTA and Theracal materials. **CONCLUSIONS** However, more clinical studies that contain greater number of teeth and longer follow-up time are need to be better understanding of clinical efficiency of the material. S*upported by the Research Fund of Istanbul University. Project No. 35793*

OPD10.10 Dental stem cells isolated from primary and permanent tooth: A potential source for regenerative therapies?

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AIM This to compare viable cells, viability and colony forming efficiency of stem cells from human deciduous tooth and permanent tooth obtained from the patients who need orthodontic extractions. **METHODS** After extraction, the sample teeth were stored for 2 hours in PBS medium. Teeth were fractured and the pulp was removed using an endodontic k-file and forceps. Pulp tissue was cut into small pieces and transferred into 5 ml HBSS+5%FPS. After various culture steps, the viability of the total cells were calculated and cells were seeded in 6-well plate. Seeding concentrations were $0.3x10^4$ or $1.0x10^4$ cells per well. After 11 days, the fixation of the pulp cells were performed and staining were made with 0.1% toluidine blue. Mann-Whitney U test was performed for data analysis. **RESULTS** For primary teeth, the number of total cells was $11.8x10^4$ with a viability 69.2%. For permanent teeth, the number of total cells was $40.3x10^4$ with a viability 82.5%. The mean colony forming efficiency of stem cells from human primary tooth and permanent tooth were respectively 80.6 and 47.6 after 11 days. The colony forming efficiency of stem cells from human primary teeth were higher than the permanent tooth but there was no significant differences (p=0.317). **CONCLUSIONS** Although the number of the viable cells was lower in primary teeth, the colony forming efficiency was higher. This study demonstrated that where both stem cells types were obtained from younger patients represents an alternative source of stem cells for tissue engineering and regeneration.

OPD10.11 Evaluation of eluted residual monomers from different bulk-fill and conventional composite resins by HPLC.

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AIM This was to evaluate the elution of MMA, UDMA,TEGDMA monomers from three bulk restorative materials, two different composite resins (CR) and one glass ionomer cement (GOC) and one packable posterior composite resin)PCR) over four different time periods, using HPLC. **METHODS F**our different restorative materials were used in this study; Filtek Bulk Fill (3M ESPE Dental Product, St. Paul, MN), SDR (Dentsply, Konstanz, Germany), EQUIA (GC Europe), Filtek P60 (3M ESPE Dental Product, St. Paul, MN). The samples (4mm thickness, 2mm diameter) were prepared and polymerized for 20 s with a light emitted diode (LED) unit except EQUIA, for which light-curing is not recommended by the manufacturer. After preparation of samples, each sample was immediately immersed in 75wt% ethanol/water solution and stored in amber coloured bottles

at room temperature. Ethanol/water samples were taken at different time intervals: 1 hour (T1), 24 hours (T2), 3 days (T3), 7 days (T4). Two-way analysis of variance and Tukey HSD tests used to evaluate the results ($p<0.05$). **RESULTS** The amount of eluted UDMA from Filtek Bulk Fill is higher than other materials. Amount of eluted TEGDMA from SDR is the highest. Obtained data from EQUIA was not significant. **CONCLUSIONS** Residual monomers were eluted from bulk fill composite resins in all time periods and the amount of eluted monomers was increased with time.

OPD10.12 Effect of curing units and adhesion strategies on performance of bulkfill composites

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AIM To investigate the effects of different light curing units (LCU) on microleakage of bulkfill composites applied using different adhesion strategies (self-etch or selective etch). **METHODS** 26 extracted third molar teeth were randomly divided in two groups (n=13) according to curing protocol. A: Quartz-tungsten-halogen (QTH-Hilux Benlioglu Dental, Ankara, Turkey) B: Light-emitting diode lamp (LED- The Elipar™ S10, 3M ESPE, St. Paul, USA). On each teeth, standardized 2 occlusal cavities (2x3x3) were prepared for selective etch (SLE)(n=13) and self-etch (SE)(n=13) protocols. Cavities in the SLE group were etched prior to restoration procedures using 37% Orthophosphoric acid. All cavities were restored with a nano-filled bulk fill composite resin (FiltekTM Bulk Fill, 3M ESPE, St. Paul, USA) using Universal bond (All Bond Universal, Bisco, Schaumburg, USA) as an adhesive. The photopolymerisation of each group were performed according to manufacturers' recommendations. Teeth were thermocycled, immersed in 0.5% basicfuchsin solution for 24 h, sectioned longitudinally and photographed under a stereo-microscope. Microleakage scores were assessed quantitatively using computer-aided image measurement on digital photos. Data analysis was performed with the Mann–Whitney U test. **RESULTS** The quantitative data showed that SLE group had significantly lower microleakage measurements than SE group ($p<0.05$) in both LCU groups. However, there was no significant difference among the SLE and SE groups according to LCU used ($p>0.05$). **CONCLUSIONS** Results of the present study revealed that adhesion protocol is more effective than photopolymerisation protocol in achieving lower microleakage scores. Scores were lower when SLE protocol was used.

OPD10.13 Removing efficiency of dfferent cleaning colutions on residual caries detector dyes

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AIM This was to evaluate the effectiveness of the different cleaning agents, which are used in removing residual CDD from the cavity with spectrophotometry. Caries detector dyes (CDD) have proven to be useful in the identification and removal of carious dentine. But residues of these agents would remain in the cavity. **METHODS** 90 freshly extracted human third molar teeth were used in the study. Occlusal surfaces of teeth were ground until dentinal surfaces were exposed.

Then the specimens were randomly distributed on 3 groups, in which the different CDD (Seek Caries Indicator, Caries Detector, Caries Marker) were applied on dentine surface and each group was further divided into 3 sub-groups (NaOCl, H2O2, distile water) according to cleaning solutions. CDD were applied to the dentine surfaces according to manufacturer`s instructions. Then, CDD were rinsed out with cleaning solutions according to sub-groups. CDD residues were measured by a spectrophotometer before the application of CDD and after rinsing out with cleaning solutions. Data were analyzed by two-way analysis of variance (ANOVA) and Tukey`s HSD test (α=0.05). **RESULTS** For all CDD groups, the lowest colour differences were observed in NaOHCl ($p<0.05$) and the highest colour change was observed in water ($p>0.05$). When comparing the CDDs; Caries Marker yielded the lowest values ($p<0.05$), the highest colour difference was observed in the Seek Caries Indicator ($p<0.05$). **CONCLUSIONS** Cleaning solutions like NaOHCl can be used for removing the residual CDDs that remains on dentine surfaces.

OPD10.14 MTA effect on the shear bond strength of self-etch adhesive systems towards primary teeth dentine

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AIM To study MTA effect on the shear bond strength of three adhesive systems towards primary teeth dentine. **METHODS** 60 samples of primary teeth dentine were under study, 6 groups were formed. In the 1st, 2nd and 3rd groups AdheSE One F, Adper Promt L-Pop, OPtiBond XTR were used. In the 4th, 5th and 6th groups a 5-minute exposition with the Russian MTA, Trioxident, was performed first, then the adhesive systems were applied in the same order as in the first three groups. The shear bond strength was measured in accordance with the protocol ADA Professional Product Review// Dentine Shear Bond Strength Test 2007. The U criterion (Mann-Whitney) was used for the statistical assessment of the results. **RESULTS** The shear bond strength (in MPa) was measured in the following order: OptiBond XTR = 26.8±1.4 > Adper Promt L-Pop= 19.7 ±3.0 >AdheSE One F= 9.26 ±4.76; after ÌÒÀ exposition (in MPa): OptiBond XTR = 25.5±4.5 > Adper Promt L-Pop= 14.3 ±3.9 >AdheSE One F= 9.9 ±2.9. The statistic difference of the indices was determined for the groups 1.4 ($p<0.05$); 2.5 ($p<0.05$), for the groups 3.6 ($p>0.05$) the statistic difference was not determined. **CONCLUSIONS** The MTA effect on the shear bond strength of AdheSE One F and Adper Promt L-Pop was determined and statistically reliable; it reduces the adhesion in the interval from 1- 28%.

OPD10.15 Evaluation of the bioactive and antibacterial properties of a novel dental composite resin

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AIM The fabrication of a dental restorative material that will induce remineralisation into a bacteria free environment. The evaluation of the antibacterial and bioactive properties of the material.

METHODS The Ag doped bioactive glass was incorporated into resin composite in concentrations 0%, 5%, 10% and 15% wt., to fabricate the new material Ag-doped bioactive glass dental composite (AgBG-COMP). Biofilm was cultivated on cylinder specimens of the above groups (n=12 for each) and evaluated by SEM and CLSM after staining of the bacteria using a live-dead staining kit (Live/Dead Baclight, ThermoFisher Scientific. The images were analyzed with Image J software. The bioactive properties of the materials were assessed by observing the formation of apatite layers after immersion in Simulated Body Fluid. **RESULTS** The incorporation of AgBG provides antibacterial properties into dental composite resin. The data shows statistical significant difference between control (0% wt. of Ag-BG) and experimental groups as well as a statistical significant trend to decrease the ratio between the live/dead bacteria as the concentration of the AgBG increases. The bioactivity of AgBG-COMP was also shown by the apatite formation on the surface of the specimens. Consistently the amount of apatite formed was increased as the concentration of the AgBG was increased in the resin (qualitative data). **CONCLUSIONS** Development of this novel resin composite enhanced its remineralisation potential through hydroxyapatite formation in vitro, while exhibiting significant bactericidal activity. It is thus warranted for testing in the restorative care of high risk Paediatric dental patients.

Session OPD 11 Oral Medicine & Pathology

OPD11.1 Peripheral cemento-ossifying fibroma associated with an unerupted tooth

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BACKGROUND Peripheral cemento-ossifying fibroma (PCOF) is a relatively rare tumor classified between fibroosseous lesions. The mineralized product probably originates from periosteal cells or from the periodontal ligament. **Case Report** A 9-year-old female patient referred with a chief complaint of swelling and pain during mastication in her maxillary left incisors region for 1 year with unerupted maxillary incisor. Haemorrhagic mass in the left maxillary alveolar margin from buccal to the palatine side, measuring approximately 2 cm in diameter and showing a rough surface was evaluated in clinical examination.. The lesion was not fluctuant, it was firm in consistency. Complete excision of the lesion was performed under local analgesia. An histopathological examination of the surface of the lesion was widely ulcerative. Under the ulserative surface the lesion composed of spindle shaped fibroblasts. These cells showed whorled, storiform pattern. Immature bone trabeculae and spheroid cementum-like material were also observed in the vascular rich lesion. The histopathological diagnosis was PCOF. **FOLLOW-UP** Two weeks after the lesion was removed eruption was observed in her maxillary left incisor tooth. Close postoperative follow-up was done regularly against the possibility of the lesion recurrence. **CONCLUSIONS** It is important to remove lesions completely by including subjacent periosteum and periodontal ligament to reduce recurrence.

OPD11.2 Congenital epulis in a newborn baby– A case report

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BACKGROUND Congenital epulis (granular cell tumour) is a benign tumour of the newborn which can interfere with feeding and respiration. Neumann first described a case in 1871, hence the eponym Neumann's tumour. The rarity of this lesion has been reviewed by Zuker and Buenecha (1993) who have described only 167 reported cases in literature. The female:male ratio is 8:1 and it is most commonly seen on the anterior maxillary alveolus as a single mass. Approximately 10% have multiple masses. **CASE REPORT** A female neonate born at term by elective caesarean section at Chesterfield Royal Hospital (UK). This patient presented with a 2.5x2.5x2cm protruding mass from her maxillary alveolus not diagnosed on antenatal scans. She was referred to the Oral Maxillofacial Dept. at Queen’s Medical Centre (Nottigham) for excisional biopsy under general anaesthetic. The intra-operative and post-operative course was uneventful. **FOLLOW-UP** The patient was reviewed at one and six weeks post-operatively. She began feeding well after the operation, had no problems functionally and the surgical site healed with no visible scarring. The histological results concluded this lesion was a congenital epulis. **CONCLUSIONS** The treatment of choice remains surgical resection. Despite spontaneous regression of congenital epulis being reported, early surgical excision is indicated for prevention of feeding and respiratory issues, as well as aesthetic concerns,

which may inhibit maternal bonding. Owing to the large size of the lesion and the posed risks to the airway, referral to a specialist centre was required.

OPD11.3 Refferal and management patterns of paediatric patients with recurrent aphthous stomatitis: Who treats oral aphthae in children?

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AIM This was to **i**dentify the pattern of management of aphthae according to different specialist and defining the spectrum of medicaments given when treating recurrent aphthous stomatitis (RAS) in children in Vojvodina. **METHODS** The research was conducted at the Dental Clinic of Vojvodina, Dept. of Paediatric and Preventive Dentistry, University of Novi Sad, (Serbia) over a two years period. Inclusion criteria were: children and adolescents younger than 18 years old, presence of RAS. Thirty-five patients were divided in two groups depending on whether a systemic disease related with aphthae was diagnosed (group 1, n=11) or not (group 2, n=24). The pattern of management was analysed regarding diagnosis and attending physicians. A thorough history taken with emphasis on medicaments used. **RESULTS** Pain due to aphthae was the main reason for requiring paedodontic assistance in group 2, while most of patients in group 1 were referred by paediatricians, immunologists and dermatologists for further management or consultation. Half of the patients with isolated RAS were not under any kind of treatment, whereas the other half had received local treatment. In group 1 most of the patients were using local medicaments, while 0.18% (2/11) was on systemic steroids. Treatment recommended by paedodontist in both groups was mainly local medicaments. **CONCLUSIONS** Interdisciplinary care and management of patients with aphthae and the choice of treatment advised regarding the attending specialist differ significantly, consequently there is a need for adopting a unique and uniform protocol of referral, diagnosis and treatment of RAS in our community.

OPD11.4 Multidisciplinary approach in the diagnosis and management of a child with a long-standing odontogenic extra-oral fistula

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BACKGROUND
Extra-oral sinuses are commonly associated with the products of pulpal necrosis. Patients may present to dental and other allied health professionals, who may not always recognise the dental aetiology without an Multidisciplinary team (MDT) approach. **CASE REPORT** A 9 year girl attended the Leeds Dental Institute following 18 months of interventions for an extra-oral sinus from multiple centres, including IV antibiotics, surgical excision of submandibular lymph nodes and 9 months of tuberculosis therapy. She presented with an unremarkable amalgam restoration on her hypomineralised 36 and a left submandibular, extra oral, draining sinus. An orthopantomography was thought to be inconclusive and sensibility tests were inconsistent. Following discussion with maxillofacial surgery and radiology consultants, a cone beam computed tomography (CBCT) was

taken, showing a clear sinus tract between the mesial root of 36 and the submandibular skin. Both patient and mother refused endodontic treatment hence extraction of 36 was performed. **FOLLOW-UP** After one week the patient presented with a good socket healing and discontinued drainage through the extra-oral sinus. **CONCLUSIONS** An unusual presentation of this common pathology lead to months of prolonged and invasive treatment. The MDT approach with access to a CBCT image proved valuable in determining aetiology and aiding diagnosis.

OPD11.5 Conservative treatment of odontogenic cyst associated with endodontically treated primary second molar.

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BACKGROUND This is a case report of an 8.5-year-old girl presented with an inflammatory odontogenic cyst and treated with extraction of the responsible primary molar. Radicular cysts are common inflammatory cystic lesions of the jaw. Those arising from primary teeth are comparatively rare, comprising only 0.5 to 3.3%. An inflammatory cyst can occur in conjunction with endodontically treated primary tooth. Periapical inflammation from a non-vital primary tooth may spread to involve the bud of the permanent successor. The inflammatory exudate leads to the formation of a dentigerous cyst. **CASE REPORT** An 8.5-year-old girl was referred to Paediatric Dentistry Dept. of Aristotle University of Thessaloniki with a painless intraoral swelling on the right side of the mandible. A panoramic radiograph showed a periapical radiolucency in the region of an endodontically treated second primary molar. The permanent successor was displaced. Both second and first primary molars on the right were extracted. This led to the decompression of the cyst, as its liquid content leaked out. **FOLLOW-UP** A second radiograph was taken after three months showing that the position of the bud of the second premolar had improved and the radiolucency diminished. A year after the extraction of the primary molar, the second premolar erupted and a third radiograph revealed that the defect in the bone was ossified. **CONCLUSIONS** Extraction of the responsible primary molar may be a successful conservative treatment of a radicular cyst. Early diagnosis is essential to prevent extensive treatment.

OPD11.6 Erythema exudativum multiforme - Case report

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BACKGROUND Erythema exudativum multiforme (EEM) is multi-causal condition, characterized by the appearance of a typical efflorescence on skin and mucosae, a round erythematous macula, colloquially called a “target lesion”. While EEM is typically located on the patient’s skin, the condition can also be expressed on lips and oral mucosa. A case of EEM in a child, with predominant symptoms in oral cavity is reported. **CASE REPORT** A male patient, 11 years old, reported to the Clinic for Paediatric and Preventive Dentistry with bullous efflorescences located on the vermillion of his lower lip and with painful efflorescences of the buccal mucosa. The boy had a constant feeling of burning in the areas of the lesions, and was experiencing pain while eating, talking and

maintaining oral hygiene. He also reported that he had been recently hospitalized for orthopedic reasons. The boy did not report any allergies to any food or medication. A thorough clinical examination was performed, and numerous round shaped, partially epithelialised, ulcerous lesions were spotted, located on buccal and vestibulum mucosae. The patient also had extensive plaque on his teeth and a white-coated tongue. No lesions were found on his skin. An appropriate causal therapy was prescribed and the patient was monitored due the course of 14 days. **FOLLOW-UP** After 14 days of therapy, all changes on mucosae withdrew. **CONCLUSIONS** Proper diagnostics and therapy are key factors in dealing with EEM affecting the oral cavity.

OPD11.7 Clinical efficacy of a solution composed of sodium bicarbonate, alginate and herbal components for the mRAS in children

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AIM This was to assess the efficacy of a solution composed of sodium alginate and bicarbonate, honey, propolis, calendula, chamomile and aloe vera (Faringel®), compared to hyaluronic acid, in the management of minor recurrent aphthous stomatitis (mRAS) in children. **METHODS** Patients (aged 5-14 years) with a clinical diagnosis of mRAS were randomized into two groups, group A (treated with Faringel®) and group B (treated with hyaluronic acid gel). Both the medicaments were used three times per day for seven days. Oral lesions were measured against a ruler to score the diameter length (mm) and pain was evaluated by the Visual Analogue Scale (VAS). The evaluation was performed on day 1 (before the beginning of treatment) (T0), after three days of treatment (T1), on day 7 (T2) and on day 10 (T3) as follow-up. Descriptive statistical analysis and T-Student test were performed. **RESULTS** A total of 87 children (group A 44 patients - group B 43 patients) were included and a total of 212 ulcers were treated. After seven days (T2), the mean of the lesions extension indicated 1.87±0.94 mm in group A and 3.2±1.22 mm in group B; this difference was statistically significant ($p=0.0038$). Also the pain as reported as lower in group A than in group B just at T1 ($p<0.005$). **CONCLUSIONS** On the basis of the results, the use of Faringel® could be considered a valid therapeutic option for minor RAS ulcers in Paediatric patients.

OPD11.8 Withdrawn

OPD11.9 Probiotics in complex therapy of chronic recurrent aphthous stomatitis (CRAS) in children

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AIM This was to demonstrate that recurrent aphthous stomatitis (CRAS) treatment success depends on cooperative actions of gastroenterologists and paediatric dentists. CRAS occurs in children aged 6-15 years and develops usually along with somatic pathology. One of the main CRAS aetiologic factors is some gastrointestinal tract disease as reported in the literature. **METHODS** 25 children

aged 7-14 years diagnosed with CRAS were studied. The recurrent eruptions occurred from 2 to 4-5 times a year, mainly in spring and/or autumn. The gastroenterological examination showed biliary sludge in 20% of cases, biliary dyskinesia in 50%, hepatomegaly in 30% and gallbladder wall thickening in 80%. These pathologies cause abnormal duodenum absorption, chronic intoxication, disorders of the nervous system and the connected organs. The "solidarity phenomenon" of the mucous membranes, while inflammation on the mucous membranes of one system manifests itself on other ones, was evident. In cooperation with gastroenterologists the complex therapy of Acilakt probiotics containing the Acidophilus lactobacteria lozenges for suckling 4-6 times a day over a 2-week period were included. The local therapy consisted of pain relief and applications with proteolytic enzymes and keratoplastic agents. Perriokin gel combined with Kingingival mouthwash was encouraging. **RESULTS** This CRAS treatment method enabled a decrease in disease severity indicated proved by longer remission periods, a shorter time of aphthous epithelialisation and their smaller number and size. **CONCLUSIONS** This treatment approach may be recommended and the results are encouraging both in terms of oral and general health

OPD11.10 Dental management of a child with microcystic lymphangioma

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BACKGROUND Cystic Lymphangioma is a benign rare malformation of the lymphatic system, consisting of masses of abnormal lymphatic channels, occurring in approximately 1 in 2,000-4,000 live births. The head and neck region is the most frequently affected site, but they can occur throughout the body. **CASE REPORT** A four-year-old boy presented with a soft fluctuant extra-oral swelling affecting the right side of his face. Comprehensive clinical and radiological examination, led to a diagnosis of microcystic lymphangioma right side of face, poor oral hygiene and dental caries of multiple primary teeth. Intensive preventive therapy and acclimatisation was undertaken, followed by a quadrant dentistry approach for management of dental caries. Local analgesia infiltration in the region of the lymphangioma was deemed safe, and was completed without event. A Consultant in Maxillofacial Surgery has now undertaken the sclerotherapy management of the lymphangioma. **FOLLOW-UP** The patient is on regular review and is now caries free with good oral hygiene. Sclerotherapy is not curative and as such he will remain under the care of the maxillofacial surgery team as further treatment may be required in the future. **CONCLUSIONS** Children with lymphangiomas of the head and neck can be managed safely in the dental surgery but should be managed in conjunction with the maxillofacial team.

OPD11.11 Effect of radiotherapy on mineral contents of primary molars

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AIM This was to evaluate the elemental composition changes of the extracted primary molars irradiated between the doses 10-60 Gy in an vitro study. **METHODS** For the study 35 intact primary molars were collected and divided randomly into seven groups randomly. G-1: Control group, G-2:

10 Gy irradiated, G-3:20 Gy irradiated, G-3:30 Gy irradiated, G-4:30 Gy irradiated, G-5:40 Gy irradiated, G-6:50 Gy irradiated, G-7:60 Gy irradiated. Teeth were irradiated fractionally (2 Gy/d, 5 d/w, x-ray, 6 Mv) using a linear accelerator. (Siemens Primus, Malvern, USA). After application of irradiation, mineral contents of groups were analysed by ICP-OES (Inductively Coupled Plasma Optic Emission Spectroscopy). In this study, the classification heavy elements (Zn, Pb, Ni, Fe, Cu, Cr and Cd) and tooth major elements (Ca, P, K, Mg, and Na was used. The data was analysed by Kruskall-Wallis and Post-hoc Duncan tests. **RESULTS** Elemental composition of irradiated primary molars showed changes due to irradiation doses. Fe showed the highest elemental composition change (KW=28.23, p=0.000) and K showed the lowest changes in composition (KW=19.82, p=0.003). **CONCLUSIONS** Irradiation caused an increase in the amount of heavy elements and a decrease in tooth major elements, thus irradiation caused an effect on teeth mineral contents similar to dental caries.

OPD11.12 Presentation of a symptom free uni-lateral swelling in the mandible in a 8 year old child

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BACKGROUND Intra-oral swellings are commonly seen in paediatric patients secondary to dental caries. A multi-disciplinary approach with detailed imaging is paramount to help with diagnosis and management. **CASE REPORT** An 8 year old boy from the Czech Republic presented to the Leeds Dental Institute (LDI) with multiple carious primary teeth, erupted and un-erupted supernumeraries, class III mal-occlusion, poor oral hygiene and a one year history of a swelling associated with the left side of the mandible. The hard, painless, non-fluctuant swelling caused buccal bone expansion and extending from 42 to 85. A detailed history was obtained from the mother/patient via a Czech interpreter. **FOLLOW-UP** The histopathological analysis of the enucleated tissue suggested that the lesion measuring 3x2.5x1.5cm was an inflammatory radicular cyst. Post-operatively the patient had a small area of paraesthesia, which appeared to be improving over a 7-month period. The patient will continue to be monitored. **CONCLUSIONS** Effective management of oral swellings requires early diagnosis and MDT approach.

OPD11.13 Giant cell granuloma located in the maxilla: Case report

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BACKGROUND Giant cell lesions (GCL) are non-odontogenic benign mesenchymal tumours of the jaws. They are considered the most common central jaw tumours, accounting for 7% of all benign tumours of the jaws, more frequently occurring in the mandible than maxilla. Females are more commonly affected (2:1) and lesions tend to present between 10 -20 years of age. GCL can be asymptomatic or result in swelling, bony expansion or tooth mobility. **CASE REPORT** A 9 year old boy was referred for the management of an enlarging intra-oral soft tissue swelling on the right maxilla. On examination, an erythematous swelling of gingivae and alveolar mucosa adjacent to 11,

12, 53 and 14 (FDI notation) covering the occlusal surface of teeth and extending to the palate was noted. Histopathological examination revealed features of peripheral giant cell granuloma (PGCG). A CBCT showed an expansile lesion centred on unerupted 13 between the mesial surface of erupted 14 and distal surface of 12. There was no associated root resorption of adjacent teeth. Biochemical testing of blood excluded brown tumour associated with hyperparathyroidism. The patient was referred to the Oral and Maxillofacial Surgery dept. for enucleation of the lesion, curettage and possible removal of teeth involved (12, 13 and 14). **FOLLOW-UP** A continued and regular follow-up of this case is essential due to a risk of recurrence associated with GCL. **CONCLUSIONS** The management of giant cell lesions is determined by a combination of clinical and histological characteristics and most importantly, by the biological behaviour of the lesion.

OPD11.14 Hemifacial hyperthophy: A case report

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BACKGROUND Hemifacial hypertrophy (HFH) is a rare congenital disorder exhibiting unilateral enlargement of the head and facial tissues. In the literature, there has been limited number of case reports with HFH. Therefore, dental aspects have not been adequately reported. **CASE REPORT** A 5-year-old girl was referred to the Paediatric Dentistry dept. with the chief complaint of a large tooth in the left mandibular region. Her medical history was non-contributory. She had facial asymmetry due to the enlargement of the left side of the face. Intraorally, on the left side, both the soft and hard tissues were affected. Hypertrophy of the lower lip, tongue and buccal mucosa were noted. In addition there was a macrodontic canine, progressive root development of the permanent teeth and early eruption of the premolars. Moreover, there was insufficient enough space for the eruption of the permanent mandibular lateral incisor on the affected side. The restorative treatments were completed and a removable orthodontic appliance was used to regain space for the lateral incisor. The patient was scheduled for regular follow-up appointments for monitoring the growth and the eruption of the permanent teeth. **FOLLOW-UP** The patient has been followed for 8 years. Orthodontic treatment because of crowding and shift in the midline was planned after the completion of the active pubertal growth. **CONCLUSIONS** HFH may cause aesthetic and functional problems. Therefore, close follow-up for monitoring the alterations of the soft and hard tissues on the affected side is recommended to improve the life quality of the patients.

OPD11.15 A conservative treatment of a large dentigerous cyst in a paediatric patient: a case report.

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BACKGROUND Dentigerous cysts are odontogenic lesions which enclose the crown of unerupted teeth and are attached to its neck. Two types of dentigerous cysts are described: the type of developmental origin, associated mostly with impacted teeth and the type, which has an inflammatory aetiology and is associated with non-vital primary teeth. A follicular cyst has the

potential for attaining a large size mainly because its growth and is usually asymptomatic. Enucleation of a cyst along with extraction of affected tooth is a common treatment method. If a cyst is large complete removal may weaken the bone and lead to developmental disorders of teeth and bone growth. A conservative treatment, such as decompression, is desirable. **CASE REPORT** An 8-year-old boy was referred with a complaint of a painless swelling in his right mandibular posterior region. Intraoral examination showed the presence of buccal bone expansion in the region of 84 and 85. An OPG revealed a well-defined, extensive radiolucent lesion, which enclosed the crown of an unerupted second permanent premolar. Following the extraction of teeth 84 and 85, a custom-made removable appliance was performed and adjusted to fit the socket of extracted teeth. **FOLLOW-UP** During a follow-up period the reduction in lesion size and eruptive teeth movements were observed. **CONCLUSIONS** Conservative treatment of large dentigerous cyst in children is a good, minimally invasive alternative which conserves bone and important anatomic structures and allows for proper development of teeth and jaws.

OPD11.16 Management of a 7-year-old child with a mandibular arteriovenous malformation

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BACKGROUND Arteriovenous malformation (AVM) of the mandible is an uncommon vascular malformation which is considered to be a localised defect of vascular morphogenesis, likely caused by dysfunction in pathways regulating embryogenesis and vasculogenesis. **CASE REPORT** A 7-year-old female with no relevant medical history was referred for treatment of painful 46. She reported mobility and pain associated with 46 and numbness of her lower right lip. Clinical examination revealed buccal caries, mobility, and tenderness to palpation of 46; also swelling around the 46 region with associated facial asymmetry. Radiographic examinations revealed a non-corticated multilocular radiolucency extending from lower right second primary molar to the distal of the unerupted lower second permanent molar, causing bucco-lingual expansion of the cortical bone and root resorption of the LR6. A multidisciplinary management approach was used for the AVM of the mandible, by angiographic embolisation under general anaesthetic (GA) and a biopsy under GA, during which angiography was also carried out due to excessive bleeding. Dental treatment was completed under local analgesia (LA). Biopsy and angiography supplemented by MRI confirmed the diagnosis of the AVM. **FOLLOW-UP** A 4 months follow-up angiography showed no additional vascular recruitment and dental treatment was successful. **CONCLUSIONS** AVMs although a rare condition, should be included in a differential diagnosis as their management may be challenging and may lead to life threatening complications.

OPD11.17 Cysts and unerupted maxillary permanent incisors

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BACKGROUND Radicular cysts (RCs) and dentigerous cysts (DCs) are the two most common jaw cysts. DCs are usually asymptomatic and are often diagnosed incidentally on radiographs taken to investigate failure of permanent tooth eruption, a retained primary tooth, and/or malalignment. RCs are inflammatory in origin and can also displace permanent teeth. **CASE REPORT** A child presented with a swelling in the maxillary right incisor region. Radiographic investigation revealed the presence of two supernumerary teeth in the pre-maxillary region, one of which had evidence of an enlarged follicle. The supernumerary teeth were surgically removed and the enucleated cyst was confirmed to be a DC. **FOLLOW-UP** The permanent incisors erupted into the oral cavity 2-years post-operatively. **CONCLUSIONS** This case illustrates that DCs can be associated with (i) unerupted supernumerary teeth, and (ii) periapical infection originating as a consequence of traumatic dental injuries to primary incisors. Management, either enucleation or marsupialisation, should be performed to suit the specific needs of the patient.

Session OPD 12 Oral Medicine & Pathology/Syndromes & Genetics

OPD12.1 Severe gingivitis: a manifestation of a serious systemic condition?

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BACKGROUND Gingival inflammation is a common presentation to the paediatric dentist and usually relates to poor dental hygiene, but may be the oral manifestation of systemic disease including blood and immune disorders, infection or genetic conditions. **CASE REPORT** A 2-year-old female with a recent hospital admission to another institution with a pyrexial illness including oral ulceration, presented as an emergency case with "swollen gums" and oral discomfort whilst eating. The patient had been symptomatic for 6 months. Her medical history was unremarkable apart from the above. On examination severely hyperplastic, erythematous gingivae with spontaneous haemorrhage were noted. Radiographs revealed extensive alveolar bone loss associated with anterior and posterior primary teeth. The severity of the presentation prompted review of her recent hospitalisation. A discharge summary obtained from her general medical practitioner showed a neutrophil count of $0.07x10^9$/L (1.0-8.5 $x10^9$/L). **FOLLOW-UP** On review six months later, the gingival lesions had resolved and radiographs did not show progression of alveolar bone loss. **CONCLUSIONS** This case emphasizes the importance of vigilance by paediatric dentists regarding the possible differential diagnoses in cases of gingival hypertrophy and spontaneous haemorrhage.

OPD12.2 Modern approach to the treatment of atopic cheilitis in children

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AIM This was to study the course of atopic cheilitis and optimize cheilitis treatment using IMUDON having immunomodulatory properties and corrective indices of local immunity. **METHODS** 44 children (an equal number of boys and girls aged 8-15 years) were selected for the study. All of them had obvious manifestations of atopic neurodermititis combined with atopic cheilitis: skin edema round the mouth, infiltration and peeling of the red border of the lips, radial banding, papular spots in the mouth corners. The children felt pain while eating and constant itch of lips. They were divided into two groups: 20 - were treated traditionally (bepanthen and methiluracil ointments), 24 – were prescribed to take IMUDON (6-8 pills per day during 3-4 weeks). **RESULTS** The condition of the children treated traditionally improved in 3-4 days but after ointment withdrawal manifestations appeared again. Those treated with IMUDON had significant improvements only in 6-14 days. But until the end of the treatment manifestations of atopic cheilitis in three children completely disappeared. Significant improvements were found in 19 subjects and for two children had no effect. There was an increase of concentration of lysozyme and segmental immunoglobulin in saliva. And it is just the point facilitating healing of fissures in the mouth corners and removing oral mucosa inflammation. All the children had a good drug response and liked the IMUDON flavour that is important enough while treating children. **CONCLUSIONS** IMUDON increases a local immunity index that leads to disease regress. 92% of children had favorable clinical results.

OPD12.3 Tongue tie and breastfeeding difficulties; Do paediatric dentists have a role?

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AIM This was to review the current literature and recommendations for tongue-tie (TT) release to resolve breastfeeding difficulties. In addition, information for indications, timing and technique of TT release will be summarised for paediatric dentists. TT is a congenital condition characterized by short, thick or abnormally tight lingual frenulum. Feeding difficulties have been reported in 12-44% in infants with TT. The condition poses a challenge to dentists given the existing considerable controversy regarding its clinical significance and the management especially in infancy. **METHODS** Pubmed and clinical databases were searched using keywords such as "ankyloglossia", "tongue-tie", "frenotomy", "frenectomy", "breastfeeding" and "infant" . Articles in English published over the past 10 years were identified and reviewed. **RESULTS** TT is a relatively common condition. Not all newborns with TT need frenotomy as many babies compensate well and mild-to-moderate cases are likely to respond to lactation support. Different diagnostic and treatment methods and various study designs have been used to show efficacy of intervention in babies with TT. Overall, frenotomy has been shown to be effective in resolving many breastfeeding difficulties, but controversy still exists as to interpretation of the literature. **CONCLUSIONS** Clinical guidelines for management of neonatal TT exist, however implementation varies among medical personnel. The scientific evidence generally supports frenotomy for infants with severe TT whose mothers are experiencing major breastfeeding problems and who have failed conservative management. It is essential that Paediatric dentists be familiar with the management protocol and be prepared to provide appropriate intervention when indicated.

OPD12.4 The clinical and therapeutic care of odontogenic facial cellulitis in paediatric dentistry: a retrospective preliminary study.

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AIM This was to determine the prevalence and medical care of the children. The odontogenic facial cellulitis is an infection of the cellular adipose tissue located in the aponeurotic spaces caused by a dental infection. It is an emergency in Paediatric dentistry. **METHODS** This retrospective study was conducted between October 2014 and October 2015 at the paediatric dentistry department of the Queen Fabiola Children's Hospital in Brussels. The variables of age, gender, state of health, infected area, treatment provided and post-operative follow-up visits were examined. The data obtained were statistically analyzed. **RESULTS** 26 children with facial cellulitis have presented as emergencies. 22 children (15 boys and 7 girls) fulfilled the inclusion criteria. The prevalence of odontogenic facial cellulitis was 0.4%. 15 children have received an outpatient care and seven children treated and stayed for inpatient care. 11 children were already undergoing antibiotic treatment for dental infection. **CONCLUSIONS** Facial cellulitis originating from a dental infection is a

true dental and medical emergency. This study emphasizes the importance of immediate of management of facial cellulitis and to understand the dental neglect in children.

OPD12.5 The management of a patient with Sanjad-Sakati syndrome suffering from a dental abscess

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BACKGROUND Sanjad-Sakati syndrome (SSS) is a rare, autosomal recessive disorder that was first reported in 1988. It is characterised by hypoparathyroidism, severe growth failure, hypocalcaemia, hyperphosphataemia, dysmorphic features and learning difficulties. SSS is mainly seen in patients of Arabian origin. **CASE REPORT** A 4 year old girl, with SSS, was referred to our dental dept. by her medical staff at Great Ormond Street Hospital due to sever dental pain from the maxillary anterior teeth. She presented with multiple grossly carious teeth and a dental abscess. History revealed that she previously had dental extractions under GA and she was on a high cariogenic diet. She suffered from glaucoma, nephrocalcinosis, bilateral ankle amputation, abnormal oesophageal motility, tetraventicular hydrocephalus, sepsis of digits and anaemia. Clinical examination revealed a dental abscess associated with the 51 and gross caries affecting most of her dentition secondary to highly cariogenic diet. Other oral findings included micrognathic mandible and maxilla, microdontia, and enamel hypoplasia. A multi-disciplinary approach was undertaken for LA under GA for multiple extractions and restoration of 85 with preformed metal crown. **FOLLOW-UP** Following dental treatment, the patient is being reviewed every 4 months in the dept. to reinforce preventative advice and monitor dental development. **CONCLUSIONS** This case highlights the important role of the paediatric dentist in managing patients with complex medical conditions. Prevention of dental disease, dental education and early diagnosis is paramount in such cases.

OPD12.6 Withdrawn

OPD12.7 Premature exfoliation of primary teeth in a girl with congenital insensitivity to pain and Papillon- Lefevre syndrome

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BACKGROUND SCN9A channelopathy and Papillon-Lefevre syndrome are both extremely rare conditions. The former disease inhibits the ability to perceive physical pain, thus leading to self-mutilation behaviour, while the latter is characterised by palmo-planter hyperkeratosis, and severe periodontal destruction. Whether or not this type of chanelopathy is associated with premature teeth loss is not clear. This case describes the oral and dental findings in a child with congenital insensitivity to pain who was also diagnosed with Papillon-Lefevre based on clinical and radiographic presentation. **CASE REPORT** A 3 year old girl was referred to paediatric dentistry dept. at the School of Dentistry for dental caries management. She received comprehensive care under

general anaesthetics. At the review visit, 3 months post-operatively, it was noted that all four primary central incisors were exfoliated. Extra-oral examination revealed palmo-plantar hyperkeratosis with several cuts and bruises on her hands and forehead. Radiographic examination revealed extensive generalised alveolar bone loss. Based on these findings the diagnosis of Papillon-Lefevre was made. **FOLLOW-UP** Over a follow-up period of 1.5 years unfortunately she has continued to develop increased mobility of primary teeth prematurely due to trauma or periodontal disease. She is currently under intensive preventive and periodontal care in our department. **CONCLUSIONS** This case emphasises the important role of Paediatric dentists in diagnosis of rare conditions based on oral and dental findings as the dentist may be the first health care professional to which the patient presents.

OPD12.8 Dental management of a 10 year-old boy with Schwartz-Jampel syndrome.

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BACKGROUND Schwartz-Jampel Syndrome (SJS) is a rare autosomal recessive disorder, characterised by myotonia, skeletal abnormalities and delayed growth. Manifestations include atypical facies, rigid facial muscles, short stature, spinal and joint deformities, microstomia, micrognathia, palate abnormalities, crowding and impacted teeth. There is a risk of malignant hyperthermia and cardiopulmonary arrest during anaesthesia. **CASE REPORT** A 10 year-old boy with SJS was referred to the Dental Dept. for treatment, at the same time as his Ophthalmology procedure under general anaesthesia (GA). A history revealed dental pain from 64, irregular dental attendance, cariogenic diet and difficulty in tooth-brushing. Clinical and radiographic examination revealed delayed dental development, with 36, 46 impacted. Caries was present in 64, 74, 75, 84, 85. He was anxious and had limited mouth opening. An orthodontic opinion was obtained regarding the impacted molars. **FOLLOW-UP** On completion of treatment, a preventive regimen was implemented, in accordance with 'Delivering Better Oral Health Toolkit'. **CONCLUSIONS** SJS patients may be challenging to treat in the dental chair and are high risk for GA. Therefore, early dental education and prevention is vital in this rare group.

OPD12.9 Pathology of the oral cavity in a child with Papillon-Lefevre syndrome (Q82.8)

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BACKGROUND Papillon-Lefevre syndrome is a complex of dermato-dental anomalies. It inherited in an autosomal recessive trait. **CASE REPORT A** 14 year old girl was referred because several primary teeth had fallen out over the previous 4 years. Her mother's permanent teeth became loose and had fallen out over 16 years. The girl complained about the mobility of permanent teeth, gum disease, bad breath, dry and cracked skin on hands and feet. During the year the child had gingivitis and had a number of loose permanent teeth. Professional oral cavity hygiene was conducted, movable teeth removed. Removable dentures were made. A, E vitamins, angioprotectors and retinoic acid was prescribed. Treatment and supervision by dentist, dermatologist, endocrinologist

3-4 times/year was recommended to the patient. **FOLLOW-UP** Professional oral cavity hygiene has been continued as well as the continued prescription of A, E vitamins, angioprotectors, retinoic acid. Treatment and supervision by dentist, dermatologist, endocrinologist 3-4 times a year has continued. **CONCLUSIONS** Recommended measures will ensure rehabilitation and social adaptation from teenage till adult life.

OPD12.10 A rare case of a triad of incontinentia pigmenti, tetralology of Fallot and a genetic translocation.

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BACKGROUND Incontinentia pigmenti (IP) is an uncommon genetic dermatological disorder. It mostly affects females and may involve the skin, hair nails, eyes, and central nervous system. Dental abnormalities may include hypodontia, peg-shaped incisors, and delayed eruption. Patients with IP, in association with tetralogy of Fallot (TOF), and a balanced translocation of chromosomes 13 and 15, is a likely unrelated genetic triad with potential to result in management difficulties. **CASE REPORT** A 9-year-old female, with a diagnosis of IP was referred to the paediatric dental department by her general dental practitioner regarding delayed eruption of her permanent dentition. She was concerned regarding the aesthetics of her anterior teeth. Her medical history was complicated by the history of tetralogy of Fallot (status post-Fontan procedure), which resulted in an increased risk of infective endocarditis. There was an unrelated balanced translocation of chromosome 13 and 15, which was clinically insignificant. Extra-oral examination was consistent with IP. Intra-oral and radiographic examinations revealed severe hypodontia and occlusal caries of 26. The incisor 11 was peg shaped. **FOLLOW-UP** The patient was regularly reviewed and after 2 years her dentition was stable and she was happy with appearance of her teeth. **CONCLUSIONS** This case describes the dental management of a patient with a rare diagnosis of three unrelated genetic conditions.

OPD12.11 Co-existence of ARHR1 and amelogenesis imperfecta. Adjacent affected loci may result in unusual combination of isolated traits.

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BACKGROUND Autosomal recessive hypophosphataemic rickets 1 (ARHR1) is characterised by hypophosphataemia, osteomalacia and resistance to treatment, ultraviolet radiation or vitamin D ingestion. Affected males and females can exhibit lower limbs bowing, extra-skeletal ossification, elevated serum FGF23 levels and normal stature. ARHR1 is caused by homozygous mutation in the DMP1 gene on chromosome 4q21. Hypomaturation amelogenesis imperfecta (HAI) may be inherited in autosomal recessive pattern and caused by mutations in C4ORF26 on chromosome 4q21.1. Individuals affected with HAI have yellowish brown, hypomineralised/hypomature enamel and post-eruptive enamel loss. **CASE REPORT(S)** Two cases with HAI and ARHR1 are presented. A boy aged 13 years old and his 10-year-old sister were referred for the striking appearance of their

teeth. Both patients, having healthy parents, were affected from ARHR1 diagnosed during the first year after birth. They presented with normal stature, bow-legs, craniotabes and were under treatment with calcitriol and phosphate. Clinical dental examination revealed yellowish brown anterior and posterior teeth, with hypomineralised enamel, enamel loss in various surfaces and hypersensitivity to temperature changes. These clinical features were consistent with the diagnosis of HAI. **FOLLOW-UP** Both patients have been referred to the University Medical Genetics Dept in order to further analyse their molecular abnormality and are scheduled for extensive dental treatment. **CONCLUSIONS** ARHR1 and HAI are two isolated traits, which can be caused by mutations in the same chromosome 4q21. Although their aetiopathogenetic mechanisms differ completely, it is possible that their coincidence is provoked by extended molecular defect in adjacent gene locations.

OPD12.12 Goldenhar`s syndrome : A case report

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BACKGROUND Goldenhar`s syndrome is a rare condition, which is characterised by a combination of anomalies: dermal epibulbar cysts, auricular appendices and malformation of the ears. Gorlin suggested the name oculo-auriculo-vertebral (OAV) dysplasia for this condition and also included vertebral anomalies as signs of the syndrome. The aetiology of this rare disease is not fully understood, as it has shown itself variable genetically and of nuclear causes. It is more common in males, with a male-female ratio of 3:2 and the patient's right side of the face, body or both is generally more commonly and severely affected than the left. **CASE REPORT** A 14-year old girl was a second pregnancy and was born to two healthy and non-consanguinous parents in 2001. There was no history of similar findings in her family. She was referred to our department for treatment of her teeth. There were multiple carious cavities and poor oral hygiene. Carious cavities were treated with composite resin restorations and a preventive prophylactic regimen was instigated for the patient. **FOLLOW-UP** The patient has been seen regularly in our department for continuing preventive care. **CONCLUSIONS** This case report illustrates various aetiological factors, classical features diagnosis, dental considerations and management of child patients.

OPD12.13 Dental treatment of a child with congenital central hypoventilation syndrome.

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BACKGROUND Congenital Central Hypoventilation Syndrome (CCHS) is a rare condition combining respiratory hypoventilation with symptoms of autonomic dysregulation. **CASE REPORT** A 7-year-old girl was referred to a private dental practice with the chief complaints being pain and poor aesthetics. The child had been diagnosed with CCHS since infancy and had undergone several courses of medication. Although the patient was uncooperative, the paediatric pulmonologist advised against general anaesthesia. As a result, she was treated in the operating theater (OT) without sedatives, being monitored throughout the entire procedure. A total of eight primary teeth

needed dental treatment (3 were restored, 4 were extracted and 1 was restored with a preformed metal crown). A mandibular lingual holding arch was placed, two weeks later. **FOLLOW-UP** The patient was seen after 6 months and 1 year. Her oral hygiene had improved significantly and her mother reported that the child ate better, brushed her teeth on a daily basis and was careful with dietary habits. The patient was seen after 2 years. Her oral hygiene had improved significantly and her mother reported that the child ate better, brushed her teeth on a daily basis and was careful with dietary habits. **CONCLUSIONS** The collaboration between medical experts and a paediatric dentist was of crucial importance. The use of basic behaviour management techniques in conjunction with monitoring the patient's vital signs led to a successful outcome and an improvement in the behaviour of the patient.

OPD12.14 Bilateral giant cell granuloma, gingival hyperplasia, and ectopic teeth in Noonan's syndrome patient

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BACKGROUND Noonan's syndrome (NS) is a genetic disorder that occurs in approximately 1:1,000 worldwide and is characterised by distinctive facial features, short stature, chest deformity, cardiac defects, bleeding problems, feeding difficulties and many other signs. Dental aspects of NS have been described in some case reports; however, this has not been widely reported in the literature. **CASE REPORT** A 14 year old girl with NS has been attending the Paediatric Dental Dept. for dental treatment and regular reviews. Other medical diagnosis included pulmonary stenosis, renal anomalies and learning difficulties, which were all associated with NS. The dental history noted ectopic permanent canines, which had been previously extracted. A recent clinical examination revealed dental caries on teeth 36, 46 with poor oral hygiene (OH) and generalised gingival hyperplasia. Radiographically, there was an incidental finding of bilateral multilocular radiolucencies in posterior mandible and mild generalised horizontal bone loss. The dental caries was treated conservatively and a preventive OH regimen implemented. **FOLLOW-UP** After 1 year a recall examination revealed some improvement in OH, however, continued reinforcement is required. The long-term plan includes ongoing prevention, maintaining restorations and fissure sealants, and monitoring the GCG. **CONCLUSIONS** Gingival hyperplasia, and ectopic teeth may be associated with NS requiring long-term multi-disciplinary care.

OPD12.15 Atypical infra-occlusion in a child with a rare complex medical background.

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BACKGROUND General arterial calcification of infancy (GACI) is a rare autosomal recessive disorder characterised by calcification of the internal elastic lamina of muscular arteries. It is associated with high mortality rates in the first 6 months of life as a result of heart failure. Affected individuals rarely survive. Autosomal recessive hypophosphatemic rickets (ARHR) is an associated hereditary

disorder characterised by low serum phosphate levels, rickets and/or osteomalacia. Dental aspects of these conditions have not been previously reported in depth. Infra-occlusion is commonly described for primary molars but rarely, if at all, for primary incisors. Both GACI and ARHR are very rare conditions with unclear dental manifestations. **CASE REPORT** A 7 year- old girl affected with GACI and ARHR was referred to the Dublin Dental University Hospital for assessment of progressive infra-occlusion of maxillary primary lateral incisors. The family were actively monitoring the child's dental development and noticed the progressive disappearance of teeth into the periodontal tissues. Clinical intraoral examination indicated a normally developing mixed dentition apart from the clinically absent maxillary lateral incisors. Dental caries was absent; oral hygiene was good and 74 had mild infra-occlusion. Radiographs showed that 52 and 62 had full roots and were completely submerged. **FOLLOW-UP** An orthodontic opinion was sought. 52, 62 and 53, 63 will be extracted under general anaesthesia to create a space for 12 and 22 to erupt. **CONCLUSIONS** Infra-occlusion of primary anterior teeth might be associated with GACI and ARHR. This is a previously undescribed clinical entity.

OPD12.16 Mucopolysaccharidosis: orofacial findings in a series of 35 Cases

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AIM This was to investigate the orofacial features of 35 (18 M, 17 F) patients with mucopolysaccharidoses (MPS), a group of inherited metabolic disorders characterised by intralysosomal storage of glycosaminoglycans. **METHODS** Following consent, oral and radiographic examinations were performed. The clinical data and radiographic findings were interpreted and the incidence of each findings was recorded. **RESULTS** The sample group was composed of 3 MPS-I (8%), 6 MPS-II (17%), 8 MPS-III (23%), 10 MPS-IV (29%), 7 MPS-VI (20%) and 1 MPS-VII (3%). The most common oral features were detected as; tongue thrusting (80%, 28/35), limited mouth opening (71%, 25/35), macroglossia (71%, 25/35) and anterior open-bite (54%, 19/35). Radiographic examination was not performed in 9 patients because of severe mental retardation. Thin mandibular cortex (38%, 10/26), impacted teeth (27%, 7/26) and short mandibular ramus (23%, 6/26) were detected as common radiographic findings. A Talon cusp was detected in one patient with MPS-IV as an unusual dental finding. **CONCLUSIONS** Orofacial features of patients with MPS frequently encountered by Paediatric Dentists may help recognize the disorder. Early detection of the disease and appropriate management through a multidisciplinary approach is recommended to improve the quality of their life.

OPD12.17 Aggressive periodontitis as a manifestation of systemic disease

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BACKGROUND Papillon–Lefèvre syndrome (PLS) is an autosomal recessive genetic disorder caused by a deficiency in cathepsin C. It is characterised by palmoplantar hyperkeratosis and aggressive periodontitis with premature loss of primary and permanent dentitions. The prevalence of PLS is

between 1-4 cases per million of the population. Primary teeth are usually lost by the age of 4 and most permanent teeth by age 14. **CASE REPORT** A 4-year-old boy was referred to the Paediatric Dental Dept.by his general dentist. His parents had noted multiple mobile primary teeth with premature exfoliation of anterior teeth four months previously. His medical history was remarkable only for recurrent respiratory tract infections. Extra-oral examination revealed marked palmoplantar hyperkeratosis. He presented intraorally with premature loss of 51, 61, 71 and 81, inflamed, bleeding gingivae and grade II–III mobility of all remaining primary teeth. Radiographs showed generalized horizontal alveolar bone resorption. The patient was referred to a Paediatric Dermatologist for investigation with a probable diagnosis of PLS. He underwent extraction of all primary teeth under general anaesthesia. **FOLLOW-UP** The patient was diagnosed with PLS by the dermatology staff and has commenced oral retinoid therapy. At a six-month review, extraction sockets had healed and gingival inflammation had resolved. Long term, he will be reviewed regularly with intensive prevention and scaling/root planning of the permanent dentition when it erupts. **CONCLUSIONS** Systemic disease should be considered in cases of aggressive periodontitis with timely intervention and referral for medical diagnosis and management.

Session OPD13 Special Needs

OPD13.1 An audit of basic periodontal examination recording in a Special Care Dentistry Center (SCDC)

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AIM This was assess whether basic periodontal examination (BPE) was recorded for every new patient who was over 7 years of age in a SCDC and to identify whether a valid explanation was provided in the patient's file if the BPE was not recorded (e.g. extreme dental anxiety or an uncooperative patient). In 2012, the British Society of Paediatric Dentistry and the British Society of Periodontology recommended BPE recording for every new patient above 7 years of age. Special healthcare need patients are in greater risk for developing periodontal disease. M**ETHODS** Paediatric dentistry postgraduates working in the SCDC were evaluated for their adherence to the guidelines. Three audit cycles were implemented. The first cycle was conducted retrospectively as a pilot study. The following second and third cycles were 5 months apart. The results of each cycle were collected over a period of one month. Microsoft Excel was used to analyze the data. **RESULTS** The results of the first cycle were disappointing showing only 2% of task completion. The following cycles showed great improvement with the 3rd cycle showing 88% of task completion. **CONCLUSIONS** This audit demonstrated improvement from 2% to 88% in compliance of BPE recording in a Special Care Dental Centre.

OPD13.2 Challenges in dental treatment of children with dystrophic epidermolysis bullosa

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BACKGROUND Epidermolysis bullosa (EB) hereditaria is a rare group of heterogeneous diseases characterised by blister formation on skin and mucous membranes in response to minor mechanical trauma or spontaneously. The most rare and severe type of EB is recessive dystrophic EB (RDEB). **CASE REPORT(S)** Two female patients with RDEB were referred to the Clinic for Paediatric and Preventive Dentistry, (Belgrade). All procedures were performed with local analgesia. In the 18-year old patient two maxillary canine teeth which were out of position in the dental arch and with strong vestibular inclination, caused bullae formation and retention of food in depressions formed on the mucosa. Orthodontic and endodontic treatments were not possible, hence the maxillary canines and one molar had to be extracted. Three teeth were restored with composite resin or glass-ionomer cement. In the 11-year old patient, with severe crowding of teeth, 8 primary and one permanent tooth were extracted. It was not possible to extract one permanent molar due to microstomia. Two permanent teeth were restored. Application of fluoride varnish and fissure sealants were performed for both patients after professional teeth cleaning. **FOLLOW-UP** At 18 month and 3 control recall examinations after the first visit oral health and dental health awareness were improved. **CONCLUSIONS** Most of the preventive, prophylactic and therapeutic treatments could be performed in a routine way, avoiding general anesthesia but with extreme caution.

OPD13.3 Dental decay prevalence dynamics in children with intellectual disabilities and rumination syndrome

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AIM This was to assess dental decay prevalence dynamics in children with intellectual disabilities (ID) and rumination syndrome (RS). **METHODS** The research was conducted in a Moscow orphan institution for children with special needs, where the study group of 9 children (aged 7-14, mean age 10.8 years) with combined ID and RS was identified. Dental decay prevalence was assessed by DMFT index at baseline examination, 2 and 5 years later. **RESULTS** Dental decay prevalence at baseline examination was 100% and mean DMFT was 9.85±1.51. Two years later DMFT had increased two-fold (18.71±3.02), and after 5 years the DMFT reached 20.86±2.42 with a significant increase of extracted teeth proving poor adherance to prevention and loss of restorations with disease progression. All children were non-cooperative and treatment was only possible under general anaesthesia (3.14 times on average during the 60 months of observation). **CONCLUSIONS** In children with RS constant reflux of gastric content to oral cavity creates very favourable conditions for dental decay progression. These children should be seen by dentist no less than 4 times a year with RS being addressed by neurologists prior to dental treatment which needs a more radical approach.

OPD13.4 Oral health status in hospitalized paediatric patients

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AIM To evaluate dental status and oral health of hospitalised children at Hacettepe University İhsan Doğramacı Children`s Hospital. **METHODS** The parents were asked to fill out a written survey. Extra-oral and intra-oral examinations of all children were performed. **RESULTS** Data were collected from 67 hospitalised children and their parents. The patients were 1-15 years old with a mean age of 7.7±4.1 years and 40 children were female. Most of the mothers (35.8%) graduated from primary school whereas most of the fathers (38.8%) graduated from high school. 37.3% of the children brushed their teeth irregularly whereas.70.1% of them had not brushed during their stay in the hospital. Only 9% of the children were examined intra-orally by health professionals in the hospital and among them 1.5% were motivated for oral hygiene. Among the parents, 61.2% informed that their children had caries and 23.9% reported that their children had fillings. The mean DMFT of the children was 2.24±3.6, DMFS: 3.34±6.7, dmft: 3.15±4.3 and dmfs: 6.43±8.7. **CONCLUSIONS** Hospitalised children`s oral health is important for improving their general health. Therefore, both parents and the health professionals play a great role in promoting the oral health of children during their stay in hospital.

OPD13.5 Effects of medical and mental status on treatment types of the patients treated under general anaesthesia

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AIM This was to evaluate the differences between dental condition and treatment modality while performing dental treatment under dental general anaesthetic (DGA) for disabled children and non-cooperative healthy children who attended the KTU Faculty of Dentistry between the years of 2014-2015. **METHODS** Data was collected from Paediatric patients between the ages of 3-15 years, who had a DGA between during the years of 2014-2015. Patients with at least one mental or physical disability in Grp 1 (n=90) were compared with other healthy non-cooperative patients in Grp 2 (n=90) regarding the gender, age, weight, types of treatment and time taken. The statistical analysis of Fisher's exact and MannWhitney U tests were performed in addition to multivariate linear regression model with a confidence level of 95%. **RESULTS** No significant differences were found among the groups regarding gender, weight and treatment time ($p>0.05$). Ages were significantly older in Grp1 compared to Grp2 ($p=0.028$). The total number of treated teeth ($p<0.01$) and extraction ($p<0.001$) were found higher in Grp1, whereas lower results obtained including the preventive resin restoration ($p<0.001$), GIC ($p<0.05$), RCT ($p<0.001$) and preformed metal crowns (PMC) ($p<0.001$) compared to Grp2. The total number of treated teeth was significantly influenced by restorative treatment, preventive resin restorations, endodontic treatment, PMCs and total number of extracted teeth ($p<0.001$; for all). **CONCLUSIONS** DGA for non-cooperative healthy and disabled children is useful and effective.

OPD13.6 Dental care with EMONO on a severe disabled child.

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BACKGROUND Children with disabilities have difficulties expressing their dental problems because attention is often focused towards the disability itself. However, poor oral health has important repercussions on the quality of life so it is important to find the right way to treat them.
CASE REPORT A 12 years old girl consulted a dentist because of dental caries. The patient suffered from severe disuse atrophy, a widespread hypertonia and dystonic movements. She has never walked, she learned the sitting position only at the age of 9 years and is in a wheelchair since then. She has no problems with visual and hearing abilities and seems to understand well.
The panoramic radiography showed severe caries and many missing teeth. The dental examination revealed that six baby teeth and one permanent tooth should be extracted and that one permanent tooth should be treated. The patient being cooperative the decision to treat her with EMONO was taken. In five sessions of EMONO everything was treated and it went very well. Even though the mother did not understand French well she was very helpful and sat on the dental chair at the feet of her daughter holding her hands. **FOLLOW-UP** She now has an appointment for a check-up. **CONCLUSIONS** This case illustrates the potential of using EMONO on a severely disabled child.

Although the disability of this girl was important general anaesthesia was not necessary. This dental treatment using EMONO was successful and an advantage for the dental care of this patient.

OPD13.7 Prosthetic rehabilitation of a patient with Neurofibromatosis type 2

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BACKGROUND This report of a 30-year-old male suffering from Neurofibromatosis type 2 (NF2). A full mouth rehabilitation was provided coping with his serious sensory problems. The patient was followed up every three months. During the recalls special emphasis was given to the oral hygiene motivation of the patient. **CASE REPORT** A 30-year-old male with features of NF2 including vision and hearing loss, imbalance, cranial and peripheral nerves tumors, was referred for prosthetic dental rehabilitation. Clinical examination revealed carious lesions resulting in crown fractures of #11, 12, 13, 21, periodontal disease and poor oral hygiene. A treatment plan was established to rehabilitate the patient with periodontal, endodontic treatment, extractions, restorative and prosthetic procedures. Due to severe visual impairment and hearing loss, special communication methods were required in order to achieve the patient's cooperation, mainly utilizing the sense of touch. Devices such as laptops and tablets were also used to facilitate communication and patient's comfort. **FOLLOW-UP** The patient was followed up every three months. During the recalls special emphasis was given to the oral hygiene motivation of the patient. **CONCLUSIONS** It was possible to overcome the severe visual and hearing impairments of this special care patient and fully treat him in the dental chair under a multi-discipline protocol. Treatment improved his comfort and self-esteem.

OPD13.8 The use of IPad to enhance oral health in a group of autistic patients

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UFR Dental Dept. Odontologie, CHU, CREN, Nantes, France

AIM This to evaluate if an IPad could be used to improve oral hygiene and dental examinations in patients with autistic disorders. **METHODS** A total of 55 patients with autism (3 to 17 years old) were included. çATED application was used as an educational tool to learn tooth brushing and for desensitisation of a dental examination. çATED is a digital diary which helps patients with autism to have more autonomy; it uses pictograms, can be personalised and allow autistic patients to organise their activities. Tooth brushing and behaviour during dental examinations were evaluated at the beginning of the study and after 2 and 4 months. **RESULTS** The use of IPad and çATED improved oral health. Tooth brushing was better performed and it was observed that there was more cooperation during dental examinations. **CONCLUSIONS** Dental care for children with autism is challenge for dentists and parents. Efforts should be made to improve preventive measures and education using specific and adapted strategy. The use of iPad and çATED as an educational tool is interesting.

OPD13.9 Oral conditions in one-year-old preterm infants

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AIM To evaluate anamnestic data and oral conditions in one-year old preterm infants and to compare these findings with one-year old full-term infants. **METHODS** The case control study was conducted on randomly selected 102 one-year-old preterm infants and data were compared with 87 one-year-old full-term infants. The maternal and infants´ medical histories, feeding and oral hygiene habits were obtained from hospital records and from interviews with their mothers. Oral cavities of all infants were examined under the same conditions. Chi-square, Pearson and Mann-Whitney tests were used for statistical evaluation with $p<0.05$ considered statistically significant. The mothers of all infants signed informed consent for participation in the study and the approval from the ethical committee was obtained. **RESULTS** The natal variables for gestational age [$p<0.0001$], mode of delivery ($p<0.0001$), birthweight ($p<0.0001$), Apgar score ($p<0.0001$), resuscitation ($p=0.0002$) orotracheal intubation ($p<0.0001$) and neonatal variables for antibiotic treatment ($p<0.0001$) early and late infections ($p<0.0001$) had significant association with prematurity. The one-year-old preterm infants frequently suffered from general diseases ($p=0.001$), frequently received regular medication ($p=0.0196$) and nocturnal bottle-feeding ($p=0.0269$) had a lower number of erupted primary teeth ($p=0.0333$), higher prevalence of developmental hypoplastic enamel defects ($p=0.0006$) and deformation of hard palate ($p=0.0008$). **CONCLUSIONS** The study confirmed anamnestic and medical differences between one-year-old preterm and full-term infants. The preterm infants were considered as high risk patients with urgency of early preventive and regular dental care.

OPD13.10 Withdrawn

OPD13.11 Dental anxiety and oral health in children and young adults with inherited bleeding disorders

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AIM This was to evaluate dental anxiety and oral health status in children and young adults with inherited bleeding disorders, and to compare these findings with healthy controls. Children with inherited bleeding disorders experienced a high number of invasive medical procedures, which may lead to dental anxiety. Dental anxiety could influence the oral health status. **METHODS** The study group included 33 patients aged between 10 and 25 years with inherited bleeding disorders, while the control group consisted of 40 healthy subjects of the same age range. Data were collected using a modified WHO questionnaire for oral health assessment and dental anxiety scale (DAS). **RESULTS** Gingival index score (GI) of children with inherited bleeding disorders (1.57±0.77) was statistically higher than in control (0.12±0.35)($p<0.05$). No statistical difference was found in decay-missing-filled index (DMF) in study group (4.21±4.14) compared to control (4.45±4.19)($p>0.05$). DAS of the

study group was significantly higher (p=0.004, Mann-Whitney test) than the control. This study revealed that children with inherited bleeding disorders have significant level of dental anxiety. It requires the use of behavioral methods such as tell-show-do, distraction, positive reinforcement and modeling for reducing anxiety. Oral health in patients with bleeding disorders indicate the need to implement additional preventive measures, dental health education and obligatory dental appointments. **CONCLUSIONS** Prevention and treatment of oral diseases in initial stages could prevent further development of complications, whose management requires factor replacement therapy, and could prevent development of dental anxiety.

OPD13.12 Dental caries and enamel hypoplasia in children with acute lymphoblastic leukemia

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AIM To evaluate the prevalence of dental caries and enamel hypoplasia in children diagnosed with acute lymphoblastic leukemia (ALL) during the complete remission phase. **METHODS** Two groups of children between 8-12 years of age were investigated. Group 1 consisted of 36 children with ALL and group 2 with 58 healthy children. The decayed-missing-filled (dmf) index for the primary teeth and the presence of hypoplasia in first permanent molars or in both incisors and molars were recorded. **RESULTS** The recorded dmf index values were very high for both groups, as 53% of children had a value of dmf≥5. The prevalence of molar and molar-incisor hypoplasia were measured and the results showed that 39% of first molars and 47% of both incisors and molars of children from group 1 had signs of mineralisation disturbances. The results were statistically analysed. There were no differences between the groups regarding the dmf index but there was a statistically significant difference in the incidence of hypoplasia between group1 and group 2 ($p<0.05$). **CONCLUSIONS** The high prevalence of enamel hypoplasia demonstrated that oncological protocol might interfere with the mineralisation process of dental enamel. According to our results, chemotherapy did not determine an increasing severity of dental caries index, as high dmf values were found in both the group of children with ALL and healthy controls as well. Other factors must be taken into consideration, such as ethnic characteristics, socio-economic status and the quality of our national oral health preventive programme.

OPD13.13 Withdrawn

OPD13.14 Withdrawn

OPD13.15 Comparison of oral health between children with odontophobia and children with intellectual disability

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AIM This was to assess and compare the oral health of uncooperative children treated under general anaesthesia (GA) due to intellectual disability or dental fear. Behavioural management problems and intellectual disability are described as indications for dental treatment under GA.
METHODS Children aged 6-18 years old from both groups were treated in the Paediatric Dentistry Department, UPJS Kosice, Slovakia in 2011-2014. Data were collected from all uncooperative children that underwent dental treatment under GA. Group 1 comprised of 75 patients with ID and Group 2 of 37 patients with dental fear. **RESULTS** Mean age was 11.92 ± 3.7 years and 10.9 ± 2.7years for Group 1 and 2 respectively, the difference was not statistically significant (p=0.18). Gender distributions: 45/30 boys/girls in Group 1 and 15/22 in Group 2. Data collected during pre-operative examination showed no statistically significant differences with respect to caries occurrence in these groups (mean D in DMFT was 7.4 in Group 1 and 7.18 for Group 2).However, both groups exhibited significantly higher DMFT and specifically caries occurrence than that seen in a healthy population. The mean number of permanent teeth extracted due to unrestorable caries was 3.14 in Group 1 and 2.7 for Group 2. The number of patients receiving treatment under GA due to dental fear decreased with age. However, the same trend was not seen in patients with intellectual disability. **CONCLUSIONS** The data showed that both groups of children assessed in this study, those with dental fear and those with intellectual disability had a comparably high incidence of dental caries.

OPD13.16 Dental status of intellectually challenged children retreated under general anaesthesia.

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AIM To determine the clinical reasons for retreatment under general anaesthesia (GA) of intellectually challenged children. **METHODS** Patients were selected from previously treated children at the University of Pécs, Paediatric Dentistry Dept. The data of 49 retreated intellectually challenged children were collected and compared to 50 age/gender related healthy patients according to their initial diagnoses, treatment types, the circumstances of the retreatment or subsequent chairside screening. **RESULTS** The analysis showed that the basic dental status of intellectually challenged children at the time of the first examination was worse than for healthy patients. Average time until the second treatment was 2.5 years, but that was extremely high. Compared to the retreatment diagnostics of the intellectually challenged and healthy children deterioration in oral health was faster for the intellectually challenged patients. **CONCLUSIONS**

Intellectually challenged patients and their families need intensive special preventive health education. A suggested protocol was created to instruct these patients to achieve a slower impairment or stabilised status in oral health.

Poster Presentations without Disscusion

EAPD Congress Belgrade 2016 Poster No Discussion (PND) Abstracts

PND1 **Intrinsic green staining resulting from neonatal hepatitis and hyperbilirubinemia**

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BACKGROUND Intrinsic stains are changes in the colour of the tooth related to systemic factors such as: genetic factors, birth defects, metabolic defects, prenatal care, infectious diseases, neurological disorders, endocrine, kidney, liver, nutritional deficiencies and poisoning that usually occurred during odontogenesis. Special care patients are one of the most important patient groups in paediatric dentistry and health care providers have an understanding of the aetiology in order to diagnose and recommend a more appropriate treatment. **CASE REPORT(S)** Treatments of patient were; the restorations of his first lower permanent molars with SSC, maxillary expansion, cosmetic treatment with bleaching and restorations of teeth. **FOLLOW-UP** The patient is under our surveillance. **CONCLUSIONS** Special care patients are one of the most important patient groups in paediatric dentistry and health care providers have an understanding of the etiology in order to diagnose and recommend a more appropriate treatment.

PND2 **Achondroplasia: a report of three cases**

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BACKGROUND Achondroplasia is the most frequent form of short-limb dwarfism. It is inherited as an autosomal dominant trait and caused by heterozygous mutation in the fibroblast growth factor receptor-3 gene on chromosome 4p16.3. The purpose of this case is present symptoms of three cases with achondroplasia. **CASE REPORT(S)** A 12 year old boy 118.9cm tall and 36.8 kg weight with respiratory problems and upper airway obstruction. He had anterior open bite, Class III malocclusion and maxillary retrognathia. The boy had a compound odontoma of the right maxilla. Enucleation of the compound odontoma was performed three years ago. **FOLLOW-UP** Prophylactic treatment had been applied to all patients and they are being followed up for three years. **CONCLUSIONS** The features of achondroplasia may lead to respiratory, neurological, skeletal and orthodontic problems. Incidence of caries may increase the cause of malocclusion and can be avoided by regular follow-up.

PND3 **Riga-Fede disease in the upper jaw in an infant: A case report**

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BACKGROUND Riga-Fede disease is a benign and uncommon mucosal disorder. This is an ulceration of the oral mucosa and arises from repetitive traumatic injuries. The disease is usually caused by the sharp edges of new erupted teeth. The aim of this case report is to present Riga-Fede disease and its treatment. **CASE REPORT(S)** An 11-month-old girl was referred to the Department of Paediatric Dentistry with an ulceration in the upper jaw. The patient was having complaints like sensitivity, anxiety, difficulty in eating, fever and crying. Field of ulceration was seen in the upper anterior region on intra-oral examination. The upper anterior region was observed to be in contact with the sharp incisal edges of the lower central incisors. Extra-oral examination was normal. The sharp incisal edges of the lower incisors were slightly grinded. An analgesic and anti-inflammatory gel were prescribed for the treatment of painful and inflamed tissue. **FOLLOW-UP** Patient was reviewed after two weeks. The ulceration in the front region of the upper jaw was healed and the complaints of the patient ended. The upper jaw right central and lateral teeth were erupted. Routine dental examinations are ongoing. **CONCLUSIONS** Riga-Fede disease is rare. This condition can be confused with malignancies. Therefore, the diagnosis and treatment of this disease are very important for physicians and patients.

PND4 **Methods of conservative treatment of pulpitis**

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AIM Treatment of complicated forms of caries in permanent teeth with unformed root tops in children is the most relevant problem today. Irrational treatment of teeth often lead to the development of acute or chronic pulpitis, sometimes it can lead to necrosis of the pulp and injuries the roots "growth plate". It is advised to use anti-inflammatory paste before applying the calcium-containing paste. **METHODS** Children aged 6-10 years old were examined in the dental clinic of the department. The microbiological composition of the damaged tissues of the tooth were investigated. After removal of necrotic pulp tissue, curative paste was applied for 3-5 days in the tooth cavity. After this, calcium-containing paste was applied and the tooth was sealed. **RESULTS** The result of this process was elimination of inflammatory reactions of the pulp, normalisation and normal further development of the permanent tooth root. Using the stimulation of apexification with MTA provided a more rapid formation of dentine bridges and caused fewer complications compared to the use of calcium hydroxide. All patients didn`t have complications such as acute or chronic pulpitis or chronic periodontitis. **CONCLUSIONS** This method can be recommended in treating pulpitis of different groups of permanent teeth with incomplete root formation. Patents have been filed for this form of treatment.

PND5 **Sleeper One - a must have computer assisted intra-osseous anaesthesia (CAIO) for Paediatric Dentistry**

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AIM To retrospectively assess the efficacy of computer assisted intra-osseous anaesthesia (CAIO) without rotation in young children and temporary teeth using Sleeper One. **METHODS** In a retrospective study, CAIO-Sleeper One was evaluated in young children for restorative and endodontic treatments, uncomplicated temporary tooth extractions using Ubistesine articaine 4%, epinephrine 1/200 000. Anaesthesia was performed in children who showed enough compliance according to the modified Venham behaviour scale. Anaesthetic success, the onset, duration, amount of anaesthetic solution as well as need of supplementary injections were assessed. **RESULTS** A total of 1,290 consecutive sessions were retrospectively assessed (audited) on 423 patients aged 6.1±2.9 years with 780 teeth involved. The overall success rate was 97.8%. **CONCLUSIONS** CAIO-Sleeper One can be a valuable alternative to usual infiltration techniques in paediatric dentistry regarding anesthetic success, onset and duration.

PND6 **The clinical management of self-mutilation lip biting using a mouth guard: A case report**

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BACKGROUND Self-mutilation is a physical damage to the person as a result of repetitive motions observed in children especially the educationally challenged. A report on a patient in whom self-mutilation of the lower lip was suppressed with the help of an essix mouth guard. This case report describes a different treatment approach for prevention of ulcers that occur in the lower lips of a 15-month old baby with a history of hypoxia, as a result of continuous biting habits despite the parent's preventive efforts. **CASE REPORT(S)** Impression of the patient's upper jaw was taken and a working model was created. A plate with 1 mm thickness was prepared from essix on this model. It has been proposed that the apparatus should be worn throughout the day except during feeding. The patient was recalled for 1 month and 3 month check-ups. **FOLLOW-UP** After the use of the mouth guard healing of the ulcerations of the lower lip was observed. **CONCLUSIONS** Early diagnosis and specific dental care for patients that are educationally challenged can be helpful in prevention of lip biting.

PND7 **Peculiarities of the oral cavity mucosa of children with diffuse scleroderma**

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AIM To raise the level of diagnostics of the oral cavity mucosa of children with diffuse scleroderma. **METHODS** A total of 38 children with diffuse scleroderma were examined and histomorphologic examinations of the mucosae were performed. **RESULTS** A typical affection of the oral cavity`s mucous membrane was noted having a diffuse scleroderma. The children complained mainly of laboured opening of the mouth, dryness, numb feeling of some parts,

burning and change of taste. The oral cavity mucous membranes endure three phases of main disease development (non-pitting oedema, induration and atrophy). In the beginning changes such as oral cavity mucous membrane oedema, mild hyperaemia with frank vascular pattern, with preserved compliance, sometimes with elements of infection, anabrosis,aphthae are seen. If the disease lasts more than 2 years it can be observed that the phase of solid oedema of the mucous membrane gradually changes into the phase of induration when the mucosa is indurated. Histological examination of gingival tissue confirmed the clinical picture of damage, in 63.3 % there was dystrophy of the epithelium, infiltration of epithelium by lymphocytes occurred in about 60%, and a reduction of the blood stream in 81.8%. **CONCLUSIONS** The degree of the oral cavity mucosal affection of children with diffuse scleroderma depends on the form and duration of the main disease and on complications of baseline therapy which is confirmed by histomorphologic analyses of the mucous membrane.

PND8 **Oral findings of a patient with Duchenne muscular distrophy**

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BACKGROUND Duchenne muscular dystrophy (DMD), is an X-chromosomal linked dystrophin gene related disorder with an incidence of 1:3500 live-born males. It is characterised by an early childhood onset and progressive muscle weakness. **CASE REPORT(S)** A 9-year-old boy was referred to the Paediatric Dentistry Department. The medical history revealed DMD and mild mental retardation. There was delayed eruption of the permanent teeth, presence of a mesiodens in the anterior maxilla, a posterior cross-bite, poor oral hygiene, dental caries, increased depth of the palate, enlarged tongue and mouth breathing was detected. The child was uncooperative but general anaesthesia was contraindicated due to the malignant hyperthermia risk. By using behaviour guidance techniques, the restorative and preventive treatments were completed. The patient and the parents were instructed on oral hygiene measures. **FOLLOW-UP** The patient was scheduled for regular follow-up appointments for monitoring the eruption of the mesiodens. Orthodontic treatment was included in the future treatment planning. **CONCLUSIONS** Patients with DMD require close follow-up by paediatric dentists as they may have dental and orthodontic abnormalities. Prevention of caries is of importance in order to prevent the need for general anaesthesia because of the malignant hyperthermia risk. Therefore, fissure sealants and topical fluoride treatments may help prevent decay in DMD patients.

PND9 **The general dentists` knowledge about local anaesthesia in paediatric patients**

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AIM To evaluate general dentists` knowledge about local anesthesia in paediatric patients. **METHODS** In Paediatric dentistry, behaviour management and pain control are essential to the success of dental processes. Pain control is often achieved with local anesthetic agents. Behaviour guidance, dose and technique of administration during appliance of local anesthetics

are the key parts of an accomplished dental treatment for paediatric patients. In this study, a questionnaire local anaesthesia including anaesthetic agents, doses and techniques in paediatric dental patients is completed by general dentists. A total of 50 randomly selected general dentists were selected and completed the questionnaire. The answers of dentists are evaluated. **RESULTS** Of the dentists 94% indicated that they frequently used infiltration anaesthesia and 82% were not using any specific anaesthesic agent for paediatric patients. Topical anaesthesia applications were applied by 72% of the dentists and they indicated that 89% of them were using a spray form of topical anaesthesic agent. Only 34% of the dentists indicated that the syringe must be hidden behind the child. **CONCLUSIONS** There are many surveys to avoid the invasive and often painful nature of the injection, and to find a more comfortable and pleasant means of achieving local anaesthesia before dental procedures. Local anaesthesia forms the backbone of pain control techniques in dentistry and has a major role in paediatric dentistry. Dentists should pay more attention during local anaesthesia procedures especially with the treatment of child patients.

PND10 **Molar agenesis: A rare case report**

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BACKGROUND Tooth agenesis is one of the most common dental anomalies. Agenesis of fewer than six teeth is called hypodontia whereas agenesis of more than six teeth is known as oligodontia. Oligodontia is commonly associated with syndromes but can also occur as non-syndromic cases. There has been limited number of case reports of non-syndromic oligodontia with the involvement of all permanent molars. **CASE REPORT(S)** A 7-year-old girl was referred to the paediatric dentistry department with the chief complaint of absence of posterior teeth. Her medical history was non-contributory. She was in the mixed dentition and there was a posterior cross-bite. Clinical and radiographical examination revealed congenital agenesis of all permanent maxillary and mandibular molars. The maxillary second permanent premolars were microdontic. Posterior cross-bite was treated by using a removable orthodontic appliance and the patient was recalled for regular appointments. **FOLLOW-UP** The patient has been followed for four years. As she had no functional problems, prosthetic rehabilitation with removable dentures was postponed till the exfoliation of the primary molars. Placement of implants is planned after the end of the active pubertal growth. **CONCLUSIONS** Early diagnosis is important to improve oral health and functional problems of patients with tooth agenesis. Treatment of congenital tooth agenesis requires long term follow-up and a multidisciplinary team approach including restorative, orthodontic and surgical procedures.

PND11 **Effect of mobile phones as a magnetic field on the microhardness of human teeth**

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AIM To investigate the effect of radiofrequency (RF) radiation emitted from 900 MHz mobile phones on the enamel and cementum microhardness of human teeth. **METHODS** A number of

sources emit electromagnetic fields especially radiofrequencies are growing rapidly in the world we live today. A total of 32 freshly extracted human premolar teeth were prepared for the study group. A generator which produces 900 MHz radiofrequency radiation was used in this study to represent exposure of global systems for mobile communication (GSM). Teeth were exposed to the radiation for 2 h per day (7 days a week) for 12 months. Digital micro-Vickers hardness tester (Wilson Wolpert Europe BV, 401 MVD, Netherlands) fitted with a Vickers diamond and a 200 N load was used to make indentations in the enamel and cementum surfaces. Data were analysed using SPSS 16.0 software. Paired sample t test was used ($p<0.05$). **RESULTS** The mean baseline microhardness in enamel (165.82 ± 56.63) was found to be lower than after exposure (163.80 ± 24.53). However, difference between baseline and after exposure were not found to be statistically significant ($p=0.855$). The mean value of baseline cementum surface was 41.15 ± 13.81 and after radiation was 26.16 ± 8.13. There were statistically significant differences between pre- and post-radiation in cementum ($p=0.000$). **CONCLUSIONS** Despite this result of this study, it can be considered that long term exposure of 900 MHz radiofrequencies emitted from mobile phones may decrease the microhardness of teeth.

PND12 Dental usage of the optical coherence tomography (OCT)

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AIM To present dental applications of OCT in permanent teeth. **METHODS** Optical coherence tomography (OCT), is a new non-invasive diagnostic imaging technique that has several potential dental applications. OCT is an interferometer-based system that creates cross-sectional images by qualifying the reflections of infrared light from dental structures. This in vitro study describes the use of OCT (CirrusTMHD-OCT 4000; Carl Zeiss Meditec, AG07745 Jena Germany) for detecting sound enamel, demineralisation (with 37% orthophosphoric acid etchant), and interfacial gaps in intra-oral restorations with nanohybrid composite (Clearfil Majesty™; Kuraray) and with fissure sealant (FisSeal; WP) OCT. The analysis of the 2 and 3-dimensional images obtained with OCT allowed observation and evaluation of teeth. **RESULTS** In OCT, demineralisation can be distinguished from sound tissue based on the following two main principles: increased light scattering in porous demineralised tissue. Cross-sectional OCT images between the resin composite or fissure sealant and dentine showed an increase in the signal intensity displayed as a clear line in the grey scale two-dimensional image, in which there was lack of an interfacial seal. OCT also helped to assess the quality of restorative procedures and results during and after placement. **CONCLUSIONS** OCT can be a powerful tool for academic and clinical applications for the evaluation of dental tissues in vitro. There are several advantages which are; non-invasiveness, real-time information repeatability, presence of infrared light versus ionizing radiation and provide high-resolution imaging and three-dimensional imaging ability. OCT can be a reliable and an accurate method and a safer alternative to X-ray radiography.

PND13 Functional orthodontic treatment with LM-Activator™ in mixed dentition: 4 case reports

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BACKGROUND Class II Div 1 malocclusion is common and various methods have been suggested for successful treatment in the growing patient. The aim of this study was to evaluate the dental and skeletal effects of LM-Activator, applied for correction of dental arch relationship and to improving the facial profile of the patient by promoting favourable mandibular growth changes. **CASE REPORT(S)** Four boys in the mixed dentition period and had Class II division 2 malocclusions with no general health problems were referred to the department of orthodontics. Patients had Cl II Div 1 skeletal and dental relationships with small mandibles, decreased vertical heights, increased maxillary incisor inclinations and overjets. Proper appliance was chosen after some measurements at the first appointment. Lateral cephalometric radiograph, intra-oral and extra-oral photographs and impressios for stone models were obtained at treatment onset and at the end of treatment records. Patients used the appliances for 4 hours a day and all night. **FOLLOW-UP** At the end of treatment overjet and overbite were decreased. While ANB angle was decreased for one patient, it didn't change for the other three patients. Changes in vertical height occurred slightly for one patient, another patient had a little bit of a decrease. No vertical changes were measured for the other two patients. When dental changes were examined, significant decreases in overjet were measured in all cases. **CONCLUSIONS** The LM-Activator™ is simple to use and it requires shorter chair-side time. As a result of Cl ll Div 1 patients treatment with LM-Activator™ it was found to be effective dentally.

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