

**Wednesday, 5 September 2018**  
**WDC 2018 Abstract Book**  
**FREE COMMUNICATION SESSIONS 01–12**  
**and POSTER SESSIONS 01–15**

**FREE COMMUNICATION SESSIONS 01–12**

**Free Communication Session 01 | 05.09.2018, 11:15–12:15 | Cubicle 1**

**Theme: General Dentistry**

FC001

**Can EGF Improve Ultrastructure of Salivary Glands of Diabetic Rats**

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**Aim or Purpose:** The aim of the present study was to determine if EGF is capable of reversing the side effects of Streptozotocin induced diabetes on the submandibular salivary glands through ultrastructural examination of all components of the glands using transmission electron microscopy (TEM).

**Materials and Methods:** Sixty adult male albino rats were used in the current study and divided into three groups, a control group, diabetic group induced with a single intraperitoneal injection of streptozotocin and a diabetic group that received daily injections of EGF 10 µg/kg body weight for 60 days. Ultra-thin sections from the submandibular salivary glands were processed for examination using TEM.

**Results:** The secretory units and intercalated ducts in the diabetic group showed atrophic and pleomorphic changes, with areas of vacuolation and degeneration of cell organelles. Following daily EGF treatment, the secretory units and duct system appeared almost normal. The results obtained from the current study showed that EGF improves the parenchymal and stromal elements of the submandibular salivary glands in rats.

**Conclusions:** Further results were deemed necessary to quantify and characterize the amount of repair that occurs through EGF.

FC002

**The Evaluation of Dental Services Related Posts on Social Media**

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**Aim or Purpose:** Many social media tools are available for health care professionals. These tools can be used to improve or enhance professional networking, organizational promotion, patient care, patient education, and public health programs. However, they also present potential risks to patients and health care professionals regarding the distribution of poor-quality information, damage to professional image, breaches of patient privacy, violation of

personal–professional boundaries, and misled advertisements and promotions. In the recent years, the increase of social media activity has created a new promotional medium which has put companies in action. Therefore, the purpose of this study to examine the consumer evaluations of the social media posts regarding dentistry.

**Materials and Methods:** In order to develop the survey instrument three focus group study is conducted and after developing the survey instrument, it was distributed to dental patient. 310 data were collected in 2 months and put the analysis.

**Results:** Due to the fact that trust has been observed in the findings of this study as the prominent factor in social media dentistry communications.

**Conclusions:** It is imperative for the dental care service providers to keep their social media accounts secure and take precautions to ensure the authenticity of their posts to indicate that they originate from their own accounts. Besides, it is recommended to bring the informative side of their business to the spotlight, rather than themselves and their individuality.

FC003

**Features of Manifestation Control of Expression of Students of Dentistry**

Natalia Karabushchenko, Anastasia Vetrova, Nina Sungurova  
*Department of Psychology, RUDN University, Moscow, Russia*

**Aim or Purpose:** To determine the level of control of expression in medical students based on the results of 2 sections in 2016 and 2018 and to check whether there are significant correlations between it [measurements]

**Materials and Methods:** In the course of the study, the following methods were used: the Em Yun Lucin test. To determine the correlation between the level of attention in 2016 and 2018, Student's *t*-criterion was used in SPSS. 83 dentists took part in the study.

**Results:** After processing the data using Student's *t*-test, it is established that the ability to control the external manifestations of one's emotions at the level of significance <0.05 is different according to the results between measurements in 2016 and 2018. According to the average value - in 2018, the level (12.3) higher than in 2016 (11.1).

**Conclusions:** The data of the research show that during the training the students improve the control skills over the manifestation of their own emotions, which is of great importance for further productive communication with patients. It is also of particular importance for further professional activities and the ability to make quick decisions in dealing with patients who need to provide emergency medical care.

FC004

**Rationale Use of Antibiotics (RUA) in Dental Practice**

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**Aim or Purpose:** Resistance to antibiotics is a major global health challenge and rational use of antibiotics (RUA) aims at preventing the misuse and/or unnecessary use of antibiotics. However, for RUA to be effective, a certain level of knowledge and familiarity of dental practitioners will be needed. Thus, the aim of the study was to analyze the extent of knowledge and familiarity of dentists regarding RUA and also their perceptions and attitudes.

**Materials and Methods:** A questionnaire was developed and an electronic survey was designed in order to evaluate the level of knowledge, perceptions and attitudes of dentists regarding RUA. The correlation between categorical data was analyzed by  $\chi^2$  test, while factors with the potential to affect dental practitioners' prescriptions of RUA was analyzed by multiple regression analysis.

**Results:** All of the respondents (100%) were familiar with and had a positive attitude towards RUA. Majority thought that dental practitioners were not up to date regarding RUA (74.1%), their level of knowledge was not sufficient (81.8%), and RUA was not efficiently implemented into daily dental practice (69.5%). The primary reasons for limited implementation of RUA presented differences among the respondents. Generally, more emphasis was suggested to be placed on RUA (99.3%).

**Conclusions:** Although there was a positive attitude towards RUA, continuous efforts for effective implementation of RUA into daily dental practice seem to be needed. For this purpose, attempts to overcome the perceived barriers expressed by dental practitioners, is likely to deserve a particular professional concern.

**Free Communication Session 02 | 05.09.2018, 11:15–12:15 | Cubicle 2**

**Theme: Endodontics**

FC005

**Clinical Study of the Endodontic Anatomy of the Upper Molars**

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**Aim or Purpose:** The upper molars are among the most frequent endodontically treated teeth, showing a high failure rate, not only due to the frequent omission of the second mesiobuccal canal, but also because of the morphological complexity. Our clinical study reveals the root canal anatomy of the upper molars in a Romanian population, also highlighting rare, complex clinical cases.

**Materials and Methods:** 198 upper first molars and 180 upper second molars were registered for endodontic treatment in our clinic over a period of 2 years. The number of root canals of each tooth

was retained in the patient record, photos using dental operative microscope, radiographs and CBCT were taken.

**Results:** For the first upper molar we found 77.3% with 4 canals, 21.7% with 3 root canals and 1% with 5 canals. Out of all the endodontically treated first molars, 41.9% were retreatments.

Regarding the second upper molar, we had a higher morphological variety. 47.8% presented 3 root canals, 43.9% had 4 canals, 7.8% showed 2 canals and 0.5% had 5 canals. Out of these 30.5% were retreatments.

**Conclusions:** Most maxillary first molars have 4 or more root canals. The endodontic morphology of the second upper molar is more varied. Narrow field CBCT preoperative scanning is mandatory in difficult clinical cases, when identifying the fourth or fifth root canal, for avoiding unnecessary removal of dentin or perforations or looking for a nonexistent root canal. Dental operative microscope should always be used, as to achieve a predictable outcome.

FC006

**Effectiveness of Lasers on Enterococcus Faecalis and Candida Albicans**

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**Aim or Purpose:** The aim of the present study is to compare the antibacterial efficiency of PIPS, Er,Cr:YSGG laser on Enterococcus faecalis and Candida albicans.

**Materials and Methods:** The present study was approved by the ethical committee of Gaziantep University and included 140 mandibular premolars. The samples were divided into 2 groups. Group 1 were contaminated with Enterococcus faecalis, Group 2 were contaminated with Candida albicans. Following 4 weeks incubation, all samples were randomly divided into 10 subgroups; Group 1A: Er,Cr:YSGG laser group (2 W, 20 Hz, 25 mJ, 25% water, 35% air, 12 s, 4 repeat)

Group 1B: Er:YAG laser (0.8 W, 20 Hz, 40 mJ, 5 s, 5 repeat)

Group 1C: 5% NaOCl group (7 ml, 2 min)

Group 1D: positive control group

Group 1E: negative control group

Group 2A: Er,Cr:YSGG laser group (2 W, 20 Hz, 25 mJ, 25% water, 35% air, 12 s, 4 repeat)

Group 2B: Er:YAG laser (0.8 W, 20 Hz, 40 mJ, 5 sec, 5 repeat)

Group 2C: 5% NaOCl group (7 ml, 2 min)

Group 2D: positive control group

Group 2E: negative control group.

After disinfection processes, the culture of each sample was tested to determine cfu/ml values for before incubation and after 4-week incubation.

**Results:** PIPS reduced microorganisms more than Er,Cr:YSGG laser and prevented recultivation after 4 weeks.

**Conclusion:** PIPS seems to increase the success rate in the elimination of Enterococcus faecalis and Candida albicans.

FC007

### Effect of Different Disinfectants on the Micro-Shear Bond-Strength of Biodentine

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**Aim or Purpose:** Comparison of the effects of different disinfectants on the micro-shear bond-strength of Biodentine.

**Materials and Methods:** Crowns of 25 intact human molar teeth were bisected longitudinally in mesiodistal direction and 50 halves of crowns were obtained. Each halves were embedded into moulds with the buccal surfaces facing upwards. Buccal surfaces were polished with a 600-grid silicon carbide paper under water for 60 s to obtain flat dentin surfaces with standard smear layer. Samples were randomly assigned into 5 groups (n = 10) according to the disinfectants as follows: Group 1: 2.5% NaOCl and saline, Group 2: 2.5% NaOCl, saline and 2% CHX, Group 3: 2.5% NaOCl, saline, 17% ethylenediaminetetraacetic acid (EDTA) and saline, Group 4: 1.3% NaOCl, saline and MTAD, Group 5, no treatment was applied and used as control. Dentin surfaces were then dried with cotton pellets and Biodentine (Septodont Ltd., Saint Maur des Faussés, France) was applied on, via plastic moulds in 2 mm height and 2 mm width. Micro-shear bond-strength test was applied, and the data were analyzed by using one-way ANOVA and Tukey tests ( $p < .05$ ).

**Results:** Means of micro-shear bond-strength values were ranked as follows; EDTA, Control, CHX, NaOCl, MTAD. Only the difference between EDTA and MTAD was statistically significant ( $p < .05$ ).

Means of micro-shear bond-strength values were ranked as follows; EDTA, Control, CHX, NaOCl, MTAD. Only the difference between EDTA and MTAD was statistically significant ( $p < .05$ ).

**Conclusions:** Treatment of dentin with EDTA increases the shear bond-strength of Biodentine to dentine while, MTAD decreases.

FC008

### Healing of Large Periapical Lesions Using Ideal Root Canal Treatments

Majed Assilmi

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Periapical lesions develop as a sequel to pulp disease. They often occur without any episode of acute pain and are discovered on routine radiographic examination. It is accepted that all inflammatory lesions should be initially treated with conservative nonsurgical procedures. Surgical intervention is recommended only after nonsurgical techniques have failed. Besides, surgery has many drawbacks, which limit its use in the management of periapical lesions.

**Aim or Purpose:** Therefore, this study aimed to describe the non-surgical management of a large persistent periapical lesion with the highest standards of care.

**Method:** Four subjects with large periapical lesions were presented to our Clinic seeking treatment.

After clinical and radiographic examination using CBCT, root canal treatment was performed using the ideal standards of endodontic-therapy. Under rubber dam isolation, access to the pulp chamber was achieved. The root canals were then prepared using a standard step-back technique and cleaned by utilizing sodium hypochlorite and chlorhexidine. Afterwards, the root canals were dressed with calcium hydroxide as intra-canal medication between appointments. Obturation was then accomplished with bio-ceramic root canal sealer and gutta-percha. Finally, teeth were restored with composite filling.

**Results:** At 3, 6, and 9 months interval the proportion of healed teeth for healing process were noticed. In some cases, complete periapical healing was observed at the 18-month recall.

**Conclusion:** This study confirms that for treatment of a large periapical lesion it is not always necessary to do surgical treatment and even cyst-like periapical lesions heal following conservative endodontic therapy.

Free Communication Session 03 | 05.09.2018, 11:15–12:15 | Cubicle 3

Theme: Prosthodontics

FC009

### Novel Nanocomposite for the Treatment of Denture Stomatitis

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**Aim or Purpose:** Our aim was to design and characterize an antimicrobial polymer composite to extend the therapy of the denture stomatitis. To produce the active component, we preferred to use green chemistry methods and nano-silver and polycationic polymers.

**Materials and Methods:** Our active complex was made from nano-silver and polyethyleneimine, via hydrothermal reaction (Electrostatic Self-Assembly). This complex was solved in a chloroform solution of polylactic acid. The cellular physiological effect of the released particles was detected by impedimetry. The size changes and the process of the synthesis were measured by dynamic light scattering.

**Results:** Our Ag-PEI-PLA composite solution was successfully produced and applied to the mucosal acrylate surface of the dentures. The real-time cell proliferation assay showed a moderate toxic effect on epithelial cells. with the micro-CT, AFM, and DLS was verified the nano-size of the particles.

**Conclusions:** This method can be a new way in the therapy of the denture stomatitis, applied by the dentist. The antimicrobial effects are gained primarily by Ag and PEI. Additionally, the chloroform had a solubilizing effect on the upper few micrometers of the acrylic, on the mucosal surface of the denture. The chloroform may increase the antimicrobial effects by permeabilizing the pathogen membranes.

FC010

### Varied Vistas in Rehabilitation of Cranial Defects - Role of Cranioplasts!

Mahesh Verma

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**Introduction:** Morphological defects of skull due to trauma, cancer resections, burn incidents or congenital causes may often leave an individual in dire straits and ostracism in the society. Prosthetic substitute (cranioplast) may often provide a ray of hope to these individuals thus redeeming their quality of life and dignity.

**Case Description:** Three cases of cranial defects were rehabilitated with three different approaches of fabrication of cranioplasts. A case of a 29-year-old female patient with hemi cranial defect (due to trauma) was rehabilitated by exclusively hand-sculpted prosthesis. An eight-year-old boy with parietal defect (due to tumor resection) was rehabilitated by a cranioplast fabricated by hybrid method of manual and digital technology. A 30-year-old male patient with cranial defect (due to trauma) was rehabilitated with nearly complete digital method of fabrication of cranioplast. All the cranioplasts were fabricated by prosthodontists and surgically placed by a neurosurgeon.

**Discussion:** The three different techniques of fabrication of cranioplast were implemented due to specific indications and availability of resources. The ease of insertion at the time of surgery, post-operative recovery, and aesthetic outcome were features underlining the distinctness of each type of cranioplast besides the technique of fabrication.

**Conclusion/Clinical Significance:** In cases requiring neurosurgical and Prosthodontics collegiality, the role of prosthodontist in selection of treatment modality and fabrication of the prosthesis has been highlighted. The presentation also underscores the pros and cons of the three different techniques.

FC011

### Quality of Life of Complete Denture Wearers in Bosnia

Srdan Poštić<sup>1</sup>, Branimir Stosić<sup>1</sup>, Ajdina Halilović-Asotić<sup>1</sup>, Esad Kučević<sup>2</sup>, Vladimir Biočanin<sup>1</sup>, Ljubiša Ristić<sup>3</sup>, Branka Trifković<sup>4</sup>, Damir Džanan<sup>1</sup>, Amina Asotić<sup>1</sup>, Miloš Maksimović<sup>4</sup>

<sup>1</sup>FZF Faculty of Medicine Health and Pharmacy, University of Travnik, Federation of B and H, Europa, <sup>2</sup>Health Center, Tutin, Serbia, Europa, <sup>3</sup>Military Medical Academy, Beograd, Serbia, Europa, <sup>4</sup>Clinic of Dental Prosthetic, University School of Dental Medicine, University of Beograd, Serbia, Europa

**Aim or Purpose:** This study assessed the internal coherence of translated version of the OHIP-EDENT original and evaluated the quality of a life of complete denture wearers before and after additional contribution of determined manual professional interventions on dentures respecting improvements.

**Materials and Methods:** Translated version of OHIP-EDENT questionnaire was used. 117 edentulous patients were interviewed by 3 specialists of prosthodontics who provided clinical oral examinations and interventions in health institutions of central Bosnia (Ethical approval-No 03-67-1/14).

**Results:** Before interventions on complete dentures  $Cra = 0.80$ , after  $Cra = 0.76$  indicated internal consistency of the questionnaire. Validity of discriminatory landmark of the instrument was confirmed by significant values of Pearson correlation  $r$  – ranging from 0.49 to 0.59 with respect dentures interventions. Test-retest analysis showed correlation  $r$  – ranging from 0.46 to 0.58, respecting dentures interventions, with Kappa = 0.68, that indicated reliability of the questionnaire.

Students'  $t$ -test pointed to significant reductions of the indexes in the subjects of functional limitation (0.02), psychological discomfort (0.01), physical disabilities (0.04) and handicap (0.04), influencing significantly better mark for quality of life and reduction of OHIP-EDENT index ( $t = 2.23$ ; sig = 0.027). Analysis of variances for OHIP-EDENT general and group indexes respecting the condition of the patients after denture interventions showed improvement documented by significant reduction of general index ( $F = 9.64$ ,  $p = 0.002$ ), but in reductions of functional limitations ( $F = 5.66$ ,  $p = 0.019$ ), pain ( $F = 9.27$ ,  $p = 0.003$ ), physical disabilities ( $F = 6.14$ ,  $p = 0.15$ ), social disabilities ( $F = 4.03$ ,  $p = 0.047$ ) and handicap ( $F = 11.62$ ,  $p = 0.001$ ).

**Conclusions:** Rebasing, buccal and lingual flanges corrections and occlusal corrections on complete dentures improved quality of life of the patients.

FC012

### Two-Year Retrospective Follow-up of Implant-Retained Overdenture Prosthesis

Özge Parla Öz<sup>1</sup>, Nermin Demirkol<sup>1</sup>, Mahmut Erçil<sup>1</sup>, Mehmet Demirkol<sup>2</sup>

<sup>1</sup>Department of Prosthodontics, Dental Faculty, Gaziantep University, Gaziantep, Turkey, <sup>2</sup>Department of Oral Surgery, Dental Faculty, Gaziantep University, Gaziantep, Turkey

**Aim or Purpose:** The purpose of this study is to evaluate the retrospective survival and success of implant-retained overdenture prosthesis of different lengths and diameters implanted in edentulous mandible.

**Materials and Methods:** 60 patients (30 males and 30 females) aged between 38 and 88 years, presenting edentulous mandibles was rehabilitated with an implant-supported overdenture. The 120 osseointegrated vascular implant were placed to be two per patient. Implantation procedure was standard for all the patients with the same protocol. Implant-supported overdenture prostheses were delivered to the patient within approximately 2 months of implant placement. Implant success rate was evaluated clinically and radiographically every year after implantation of prosthesis according to the following parameters: (i) Implant failures (ii) The peri-implant bone resorption of each implant according to radiographic measurement (Bone loss was classified between 0 and 4 on the cervical area of implants. 0, 1, 2, 3 were described respectively no bone loss, little bone loss, middle bone loss and severe bone loss radiographically) (iii) Patient pleasurement was evaluated by visual analogue scale (VAS) between 0 and 10 and.

**Results:** There was no statistically significant differences between different diameters and lengths according to the VAS. Mean bone



loss was found between 0 and 1 and statistically significant difference was not found between the groups.

**Conclusions:** Two-year follow-up of patients showed that implant's diameter and length have no effect on clinical and radiological success of implant.

#### Free Communication Session 04 | 05.09.2018, 12:30–13:30 | Cubicle 1

##### Theme: Orthodontics

FC013

#### 2D Versus 3D Radiographies for Impacted Canine in Cleft Area

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**Aim or Purpose:** To compare the effectiveness of conventional radiographies and CBCT for impacted canine's localization in the cleft area

**Materials and Methods:** Two-dimensional radiographs (panoramic view and Lateral cephalometry) and CBCT scans of 32 patients with alveolar cleft who had un-erupted maxillary canines were selected from the archives of several imaging centers. Eight academic orthodontists evaluated 2D radiographs for the parameters related to the position of impacted canine teeth and collected the information in a checklist. After 1 month, CBCT scans of the same patients were evaluated by those observers. The diagnostic gold standard was set by three radiologists. To assess agreement, data were analyzed using McNemar-Bowker test, kappa statistics and Chi square test at 0.05 level of significance.

**Results:** Regarding the apex development ( $p = 0.10$ ), longitudinal angulation of teeth ( $p = 0.09$ ) and mesiodistal position of the apex ( $p = 0.19$ ), the ability of the two groups was not significantly different. Regarding the labio-palatal and apico-coronal position of crown tip ( $p = 0.01$ ), location of crown tip ( $p = 0.001$ ), and root resorption of the adjacent tooth ( $p = 0.01$ ), CBCT had higher effectiveness than 2D radiographies.

**Conclusions:** Conventional radiographies were as good as CBCT for detection of apex development, longitudinal angulation of teeth and mesiodistal position of the apex; but CBCT was more accurate than 2D radiographies in other parameters.

FC014

#### Assessment of the Management of Facial Clefts: A Study

Sarah Saif, Farid Bourzgui

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**Aim or Purpose:** This study aimed to assess cleft lip and or palate patient's care, in order to determine the role of the orthodontist during primary and secondary treatment, to highlight the treatment needs of patients with cleft lip and or palate and to develop

a management protocol suitable for these patients in order to reduce the sequelae.

**Patients and Methods:** A questionnaire was administered to 120 Moroccan patients with cleft lip and or palate within the department of orthodontics of the dental treatment center in Casablanca and within Operation Smile Morocco

**Results:** According to our study it appears that: 51.7% of patients are male, primary surgery is generally done during the first months after birth, the cheilorhinoplasty at the age of 6 months, the uranoplasty and veloplasty at the age of 12 months, bone grafting surgery is usually done in patients between 5 and 11 years old, orthodontic treatment is usually started in mixed dentition, and treatment of labial, nasal, phonatory sequelae is provided later in life compared with dental care treatment

**Conclusions:** Medical care of patients with cleft lip and or palate starts early in life, it is provided by a team of specialists such as maxillofacial surgeons, pedodontists and psychologists. The orthodontist is an integral part of this team, the participants in patient's treatment from his first days through temporary and or mixed dentition and will be continued during puberty and adulthood.

FC015

#### Standard Time Analysis for Treatment Procedures of Class III Malocclusions

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**Aim:** To determine the standard times spent by research assistants in orthodontic department during early orthopedics following fixed treatment and late camouflage treatment of Class III malocclusions in clinical conditions.

**Materials and Methods:** The research was carried out on Class III patients that were treated in the University and it was approved by the ethical committee of the presenter's institution. Two groups were constructed; Group 1: Orthopedic (Rapid palatal expansion combined with facemask) + fixed treatment without extraction; Group 2: Camouflage fixed treatment without extraction. For each group, 100 patients' clinical records were detected, procedures during the treatment were determined; treatment flow charts were established for each group. Direct-work measurement method was used for workflows consisting of repeating work elements. Preliminary measurements for each type of treatment-process were measured by chronometer. Number of measurements required for each procedure at 95% confidence level was calculated. The normal times for each work were calculated by assuming that each assistant was working at full tempo (100%). Standard times for each group were calculated considering the personal conditions which can lengthen the time working in standing or uncomfortable positions, physical monotony, fatigue, visual/mental strain.

**Results:** In clinical conditions, standard times spent by assistants during the treatment of Class III malocclusions were 1701.75 min (28.36 h) for Group 1 and 1878 min (31.3 h) for Group 2.

**Conclusion:** The time spent by assistants during early combined treatment was shorter than late camouflage treatment. Both doctor and patient will take advantage of combined treatment by shorter treatment time, improvement of patients' profile, shorter fixed treatment providing hygiene control.

FC016

#### **Dental Assessment of Patients Needing Orthodontic Treatment: A Radiographic Study**

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**Aim or Purpose:** The aim of this study was to evaluate the parameters of congenital missing, supernumerary, endodontically treated, filled and extracted teeth of the patients who applied for diagnosis and treatment in Orthodontics Department with panoramic radiographs.

**Materials and Methods:** The panoramic radiographs of 300 patients (99 male, 201 female) who refer the Gaziantep University Dentistry Faculty Orthodontics Department between 2014 and 2018 were included in this study. The ages of individuals were between 9 and 17 years. The radiographs were evaluated for congenital missing, supernumerary, endodontically treated, filled and extracted teeth.

**Results:** According to results, 144 patients (48%) with filled teeth, 12 patients (4%) with congenital missing teeth, 9 patients (3%) with supernumerary teeth, 42 patients (14%) with endodontically treated, 27 patients (9%) extracted teeth were observed.

**Conclusions:** Patients should be carefully examined before orthodontic treatment. Because oral hygiene status, number of total teeth or restorative treated teeth may give preliminary information about cooperation and risk of tooth decay.

**Free Communication Session 05 | 05.09.2018, 12:30–13:30 | Cubicle 2**

**Theme: Implantology**

FC017

#### **Antibiotic Prophylaxis Efficiency in Bone Augmentation Surgery**

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**Aim or Purpose:** Experimental and clinical rationale of efficiency of levofloxacin in prevention of wound infection in bone augmentation surgery.

**Materials and Methods:** Cultural method was used to define microbiological status of operative site on the 1st, 3rd and 7th days post-op. Patients with insufficient bone volume for implant

placement were selected for this study (35 patients). The main group 17 patients with allergy to penicillin was prescribed 750 mg of levofloxacin 60 min before and 750 mg once a day, 7 days after surgery. In control group 18 patients were given 875 mg of amoxicillin/clavulanate 60 min before the operation and 875 mg twice a day, 7 days post-op. U-test was used for statistics.

**Results:** In control group in all periods of observation virulent bacteria such as *Prevotella intermedia*, *S. aureus* (MRSA), *S. epidermidis* (MRSE) were detected. In levofloxacin group these bacteria weren't observed on the 3rd and 7th days. The quantitative index of the virulent species - *P. intermedia* in control group still was detected on 10th day -  $3.9 \pm 0.20$ , MRSA, MRSE -  $2.0 \pm 0.20$ . *Fusobacterium* spp. was observed on the 10th day in control group -  $4.0 \pm 0.20$ , in levofloxacin group this index was lower -  $2.0 \pm 0.21$ . The inflammatory complications such as wound infection were detected in 3 cases in amoxicillin group, in levofloxacin group no complications were detected.

**Conclusions:** Microbiological control demonstrated eradication of virulent bacteria such as *P. intermedia*, MRSA, MRSE in levofloxacin group. In prevention of wound infection of bone augmentation surgery levofloxacin demonstrated high efficiency in comparison with amoxicillin/clavulanate.

FC018

#### **Simplified Restorative Technique for Screw and Index-Free Abutments**

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**Introduction:** Restorative procedures for implant supported fixed dentures might be challenging for indexed abutments and arduous for screw and index-free abutments. Indexed abutments facilitate particular abutment positioning, which helps the clinician to accurately place the abutments in place over the implants. Abutment screws retain the abutments in place during function. on the contrary, screw and index-free abutments provide 360° of universal abutment positioning with locking conical implant-abutment connection.

**Case Description:** The report describes a simplified clinical and laboratory restorative technique for screw and index-free abutments under fixed restorations with the use of verification jigs that facilitate the orientation and seating of the abutments. The features of verification jigs that were specially designed for single crown, short span bridge and full mouth fixed restoration cases are explained in details. After healing of soft tissues around the gingiva formers of implants (I-System, Novodent, Bains, Switzerland), impressions were made by polyether impression material (Impregum, 3M-Espe, Seefeld, Germany). Adequate abutments were selected and milled for common path of insertion. Customized resin verification jigs were fabricated for each case to reliably seat the abutments in place during try-in and delivery sessions

that followed the conventional treatment protocols for implant supported fixed dentures (ISFD).

**Discussion:** Simplifying restorative procedures for screw and index-free abutments by reducing armamentarium through incorporating practical techniques will allow more clinicians to restore implants with screw and index-free abutments in their practices.

**Conclusion/clinical significance:** Technique described with the use of verification jigs can be used for all ISFDs in all clinical conditions with minor modifications.

FC019

#### **Two Years Outcomes of Implants in Anterior Zone**

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**Aim or Purpose:** The aim of this study was to investigate the bone loss and patients' satisfaction of implant supported single crowns in anterior zone.

**Materials and Methods:** Patients who diagnosed and rehabilitated according to standard surgical procedure were included the study. A total of 100 patients were evaluated as 50 males and 50 females. All the implantation with different diameter and length of implants were placed to the anterior maxillary zone and anterior mandibular zone. After implantation, all patients were followed up. Bone loss degree, patient pleasure and implant failures were evaluated according to diameter and length of implants end of the two years. Radiographic measurement was done on orthopantomograph and patient pleasure was evaluated by visual analogue scale (VAS) between 0 and 10. According to radiographic measurement cervical triple of implant was separated to 4 areas. Bone loss was classified between 0 and 4 on the cervical area of implants. 0, 1, 2, 3 were respectively described no bone loss, little bone loss, middle bone loss and severe bone loss radiographically.

**Results:** There were no statistically significant differences between different diameters and lengths according to VAS for patient pleasure. Mean bone loss was found between 0 and 1 and statistically significant difference was not found between the groups.

**Conclusion:** It can be concluded that clinical and radiographic success are independent from the diameter and length of implants.

FC020

#### **Clinical and Radiographic Assessment of Implant on the Posterior Segments**

Nermin Demirkol<sup>1</sup>, Özge Parlar Öz<sup>1</sup>, Mehmet Demirkol<sup>2</sup>,  
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**Aim or Purpose:** The aim of this study was to investigate the bone loss and patients' satisfaction of implant supported single crowns where placed on the posterior segments in mandible and maxilla.

**Materials and Methods:** 270 patients were evaluated within the limitation of this study. However total of 200 patients with single implant supported crowns on posterior segment were included the study. The characteristics of the patients were as follows: 100 males and 100 females, aged between 18 and 58 (mean age 34), rehabilitated with only one implant and an implant supported crown. Implantation procedure was standard for all the patients with the same protocol. Also, the diameter and length of implants were different where placed on the posterior zone in maxilla and mandible. Radiographic and clinic evaluations were fulfilled according to diameter and length of implants with the same loading procedure at the end of 2 years follow up. Bone loss was investigated from the orthopantomograph as classified: 0, 1, 2, 3. Visual analogue scale between 0 and zero was used for the clinical investment. We compared both the bone loss degree and patient satisfaction.

**Results:** There was no statistically significant differences between different diameters according to VAS. Mean bone loss was found between 0 and 1 and statistically significant difference was not found between the groups.

**Conclusion:** It can be concluded that clinical and radiographic success is independent from the diameter and length of implant.

**Free Communication Session 06 | 05.09.2018, 12:30–13:30 |  
Cubicle 3**

**Theme: Public Health**

FC021

#### **'Tikku-Iyer'(TI) Tooth Numbering System for Permanent Teeth**

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**Aim or Purpose:** To introduce an innovative and simpler tooth numbering system 'Tikku-Iyer' (TI) which is self-reflecting and easier to comprehend by the dentist and also includes the perception of the main stakeholder in dentistry- the patients.

**Materials and Methods:** Several systems for designating and encoding teeth have been in use in dentistry for more than 130 years. Currently, three systems are favoured worldwide: the Zsigmondy/Palmer system, the Universal system, and the FDI two-digit system. Among these systems, FDI is the most accepted as it makes

visual, cognitive and computer sense. This system however also has certain limitations and drawbacks as it is confusing for both the clinician and especially the patients, as here numbers are denoting the sides of the quadrants, which sometimes results in misinterpretation, leading to clinical mishaps. Also, this FDI system surprisingly doesn't include the perspective of the patient who understands that there are maximum of 32 teeth in the oral cavity and gets confused when confronted with the prescription indicating 37 or 42 or 48 as the teeth numbered which requires treatment. Moreover, there is no provision for the inclusion and numbering of retained deciduous, supernumerary and impacted teeth.

**Results:** This innovative (TI) system has been formulated to fulfil the need to have a simpler system which is self-reflecting and notifies retained deciduous, supernumerary and impacted teeth. If accepted universally, it will be referred to as 'Tikku-Iyer' (TI) tooth numbering system.

FC022

#### Measures Utilized for Prevention of Nosocomial Infection in Dental-Laboratories

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**Aim or Purpose:** Cross infection is the transmission of infectious agents between patients and staff within a clinical environment and vice versa. This study which was conducted between January and March, 2018 was designed to determine measures utilized for prevention of nosocomial infection in selected Dental Laboratories in Enugu Metropolis, South Eastern Nigeria.

**Materials and Methods:** Structured, pretested questionnaires were used to collect data from 100 consenting Dental Technologists. Key Informant Interview (KIIs) was used to validate questionnaire findings.

**Results:** We found that the majority of the respondents (80.2%) strongly agree to the knowledge of nosocomial infection. Greater percentage of the respondents (79.6%) strongly agreed *Mycobacterium tuberculosis* and hepatitis B virus colonize the oral cavity. (80.0%) of the respondent strongly agree that safety precautions and infection control guidelines were measures to be utilized in infection control and majority of the respondents (60.6%) strongly agreed to strict adherence to infection control measures on daily basis. We found significant relationship between the level of knowledge of nosocomial infection and measures utilized for the prevention of nosocomial infection in the dental laboratories in Enugu Metropolis, Enugu State ( $\chi^2 = 184.623$ ;  $p = 0.000$ ).

**Conclusions:** We therefore conclude that there is a positive knowledge of the measures utilized in the preventions of nosocomial diseases in the region but frown at its poor adherence. We provided possible guidelines for proper education on the high risk of exposure to cross infection with blood-borne pathogens, such as hepatitis B virus, hepatitis C virus, and Human Immunodeficiency virus, tuberculosis and streptococci.

FC023

#### Turkish Adaptation of Modified Infection Control Questionnaire in Oral Radiology

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**Aim or Purpose:** The objective of this study was to culturally adapt a recently developed questionnaire regarding infection control in oral radiology into Turkish and to assess the psychometric properties regarding internal consistency and structural validity of the modified questionnaire.

**Materials and Methods:** One hundred and seventy-three Turkish dentists (86 females and 87 males) with mean age of 36.43 participated in the study. The dentists were invited to answer the translated Turkish version of the modified infection control questionnaire in oral radiology by e-mail. The factor structure of the instrument was determined for structural validity by exploratory factor analysis (EFA) and confirmatory factor analysis (CFA). The reliability of the instrument was assessed in terms of internal consistency, using item-total correlations and Cronbach's alpha.

**Results:** One item was found to be under the acceptance thresholds for validity and it was discarded from the instrument; the statistical analysis of the remaining 17 items were performed; factor analysis revealed a three-factor structure; factor loadings for included items ranged from 0.494 to 0.838. Item-total correlations were found to be greater than 0.30 and Cronbach's alpha was calculated as 0.846. CFA showed good fit statistics (comparative fit index: 0.960, root-mean square error of approximation: 0.055) for the Turkish version of the modified questionnaire.

**Conclusions:** The Turkish version of the modified infection control questionnaire in oral radiology showed adequate psychometric properties. This indicated that it could be a valid and reliable tool for the assessment of infection control in oral radiology among Turkish dentists.

FC024

#### Refugee and Asylum Seeker Oral Health Recall Tool

Lauren Tyrrell<sup>1</sup>, Toni Mansfield<sup>1</sup>, Sue Casey<sup>1</sup>, Colin Riley<sup>2</sup>

*<sup>1</sup>Victorian Refugee Health Network, Melbourne, Australia,*

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A Refugee and Asylum Seeker Oral Health Recall Tool aims to put oral health front of mind for people settling in a new country, where other matters often tend to take priority.

In Victoria, Australia, refugees and asylum seekers are granted priority access to public dental facilities. But priority access is only one aspect of improving the oral health of this vulnerable group. With the Victorian Refugee Health Network (VRHN), Dental Health Services Victoria (DHSV) is also building relationships with



refugee and asylum seeker communities and assisting public oral health clinics to identify their clients' level of oral health risk. The factors leading to poor oral health within refugee and asylum seeker communities are unique and complex. Some people have experienced injury to their mouth and teeth, and many have been deprived of oral health necessities while living in or fleeing conflict. Upon arrival in Australia, language barriers and a lack of familiarity with the local health system can prevent refugees and asylum seekers from seeking treatment. A toolkit has been developed that takes such factors into account, to assist clinicians in identifying a client's level of oral health risk, and their need for priority access.

The project developed a toolkit assessing high clinical risks, oral health and service literacy levels, chronic medical conditions, risks of homelessness, and levels of distress.

The project has also highlighted the importance of explaining the treatment process, and giving clients options in order to establish trust, provide a sense of control, and reduce anxiety.

**Free Communication Session 07 | 05.09.2018, 13:45–14:45 | Cubicle 1**

**Theme: Oral Health and Systemic Health**

FC025

#### **EGF Improves Ultrastructural of Submandibular Salivary Glands Treated with Botox**

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Botulinum toxin (BTX) inhibits the release of acetylcholine and has been used successfully in treatment of excessive saliva (drooling) through the interruption of the parasympathetic secretomotor innervations. Epidermal Growth Factor (EGF) is important in repair and maintenance of homeostasis in salivary glands. The aim of the present study was to examine the ultrastructural changes in rat submandibular salivary glands treated with BTX and EGF concurrently. Sixty male albino rats were divided into three different groups, a control group, BTX group treated with a single 2.5 units BTX injection, EGF and BTX group where the rats received daily intraperitoneal injections of EGF (10 µg/kg body weight) for sixty days. Ultrathin sections were processed for transmission electron microscopy examination. Secretory units and duct system of the submandibular salivary glands of the BTX group showed signs of degeneration, nuclear variations, shrinkage and pyknosis as well as multiple areas of vacuolation. Following daily EGF injections for sixty days, the submandibular glands almost regained normal properties and architecture. The results obtained from the present study showed that EGF could improve the submandibular salivary glands parenchymal and stromal elements. Further studies were deemed necessary to quantify and determine the EGF repair mechanism.

FC026

#### **Audit on Recording of Dry Mouth in Primary Dental Care**

Chuen Albert Yeung, Lesley Anne Burnside

NHS Lanarkshire, Bothwell, UK

**Aim or Purpose:** To audit the standard of care offered to patients with dry mouth.

**Materials and Methods:** All dentists in Lanarkshire Health Board were invited to participate in this audit. A data collection form was developed and rolled out to eight groups of dentists. A number of key areas in patient records such as 'Does the patient have a dry mouth', age, smoking status, advice given re dry mouth, dry mouth treatment prescribed including fluoride and saliva substitute were reviewed. Data for the first round (R1) of audit were collected retrospectively by each dentist for 25 patients aged over 18. Results for R1 were analyzed and discussed by each group. The second round (R2) of audit was carried out prospectively with results analyzed and compared with those from R1.

**Results:** A total of 81 dentists took part in R1; while two dentists withdrew in R2. About 2000 patient records were audited in each round. About 14% of the patients audited showed signs of dry mouth. After R1, the groups agreed that it is important to assess moisture of oral soft tissues. Comparison of data between R1 and R2 showed an increase of recording of dry mouth status from 7% (R1) to 93% (R2) and advice provided to patients with dry mouth from 90% (R1) to 99% (R2).

**Conclusions:** The audit was successful in improving the standard of care to patients with dry mouth.

FC027

#### **The Evaluation of Tooth Development in Patients with Amelogenesis Imperfecta**

Zuhal Kirzioğlu, Derya Ceyhan, Canan Bayraktar

Department of Pedodontics, Faculty of Dentistry, Suleyman Demirel University, Isparta, Turkey

**Aim or Purpose:** This study aimed to determine tooth development of the patients with Amelogenesis Imperfecta (AI) by three different methods and to determine accuracy of these methods.

**Materials and Methods:** An approval by the Clinical Research Ethics Committee of the Medical School of Suleyman Demirel University was gained. The records of patients who were referred to the Department of Pedodontics between the years of 1999 and 2018 and diagnosed with AI were reviewed. At the age of 6–15 years, fifty-eight patients (33 males-25 females) (Group I) with AI who had complete records, qualified panoramic radiographs, similar socio-economic background and ethnic origin were determined. A total of (66 males-50 females) (Group II) who were age and gender matched with the AI group and had healthy teeth were selected as the control group. Chronological ages of all the patients were determined. Nolla, Demirjian and Haavikko methods were used to estimate dental age. According to the group and gender, differences between chronological and dental ages were analysed by the factorial designed ANOVA and Tukey tests. ICC values of the methods were calculated and the accuracy of three methods was obtained.

**Results:** There was no statistical significant differences for the tooth development in terms of group and gender. Dental age was over-estimated by Demirjian method and under-estimated by Nolla and Haavikko methods. Haavikko method provided more accurate results in estimating dental age than other methods.

**Conclusions:** It was seen that AI defect affecting enamel structure did not affect tooth development. There is a need for the studies involving AI subtypes.

FC028

### **Comparative Analysis of Oral-Maxillofacial Pathology: A 6-Year Retrospective Study**

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**Aim or Purpose:** The aim of this study was to determine the frequency and distribution of oral-maxillofacial lesions biopsied in Faculty of Dentistry and collect the information including diagnosis of the lesions.

**Materials and Methods:** We conducted descriptive analyses of pathology reports from biopsies of oral-maxillofacial lesions performed for a period of 6-years between 2010 and 2015. The lesions were categorised as inflammatory/reactive, tumour/tumour-like or cystic, and the following variables were analyzed: age, gender, histopathologic diagnosis, site of onset. The variables were recorded and analysed using descriptive statistics.

**Results:** Out of 374 total lesions, 157 were inflammatory/reactive (41.97%), 92 were tumour/tumour-like (24.59%) and 125 were cysts (33.42%). The analyses revealed that 184 (49.2%) patients were male and 190 (50.8%) were female. Mean age was 36.65 + 18.28 years, with a male/female ratio of 0.96:1. The most commonly reported diagnosis was radicular cyst (24.6%), followed by inflammatory granulation tissue (22.2%). The most common lesion in patients 18 years of age. The most common cyst was radicular cyst (73.6%) and in the inflammatory/reactive lesions, the most common was inflammatory granulation tissue (52.8%). Peripheral giant cell granuloma (31.5%) was the most common among tumour/tumour-like lesions. 92.4% of tumour/tumour-like lesions were benign, 7.6% were malignant. Oral squamous cell carcinoma was the most frequent malign tumour/tumour-like lesions, accounted for 28.6% of all malignancies.

**Conclusions:** This retrospective clinicopathologic study provides useful information about incidence and distribution of oral biopsies over a period of 6-years.

**Free Communication Session 08 | 05.09.2018, 13:45–14:45 | Cubicle 2**

### **Theme: Digital Dentistry**

FC029

### **Facial Comparison in 3D**

Arik Lerman, Cesar Pablo Fraire, Lucas Fraire

*Circulo Argentino de Odontologia, Argentina*

**Aim or Purpose:** The comparison of the facial profile was made in initial and final photographs in 15 patients, who were treated with orthodontics that, due to the lack of photographic parameters of positional reference and size, could not be evaluated. To compare a seal (size reference) with a preset scale was introduced, and a drawing plane (position reference) that connects the ear with the eye, called LEFRA PLANE, thus being able to superimpose the photographs and evaluate the changes. Then a facial scanner was incorporated to obtain digitalized three-dimensional facial images, which allow manipulation, visualization and virtual facial comparison in the three senses of space, which is more real and precise. In this way, the result is a significant difference with the two-dimensional world that photographs offer us.

**Materials and Methods:** For the superposition and digital comparison of the patient facial face's, who was in pre and post orthodontic treatment, a facial scanner (multifotogramme device) was used to obtain a three-dimensional image (stored in an extension file .stl), which can be visualized and manipulated by the professional in a computer (CPU or cellular) from an open source software called Meshlab.

**Results:** It was possible to observe in the three spatial senses 3D facial images that can be superimposed, and thus evaluating the differences in the treatment of the patient from the initial and final comparison.

**Conclusions:** The three-dimensional facial comparison allows us to observe real changes in 3D in people with or without treatment (initial, intermediate, final or post-treatment).

FC030

### **Digital Dentistry, Diagnosis by Images. Guided Clinical Resolutions**

Nicolas Raffaeli, Gabriela Menta, Carina Zanelli, Nicolas Ricciardi, Mariela Sapienza

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The modality of Cone Beam Tomography, or better called volumetric beam tomography, incorporated by the Faculty of Dentistry, Hospital School UNLP, presents multiple advantages. Among them: effective radiation dose lower than the traditional computed tomography. Generates null or few artifacts of metal structures. Its precise analysis, quality and resolution with reconstructions of images make this tool the new innovative modality when the professional requests it.

**Materials and Methods:** Clinical cases were used for this oral exposition work. We will show guided cases by volumetric tomographic

system and how it contributes to clinical resolutions. Most of them, were attend, at the hospital. It is precisely for all this that we want to show the mechanism of operation and use of it to support in dental day clinic.

The use of CBCT is useful for clinical cases evaluated through volumetric beam tomographies treated in the operating room under general anesthesia, cases endodontically treated with multiplanar guided planning. Take into account that special emphasis should be placed on the concern of their indiscriminate use. Finally, a clear, justified, specific and clinical prescription of each patient must be evaluated, analyzed and considered so that the professional takes into account aspects of importance.

**Conclusions:** The use of CBCT should not be used as the first choice of complementary study, but when the advantages are above any other imaging study. It allows depth in images when transforming 2D into 3D. A good understanding of its prescription and mode of operation will greatly improve our diagnosis and treatment.

FC031

#### **Inter-Intra Rater Reliability Using “E-Charting EDR” In Dental Education Setting**

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*Department of Public Health Dentistry, Government Dental College and Research Institute, Bangalore, India*

**Aim or Purpose:** To assess the Inter-Intra rater agreement and reliability of a cloud-based e-charting tool

**Materials and Methods:** In an examiner training calibration session 20 adult subjects (18 years of age or older) with a range of periodontal health and dental caries were recruited after obtaining an informed consent form. Prior to the clinical procedures, all examiners i.e., (Standard Examiner+2) completed a detailed review seminar. During the calibration session, all examiners assessed periodontal health and dental caries status. The data was entered using the e-charting tool into the computer. The calibration session was repeated after an interval of 1 week. Statistics were computed for all parameters for examiner agreement as follows: Percent agreement, weighted kappa, and intra-class correlation coefficient

**Results:** There was an overall agreement in the scores when the e-charting tool was used. However, percent agreement, weighted kappa, and intra-class correlation coefficient varied for periodontal health and dental caries

**Conclusions:** The e-charting EDR (Electronic Dental Record) software can be used to produce and maintain well trained end users thus maximizing the benefits of using EDR in a dental college setting, thus, enabling a robust health information system integration for future research and advances

FC032

#### **A Novel Method for Merging CBCT and STL Data**

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*Tandheelkundig Centrum Kastanjehoeve Private Practice, Hendrik-Ido-Ambacht, The Netherlands*

**Aim or Purpose:** CBCT images often have scatter around teeth due to metal; this scatter will make measurements inaccurate and harm the fit of appliances made with these images.

**Materials and Methods:** Merging data from CBCT and STL from the dentition can solve this problem. A lot of scatter or large edentulous spaces can make also this method loses accuracy. For the new method an impression is made in a plastic impression tray or patient's prosthesis. From this impression a STL is made. Now the mucosa part of the impression is sprayed with a highly radio opaque powder. The impression is placed back in the mouth and the CBCT is made.

**Results:** on the CBCT the mucosa is visible as a thin white line. This line can be matched very accurately and scatter from restorations, brackets or other metal objects is no problem.

The thin white line in the CBCT image representing the mucosa is exactly the same as the STL from the mucosa in the impression on which the powder is sprayed. When the STL is generated otherwise, for instance with an intra oral scanner, this can be matched with parts of the mucosa that sometimes can be seen on CBCT images without special method but only on the attached gingiva will give a possibility of matching.

**Conclusion:** Most methods need full arch CBCT; the high accuracy of this method makes small F.O.V. possible for drill guides and guided endodontics, this is more in line with the A.L.R.A. principle.

**Free Communication Session 09 | 05.09.2018, 13:45–14:45 | Cubicle 3**

#### **Theme: Caries Prevention**

FC033

#### **Frequency of Dental Visits: Impact on Caries Incidence in Infants**

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**Aim or Purpose:** Evaluated if babies higher frequency of dental appointments promotes less caries incidence.

**Materials and Methods:** After approval by the ethics committee 2148-CEP/HUPE a total of 294 infants (9 to 15 months of age) were enrolled in the program, which included a medical, nutritional and psychological examination combined with dental treatment. In the dental appointment, the mother or caregiver of the infants received instructions concerning diet and oral hygiene. Children without teeth had their gums cleaned with water in sterilized gauze, while children with teeth received an application of fluoride varnish. When cavities were observed, glass ionomer

restorations were placed. Half of the group was examined once a year while the other half was examined 4 times a year.

**Results:** More frequent dental examinations since birth resulted in fewer new carious cavities. Just 1.9% of the population with frequent dental examinations (4 per year) had more than one carious lesion per year, compared to 69% of the “once-a-year” group ( $p < 0.01$  using a chi-squared test).

**Conclusions:** After three years consecutively, infants should that received more often dental examinations, had less caries.

FC034

#### Effects of Different Surface Pre-treatments on Microleakage of Fissure Sealants

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**Aim or Purpose:** The purpose of this in vitro research was to compare the microleakage levels of two fissure sealant agents following different surface pre-treatment methods.

**Materials and Methods:** A hundred standardized sound molar teeth were included in the present study. The teeth were randomly divided into two main groups according to the sealant agent ( $n = 50$ ).

Group A: Opaque sealant (Grandioseal, Voco, Cuxhaven, Germany).  
Group B: Clear sealant (Controlseal, Voco, Cuxhaven, Germany).  
Each main group was then divided into five subgroups ( $n = 10$ ) according to the pre-treatment methods including no pre-treatment, acid etching, acid etching + ozone, Er:Cr:YSGG laser etching, Er:Cr:YSGG laser etching + ozone. Following the sealant procedures, all specimens were subjected to thermo cycling. Teeth were immersed in a 0.5% basic fuchsin dye for 24 h. The teeth were separated buccolingually into 2 halves and microleakage scores were examined under stereomicroscope. The scores were statistically analyzed.

**Results:** Groups without any surface pre-treatment represented significantly higher microleakage values ( $p < 0.05$ ). Both acid and laser etching + ozone groups represented significantly less microleakage values compared etching alone ( $p < 0.05$ ). Acid etching + ozone applied group represented the lowest microleakage values all of the groups ( $p < 0.05$ ).

**Conclusion:** Surface pre-treatment seems obligatory before fissure sealant applications. Ozone pre-treatment following acid and laser etching resulted in additional microleakage reduction. Acid etching decreased microleakage more than Er:Cr:YSGG laser.

FC035

#### Assessment of an Educational Strategy for Oral Health in Childhood

Ángela María Franco Cortes<sup>1</sup>, Valentina de La Roche Colorado<sup>1</sup>,  
Emilia María Ochoa Acosta<sup>2</sup>, Vanessa Bran Muñoz<sup>2</sup>

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**Aim or Purpose:** To assess the learnings acquired by educational agents after participating in a educational strategy aimed at strengthening their abilities to oral health care during the early childhood and evaluate the results after the implementation of a preventive protocol of the strategy called “Soy generación más sonriente” endorsed by the Ministry of Health in Colombia.

**Materials and Methods:** A participative evaluation was performed. Data collection techniques included workshops and focus groups. 54 parent-child couples participated in this investigation. 3 visits were carried out in a 12-month period. An oral examination, assessment of caries risk, and application of the protocol were performed. A survey was completed to establish the family’s social status and life-styles.

**Results:** 65.1% of people financially responsible for the family belonged to the salaried group while the remaining 30.1% belonged to the sub-salaried group. 42% of children showed high risk of caries before the application of the preventive protocol and 63% of them moved to a low-risk group after finishing the intervention. Among the learnings acquired by the educational agents, the adoption of strategies to lovingly accompany the child to perform oral health procedures and the acquisition of knowledge to demand the right to oral health policies for children were the most significant.

**Conclusion:** The educational process assisted in the construction of new strategies to overcome past negative experiences related to oral health practices in the early childhood. The application of the preventive protocol reduced the risk of dental caries in children.

FC036

#### Antibacterial Activity of Indonesian Shellac Fluoride Varnish Against *Streptococcus Mutans*

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**Aim or Purpose:** This study aimed to examine the antibacterial activity of Indonesian shellac fluoride varnish against *Streptococcus mutans*.

**Materials and Methods:** Five paper disks with different treatment groups: (A) Fluoride varnish made from Indonesian shellac; (B) 5% NaF Clinpro™; (C) 96% Ethanol; (D) 0.05% Chlorhexidine; and (E) control were applied on the Mueller Hinton medium which has been inoculated by *Streptococcus mutans* and incubated



for 24–48 h in facultative anaerobic condition at 37 °C. The antibacterial activity was determined by measuring the inhibition zone diameter using a caliper, then the data were analyzed using one-way ANOVA test and *t*-test ( $\alpha = 0.05$ ).

**Results:** The result showed that inhibition zone diameter of group A ( $25.705 \pm 2.201$  mm) and group D ( $5.125 \pm 1.373$  mm), while group B, C, and E didn't show any inhibition zones. Fluoride varnish made from Indonesian shellac showed the biggest inhibition zone diameter, which is caused by the action of sodium fluoride that can inhibit the virulence factor of cariogenic bacteria. This result was confirmed by statistical analysis which showed a significant difference with other groups ( $p < 0.05$ ).

**Conclusions:** So, the conclusion from this research is that fluoride varnish from Indonesian shellac has an antibacterial activity against *Streptococcus mutans*.

#### Free Communication Session 10 | 05.09.2018, 15:00–16:00 | Cubicle 1

##### Theme: General Dentistry

FC037

##### The Process of Ability to Understand the Emotions Students Dentists

Natalia Karabushchenko, Anastasia Vetrova, Svetlana Razumova  
RUDN University, Moscow, Russia

**Aim or Purpose:** To determine the level of ability to understand the emotions of other people and manage them in medical students by the results of 2 sections in 2016 and 2018 and to check whether there are significant correlations between it [measurements]

**Materials and Methods:** In the course of the study, the following methods were used: the Em Yun Lucin test. To determine the correlation between the level of attention in 2016 and 2018, Student's *t*-criterion was used in SPSS. 83 dentists took part in the study.

**Results:** After processing the data using Student's *t*-test, it is established that the ability to understand other people's emotions and manage them at a significance level of  $p < 0, 05$  is different in results between measurements in 2016 and 2018. On average, in 2018, the level (39.5) is lower than in 2016 (43.0).

**Conclusions:** For students, the solution of the curative problem becomes meaningful, with the aim of helping the patient. In this case, the emotional state of the patient becomes less important for the doctor.

FC038

##### The Role of the Process of Attention of Dental Students

Natalia Karabushchenko, Anastasia Vetrova, Alexander Ivashchenko  
RUDN University, Moscow, Russia

**Aim or Purpose:** To determine the level of attention of medical students on the results of 2 sections in 2016 and 2018 and to

check the existence of significant correlations between it [measurements]

**Materials and Methods:** In the course of the study, the following methods were used: the test of G. Munsterberg. To determine the correlation between the level of attention in 2016 and 2018, Student's *t*-criterion was used in SPSS. 83 dentists took part in the study.

**Results:** After processing the data using Student's *t*-criterion, it is established that in students with repeated measurement, in 2018, the level of attention at significance level  $p < 0, 05$  is significantly different from the measurements taken in 2016. When comparing the average values of the measurements of 2016 (15.7) and 2018 (16.5), it is established that in 2018 the students have higher indicators.

**Conclusions:** The data of the research show that with the course of learning activity, students develop processes such as attention, which is of great importance for the successful mastering of new knowledge and the application of the skills already acquired. Students in the third year acquire the skills of focusing on the task for a longer time, the ability to see and correct their mistakes. Reduces the level of absent-mindedness.

FC039

##### Improving Safety of Staff and Patients by Preventing Sharps Injuries

Ramini Shankumar, Attilio Biondo, Naseem Rather  
Monash Health, Melbourne, Australia

**Aim or Purpose:** To develop an educational video by analysing past incidents on the prevention of needle stick/sharps injuries (NSI). The objectives were to eliminate unwarranted blood tests and exposure to blood borne viruses for patient and staff.

**Materials and Methods:** Monash Health Dental Services incident reports showed that the number of NSI rocketed to 24 in the year 2014/15. The lack of knowledge and training in the use and disposal of sharps in dental surgery were identified as key issues. To address these issues an educational video was developed describing some of the main procedures and instrumentation which are the common causes of NSI in dentistry. The video intended to educate staff with a better understanding of the use, handling and safe disposal of sharps used within dentistry.

**Results:** The video was shown to all staff leading to a reduction in NSI across Monash Health sites. The total number of sharps incidents reduced from 24 to four in 2014 and 2015 and continued to stay low at seven in 2016. Number of exposures requiring blood tests also dropped from 15 in 2015 to only two in 2016 with a slight increase to five in 2016.

**Conclusions:** The video was beneficial in reducing the sharps incidents in the clinic by making staff members understand the importance of using and disposing sharps carefully and safely. It also resulted in the reduction of need for blood tests. This has improved the staff morale increasing the number of staff feeling safe at workplace.

FC040

### Contemporary Dental Photography: How to Improve Our Photographs in an Agile Way

Alejandro Welschen

*Faculta de Odontologia de La Universidad Nacional de Rosario, Posgrado, Especialidad de Implantologia Alveolo Maxilar Y Maxilo Facial, Rosario, Argentina*

It is important to consider how dental photography reflects the professional's work when showing it to colleagues and patients. Dental photography is used to educate and train undergraduate and graduate students. Learning an agile protocol of case documentation becomes necessary. Also, the need to know the photographic accessories for that purpose and how to give the indications to the patient and the rest of the professional team. It is also important to understand the need to show good images when generating content for web pages and social networks. Technique, accessories and protocol agile documentation will be seen in the presentation and will not stop seeing the type of current creative and artistic dental photography as a complement of our clinical documentation, to be used in the assembly of presentations.

**Free Communication Session 11 | 05.09.2018, 15:00–16:00 | Cubicle 2**

**Theme: Digital Dentistry**

FC041

### Road to Fact-Based Dental Health Policy Formulation and Service Delivery

Wouter Put<sup>1</sup>, Gustavo Molina<sup>2</sup>, John Cutter<sup>3</sup>, Namita Shanbhag<sup>4</sup>, Aslı Topaloğlu Ak<sup>5</sup>

<sup>1</sup>Dental Charting, Leiden, The Netherlands, <sup>2</sup>Catholic University, Cordoba, Argentina, <sup>3</sup>National University, Manila, Philippines,

<sup>4</sup>Government Dental College and Research Institute, Bangalore, India, <sup>5</sup>Aydin University, Istanbul, Turkey

**Aim or Purpose:** To assess the usefulness of a cloud-based e-charting method and tool applied to varying dental populations by varying groups of dentistry students and faculty at colleges of dentistry in different countries under varying clinical circumstances.

**Materials and Methods:** A cloud-based e-charting tool was used by students and faculty for charting a combined population of 500 patients in four countries. Charting methods applied: paperless drag–n-drop of dental health conditions onto e-charts, automatic calculation of DMFT scores, instant display of population health condition counts, means and prevalences. Assessment method used: survey on the usefulness of the e-charting method and tool.

**Results:** Usefulness survey results have been collected from the e-charters at colleges of dentistry in Argentina, India, the Philippines and Turkey. From over 20 detailed questions polled, the overall result is as follows: the tool and method are a very reliable, practical time and paper saving means (i) to efficiently maintain patient records and (ii) to generate instant meaningful oral health statistics across populations.

**Conclusions:** Cloud-based e-charting and statistics processing promises to be the way forward for reliably maintaining patient

dental health records. It has the potential to provide the global dentistry community with a health information management and analysis approach on a large scale, and across populations. It turns a promise into reality as to formulating fact-based dental health policies as well as planning and executing health service delivery.

FC042

### Peer-To-Peer Public Health Data Acquisition via Dental E-Charting

John Cutter, Charla Apolonio, Ahmad Bakhtiyari, Jean Cortuna, John de Guzman, Danielle Goto, Diane Pauco, Joyce Sangalang, Diane Santos, Sunshine Sinco, Lamya Yazouri

*College of Dentistry, National University*

**Aim or Purpose:** To determine the ability of dental e-charting to identify, acquire, and manage data acquisition within clinical populations as well as provide insight into the significant scalability of such platforms when utilized in local, regional, and national epidemiological database creation.

**Materials and Methods:** Online digital charting in a dental college clinical setting (e-charting). Automatic, real-time, online platform generation of medical and oral health parameters including ICDAS and DMFT prevalence recorded from clinical study participants. Enlarging upon previous 2016 / 2017 studies utilizing both licensed dentists and undergraduate dental students respectively as primary data acquirers; cohort study encoding e-charting and comparing this study's efficacy and speed to those previously performed; processing of population statistics.

**Results:** Feasibility was demonstrated at 100% within the results of the comparative efficacy and efficiency of data obtained. Facilitation of e-format and e-platforms demonstrate significant scalability in a peer-to-peer approach to collecting DMFT, ICDAS, needed treatment, and existent medical and oral health condition data.

**Conclusions:** The study reinforces the important availability of university undergraduate dental students as a manpower source in public health data acquisition; the scalability of such manpower when compared to a finite licensed dental practitioner number; and points to peer-to-peer creation of research potentialities within every dental practice venue as relates to immediate input into national programs for the betterment of general and underserved populations.

FC043

### Software Mechanism in Patient Planning

Norin Forna

*Department of Implantology, Dental Faculty, Iasi "Gr. T. Popa" University, Iasi, Romania*

**Introduction:** Digital patient chart are is a simple and effective way of creating a data base for statistical evaluation of the health status, treatment plan and medium term prognosis according to the complete patient evaluation.

**Case Description:** Two types of software were used in the study to evaluate the health status of the patient and the treatment plan

and to determine a prognosis of medium and long-term success of the therapeutic plan. Statistical evaluation was made on the 856 clinical digitalized charts and the to the scoring of the patient after evaluation of the success rate of the treatment.

**Discussion:** Prodent chart and Scoring evaluation software are two digital instruments developed by Prof. Norina Forna, and applied in the Dental Medicine Faculty from 2010. The statistical data resulted from the charts evaluation in correlation with the scoring program showed that thorough evaluation of the clinical and para-clinical evaluation have a key role in correct assessment of the case and correct choice of the treatment plan. However, for 2.3% of the evaluated cases the prognosis was indicated incorrect by the scoring program and that was mainly because of the fulminant disease evolution of either general health, especially diabetes and local modifications that modified the overall prognosis of the case.

**Conclusion:** The software used in evaluation have proven to be a useful instrument in assessing the treatment plan, it is an excellent tool in the use of students and young dentists which lack the experience in decision taking for medical reasoning.

FC044

#### **Haptic Systems in Dental Medicine**

Norina Consuela Forna

*Department of Implantology, Dental Faculty, Iasi "Gr. T. Popa" University, Iasi, Romania*

**Introduction:** Haptic systems in dental medicine such as dentsim systems are used for education due to their interactive interface that help in formation and offer feed-back of the result.

**Case Description:** For a number of 736 students a number of evaluations were made to determine the time and accuracy of practical maneuvers, such as cavity preparations, endodontic access preparation and inlay and crown preparation. After evaluation, a feed-back survey on the use of the dentsim systems was made to determine the role of haptic systems in education.

**Discussion:** From the evaluation of the results of the practical maneuvers the advanced students, from the sixth year were the ones that obtained the highest scores in both accuracy in less time for composite preparation and for crown preparation, as for the feedback, 55% of the students considered as an absolutely necessary step in education, and 40% of the students responded to the 5th item of the questionnaire that is an successful replacement of the patient work.

**Conclusion:** The use of dentsim systems has proven to be a very practical and accurate educational instrument in forming dentists.

**Free Communication Session 12 | 05.09.2018, 15:00–16:00 | Cubicle 3**

#### **Theme: Special Care Dentistry**

FC045

#### **Improving Dental Access for People with Intellectual Disability Using Video**

Ramini Shankumar<sup>1</sup>, Jane Tracy<sup>1</sup>, Nathan Despott<sup>1</sup>,

Attilio Biondo<sup>2</sup>

<sup>1</sup>*Monash Health, Melbourne, Australia,* <sup>2</sup>*Inclusion Melbourne, Melbourne, Australia*

**Aim or Purpose:** To develop an educational video to reduce barriers encountered by people with intellectual disability, case workers and dental staff.

**Materials and Methods:** Data was collected by interviewing more than 100 dentists and case workers on the barriers faced in regards to provision and access to dental care for people with intellectual disability. The main identified barriers experienced by the dentists included complex medical history, communication with the patient, getting consent from the patient or person responsible and patient's ability to tolerate dental treatment.

The video demonstrates an intellectually disabled person attending a dental appointment, highlighting barriers experienced by the patient, clinician and case worker before and during the appointment. It addresses specific barriers in relation to caring for intellectually disabled people including:

- Physical access requirements,
- Communication difficulties,
- Behavioral challenges in the consultation,
- Working with family and support staff and
- Oral care in the home environment.

**Results:** The video was published on YouTube (Dentistry & Disability) and in first 6 months it was viewed by more than 200 dental staff, people with disability and their families, friends, careers and case workers. Video is also being used in the dental universities to teach final year dental students on ways to manage patients with intellectual disabilities.

**Conclusions:** 'Dentistry & Disability' video is a simple and impactful method to address barriers to both access and treatment. It can be used globally as a professional development tool for dental clinicians and staff, and people with disability and their families, friends, careers and case workers.

FC046

#### **Dentistry and Disability: Burn Out Syndrome**

Patricia Fantilli, Laura Ramos

*Asociación Odontológica Argentina*

The dentist who treats people with disabilities is not immune to suffering work stress, frustrations and anguish, which make up what is called Born Out Syndrome. This syndrome damages not only your health but also your clinical practice. Case description: A 5-year-old patient with Type II mucopolidosis, clinically

presents: significant gingival hyperplasias - pathognomonic characteristic of the syndrome - that cover the temporary dentition and generate an anterior open bite with lingual interposition; persistence of pacifier use; liquefied feeding and absence of brushing. He attends the consultation due to the concern of the parents about the absence of the dental elements. The dentist perceives the anguish of the parents that adds to his since the clinical situation of the syndrome does not allow a viable dental protocol to resolve the hyperplasias. The frustration, anguish and demands felt by the dentist in these cases are the precursors of the Burn Out Syndrome, that is why, after the dental care and the team of the Clinic for Attention to People with Disabilities, meets and performs supervising the case with the team psychologist. From the analysis of the clinical situation and the feelings of the intervening dentist, the hypothesis of the approach is presented and the clinical decisions are made. The team meeting and supervision, to the extent that it gives rise to the expression of the emotions of the professional in charge, are one of the ways to prevent the Burn Out Syndrome.

FC047

#### Oral Health Care Unit for People Living with Diabetes

Daniel Vegh<sup>1</sup>, Dorottya Banyai<sup>2</sup>, Adam Vegh<sup>1</sup>, Peter Hermann<sup>1</sup>, Marta Ujpal<sup>3</sup>

<sup>1</sup>Department of Prosthodontics, Budapest, Hungary, <sup>2</sup>Department of Pedodontics and Orthodontics, Budapest, Hungary,

<sup>3</sup>Department of Maxillofacial and Oral Surgery, Budapest, Hungary

**Aim or Purpose:** Our aim was to create an educational lecture about oral health and oral care management for the Hungarian general dentists, and for diabetes advocates in the International Diabetes Federation's Young Leaders in Diabetes program (IDF YLD). The lecture contained information about diabetes in general, the most common oral health complications for PwD and the basic equipment and diabetes treatment options.

**Materials and Methods:** The presenter of the educational lecture was also a dentist, who has type-1 diabetes. The lecture was selected as a core element of the Hungarian Medical Chamber Dental Faculty's (HMCDF) postgraduate series, and visited 4 Hungarian cities - Budapest, Miskolc, Győr, Szekszárd - in 2016. This lecture was held also in the IDF YLD Training Summit in 2017 in Abu Dhabi.

**Results:** There are approximately 7100 dentists in Hungary, and around 5000 of them are active. In 2016 more than 2000 Hungarian dentists (40%) was able to participate in the educational lecture, which was specialized for dental emergencies and basic knowledge about the oral care management of PwD. The participant dentists made advocacy activity by lifting up blue papers - blue symbolized diabetes - for the support of the World Diabetes Day 2016. In Abu Dhabi - from 6 continents - more than 60 diabetes advocates participated in the oral health lecture.

**Conclusions:** 40% of the active dentists in Hungary participated in the special lecture about oral health and diabetes. We would like to continue this initiative in Hungary, as well as internationally.

FC048

#### Oxidative Stress and Periodontal Disease in Down Syndrome

Masaichi-Chang-Il Lee<sup>1</sup>, Ryota Shigefuji<sup>2</sup>, Tomoko Komatsu<sup>2</sup>

<sup>1</sup>Yokosuka-Shonan Disaster Health Emergency Research Center and ESR Laboratories, Kanagawa Dental University Graduate School of Dental Medicine, Kanagawa, Japan, <sup>2</sup>Division of Dentistry for the Special Patient, Department of Critical Care Medicine and Dentistry, Kanagawa Dental University Graduate School of Dental Medicine, Yokosuka, Kanagawa, Japan

**Aim or Purpose:** Down syndrome (DS) is caused by a unique metabolic imbalance induced by overexpression of genes, including superoxide dismutase (SOD)-1, on chromosome 21. It was well known that the increased oxidative stress in DS causes a variety of clinical disorders, including severe periodontal disease and early aging. Thus, the aim of this study was to evaluate oxidative stress induced by reactive oxygen species (ROS) using electron spin resonance (ESR) and 8-OHdG as a marker of oxidative stress in saliva from DS.

**Materials and Methods:** Using the methods of ESR spin trapping technique and the enzyme-linked immunosorbent assay (ELISA) of 8-hydroxy-2'-deoxyguanosine (8-OHdG), which was oxidative stress biomarkers, in saliva of DS.

**Results:** The oxidative stress level of ROS and 8-OHdG level were significantly alteration in the saliva of DS patients than in control subjects.

**Conclusions:** The oxidative stress in saliva were significantly change in DS than in non-DS subjects, suggesting that oxidative stress may lead to some of the clinical features of DS, especially rapidly progressive periodontal disease associated with premature aging. In the future, analysis of oxidative stress using ESR and 8-OHdG in saliva could be useful for the assessment of oxidative stress and management of periodontal disease in DS patients.

#### POSTER SESSIONS 01-15

Poster Session 01 | 05.09.2018, 10:00-11:00 | Screen 1

#### Theme: Oral Surgery

P001

#### Outcomes After Lingual Frenulum Surgery: A Case Report

Bruna Neves da Silva Atzei<sup>1</sup>, Sérgio Atzei Penha<sup>2</sup>, Carolina Bruder<sup>2</sup>, Tais Pereira Leal<sup>1</sup>, Hatsuo Kubo Atzei<sup>1</sup>, Ingrid Franco Delgado<sup>1</sup>, Cristina Lúcia Feijó Oortolani<sup>1</sup>

<sup>1</sup>Universidade Paulista, São Paulo, Brazil, <sup>2</sup>Universidade Brasil, São Paulo, Brazil

**Introduction:** Ankyloglossia, also known as tongue-tie, is a connective tissue membrane that falls between the middle third of tongue and floor of mouth and can attaches the tongue with the inferior alveolar ridge. This lingual frenum can also be anchored in the edge of the alveolar ridge or located between the tongue caruncles and may interfere with tongue development and movement as breathing, occlusion, suction, swallow and speech.



Frenotomy, which is commonly performed even in newborns, may correct the restriction to tongue movement.

**Case Description:** The aim of this study was to present a case of a 17 years old girl who was diagnosed with ankyloglossia, short lingual frenum and anterior tip insertion. The patient showed limitations in tongue movements and speech deficiency. Prior to frenotomy, the patient received local anesthetic in to the tongue base with mepivacaine 2%. Two parallel incisions were made around the lingual frenum from the tongue tip until the floor of the mouth (the lower portion of the tongue) followed by the fibrous tissue divulsion. The suture was made with simple stitches in the ventral tongue tip.

**Discussion:** After seven days of the surgery and normal healing, the patient could restore all the tongue movements and improved her speech. The obtained results justify the surgical intervention. This effective procedure improves a person's quality of life by correcting feeding difficulties by the elongated frenum providing saliva management during eating and swallowing.

**Conclusion/Clinical Significance:** The diagnosis and treatment of ankyloglossia is veryconsiderable to restore oral functions.

P002

#### **Bicectomy Performed by a Plastic Surgeon and a Maxillofacial Surgeon**

Valeria Gonzalez Martinez<sup>1</sup>, Juanpablo Cervantes Guitierrez<sup>1</sup>, Yoshamin Vargas Moreno<sup>2</sup>

<sup>1</sup>Facultad de Odontología, Universidad WestHill, Ciudad de México, <sup>2</sup>Facultad de Odontología, Universidad Nacional Autónoma de México, Ciudad de México

**Introduction:** Bicectomy is a surgical technique, which seek for the patient to achieve aesthetic and psychological stability by eliminating Bichat's bags. This is a procedure that is being used for thinning the middle third of the face. Therefore, it is important the preoperative clinical evaluation and manage the patient's expectations regarding the irreversibility of the procedure and the final results.

The objective was to evaluate two surgical methods performed by different specialist surgeons.

**Description:** The bicectomy technique was performed in two patients who attended a dental clinic, due to volume increase in the middle facial third. In the same way, two patients attended a plastic surgery clinic for the same purpose. In both cases, the pertinent preoperative tests were ordered to perform the surgery.

**Discussion:** According to the specialty the surgical techniques may vary but the result should be the same. However, the maxillofacial surgeon using different pre-surgical indications (use of sutures instead of cauterization) and post-surgical (use of facial mask) achieves a more favorable result, since the middle facial third can be seen more definite.

**Conclusion:** The presurgical and post-surgical indications used by a maxillofacial surgeon help to obtain better results in the performance of bicectomy in counterpart with a plastic surgeon.

P003

#### **The PH Shock on the Osteoblastic Differentiation of SaOS-2**

Eun-Kyoung Kim, Won Lee

Graduate School, Catholic University of Korea, Seoul, Republic of Korea

**Aim or Purpose:** According to the results of experiments using bacteria, pH shock affects gene expression of heat shock protein. Transient pH shock rather than medium pH change can alter gene expression that may affect osteoblastic differentiation and this can also cause osteoblastic differentiation and osteoblast growth.

**Materials and Methods:** In this study, the osteoblastic differentiation of human osteosarcoma cell line SaOS-2 was investigated after transient pH shock to osteoblastic differentiation and osteogenesis effects. The solution of pH 2, 3, 4, 5, 6, and 7 were added to cultured cell line for 1, 3, 5, and 10 min, and then replaced with osteoblastic differentiation medium for 28 days. We examined the expression of alkaline phosphatase and calcium deposition on days 0, 7, and 14 during incubation.

**Results:** The results showed that alkaline phosphatase expression and calcium deposition were significantly different from control group according to acidity and application time of pH shock. Alkaline phosphatase was the most abundant when pH7 was applied for 10 min and calcium deposition was the most when pH4 was applied for 3 min.

**Conclusions:** It is expected that osteoblasts can be effectively cultured using pH Shock when bone cells are cultured for bone graft.

P004

#### **The Prevalence of Impacted Permanent Canines in a Saudi Subpopulation**

Fedaa ALAiyyed, Shaeah AlWehaiby, Abeer Ettesh

Qassim University, Buraydah, Saudi Arabia

**Aim or Purpose:** The purpose of this study was to investigate the incidence of impacted permanent canines in a Saudi subpopulation in Ar-Rass city.

**Materials and Methods:** A Retrospective study of a 930 (380 males, 550 females) Panoramic radiographs.

#### **Inclusion Criteria:**

- Patients aged between 13 and 33 years old.
- Patients having at least one impacted permanent canine in upper or lower arch.

The inclusions and exclusion criteria will be applied to all panoramic radiographs in the period between 2016 and 2017 to detect canine impactions and differences in the distribution of them stratified by gender, age, location (unilateral or bilateral, maxilla or mandible).

**Data analysis:** List of outcome variables, the data will be presented in a form of percentages and comparisons.

Statistical tests: The chi-squared test to examine potential differences in the distribution of impacted canines stratified by gender, age, location (left or right/upper or lower).  $p < 0.05$  is accepted as statistically significant.

**Results:** The results show a total of 89 (9.5%) with impacted canines out of the total population, in which 30 (33.7%) of them

were males and 59 (66.3%) females. This difference was statistically significant ( $p = 0.018$ ). The incidence of tooth impaction is higher in the maxilla than in mandible.

**Conclusions:** Prevalence of impacted canines was noticeable and higher (9.5%) than findings reported in other studies. canine impaction found to be highest in right maxilla of (5.7%) and lowest percentage was found in left mandible of (0.5%).

P005

#### The Effects of Le-Fort I Maxillary Advancement on Pharyngeal Airway

Ece Bozok<sup>1</sup>, Pinar Sancaktar<sup>1</sup>, Sila Mermut Gökçe<sup>1</sup>, Sina Uçkan<sup>2</sup>, Mehmet Avcı<sup>1</sup>

<sup>1</sup>Department of Orthodontics, Faculty of Dentistry, Istanbul Medipol University, Turkey, <sup>2</sup>Department of Oral and Maxillofacial Surgery, Faculty of Dentistry, Istanbul Medipol University, Turkey

**Aim or Purpose:** The purpose of this study to investigate pharyngeal airway (PA) changes in patients with skeletal Class-III malocclusion due to maxillary retrognathia as a result of the fixed orthodontic treatment and Le-Fort I osteotomy with maxillary advancement.

**Materials and Method:** The study consisted of 7-female patients (mean age: 21.5) with severe maxillary retrognathism treated with combined orthodontic treatment and following Le-Fort I maxillary advancement surgery. Clinical examination and diagnostic records revealed a skeletally Class-III malocclusion (mean ANB: 0, Wits appraisal: -5.4 mm), mean 4 mm negative overjet, upper midline shifting (3 of the patients). The presurgical orthodontic decompensation treatment has continued approximately 10–12 months and subsequently, orthognathic surgery was performed. Changes in PA dimensions on lateral cephalometric radiographs obtained before (T0) and after orthognathic surgery (T1) were examined using Dolphin Imaging software (11.9 Premium, Italy). Various dentofacial, craniocervical and oropharyngeal measurements including nasopharynx, velopharynx, oropharynx and hypopharynx at their narrowest distances were measured separately. The differences between T0 and T1 were evaluated by paired sample *t*-test.

**Results:** After the maxillary advancement surgery, upper and lower midline symmetry, ideal overjet and overbite was accomplished. The increases in SNA and ANB angles were statistically significant in accordance with a mean 5.7 mm protraction of the maxilla. The increases in nasopharynx and velopharynx measurements were observed significant in patients whose underwent maxillary advancement.

**Conclusion:** Maxillary advancement surgery becomes a preferable treatment option for adult patients with severe Class III malocclusions. Combined orthodontic treatment and maxillary advancement has an impressive effect to increase the dimensions of PA in patients with skeletal class-III malocclusion related to maxillary retrognathia.

Poster Session 02 | 05.09.2018, 10:00–11:00 | Screen 2

#### Theme: Materials, Esthetics

P006

#### Purified Tricalcium Silicate, Bioactive Dentin Substitute

Marianela Morón Bulchi<sup>1</sup>, Marina Del Carmen Alonso<sup>1</sup>, Claudia Bonnin<sup>1</sup>, Alejandra Rios Martinez<sup>2</sup>

<sup>1</sup>Catedra Clinica de Operatoria Dental, Universidad Catolica de Cordoba, Cordoba, Argentina, <sup>2</sup>Catedra Tecnica de Operatoria Dental, Universidad Nacional de Cordoba, Cordoba, Argentina

**Introduction:** In modern dentistry, bioactive materials have become available in the market, which promote the development of calcified tissue when they meet living tissues. In this report we have carried out a bibliographical review about a purified tricalcic silicate dentinary substitute and have developed a clinical case with its respective postoperative follow-up

**Case Description:** We present the case of a patient with a deep lesion and pulpal exposition. as pulpal protection, tricalcic silicate was used (Biodentine, Septodont): Said material was also left as a temporary restoration for the period advised by the manufacturer.

**Discussion:** Purified tricalcic silicate is a rapid setting material, which allows it to be used as replacement of the damaged dentin promoting the preservation of pulpal health. Besides, it also gathers good mechanical properties, ease of manipulation and is biocompatible, which make it indicated in semi-permanent restorations and endorestorative procedures. Its results must be assessed at medium and long term to value its use instead of traditional materials.

**Conclusion:** Tricalcic silicate is applicable in day-to-day clinical practice in cases of pulpal exposition caused by trauma or by lesions produced during cavity preparation in selected individuals, since its success will depend on a correct diagnosis and strict adhesion to clinical protocols.

P007

#### Influence of Preheating on Marginal Microleakage of Resin Composite Restorations

Tomás Calza, Ana Carolina Carranza Astrada, Claudia Estela Bonnin

Universidad Católica de Córdoba. Facultad de Ciencias de La Salud, Cordoba, Argentina

**Aim or Purpose:** To assess in vitro the effect of pre-polymerization temperature of the restorative material (22 °C and 68 °C) on microleakage of restorations made with a micro-hybrid and a nano-hybrid resin composite.

**Materials and Method:** Twenty upper first premolars were used for this study. In each tooth, two standardized class 5 cavities (3 mm × 2 mm × 2 mm) were prepared. Before placement in the cavities, resin composite was either kept at room temperature of 22 °C or preheated to 68 °C in a specific device. Photo polymerization was performed with a LED unit, with an output of 1400 mW/cm<sup>2</sup>, for 40 s. After storing and thermocycling, in order to avoid penetration from other ways different from tooth-

restoration interface, the whole surface of each specimen (except for the restoration and 1 mm beyond its margin) was sealed with epoxy resin and transparent nail varnish. Samples were immersed in 2% methylene blue dye at 37°C for 24 h and then rinsed with water for 3 min each sample. Confocal laser microscopy was used to analyze dye penetration through adhesive interfaces. Data was analyzed with a generalized linear model to determine statistical significance

**Results:** Differences in microleakage values among groups were not statistically significant ( $p > 0.05$ ).

**Conclusions:** Within the conditions of this study, it was concluded that resin composite preheating does not reduce microleakage.

P008

#### **Colour Stability of Preheated and Non-preheated Resin Composites**

Ana Carolina Carranza Astrada, Tomás Calza, Claudia Estela Bonnin

*Facultad de Ciencias de La Salud, Universidad Católica de Córdoba, Córdoba, Argentina*

**Aim or Purpose:** The aim of this study was to assess, by means of a spectrophotometer, colour stability of two resin composites cured at room temperature and preheated to 68°C after immersion in various staining solutions over different periods of time.

**Materials and Method:** A micro-hybrid and a nano-hybrid resin composite, cured at room temperature and at 68°C, were used to prepare 72 samples in 10 mm diameter and 2 mm depth acrylic molds. After storage in distilled water for 24 h, initial colour measurement of all samples was performed with a spectrophotometer. Samples were then divided in groups ( $n = 6$ ) and immersed in coffee, mate and artificial orange juice staining solutions over periods of 48 h, 7 and 14 days.

**Results:** Even though  $\Delta E$  colour differences were lower in preheated resin composite groups, such differences were not statistically significant ( $p > 0.05$ ).

**Conclusions:** Within the limitations of this study, it was concluded that heating resin composites prior to photopolymerization does not improve colour stability.

P009

#### **One-Step Restoration Material**

Maria Paula Panei, Victoria Romero Venier, Claudia Bonnin  
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**Introduction:** The fluid materials present: excellent adaptation, auto levelling properties and minimum contraction stress. Bulkfill technology allows up to 4 mm depth restorations which allows professionals to perform restorations quickly and easily.

**Description:** Several cases of combined restoration will be presented (bulk fill flow and composite nanohybrid) in permanent dentition.

In each case absolute isolation and preparation of the cavity was made. In order to restore, the cavities were filled with 4 mm of flow composite and light cured, both in one step. Then, the occlusal anatomy was restored through a nanohybrid composite ending with finishing and polishing procedures.

**Discussion:** Studies indicate that when spaces and bubbles are present in the margins, secondary caries are developed on the walls of the cavity, putting at risk the longevity of the restoration. Poor adaptation of the composite during placement and a high polymerization stress lead to the formation of voids in the margins. The placement of the composite in a single step helps to reduce work time and clinical operations. This makes this material a very interesting alternative to adopt.

**Clinical Significance/Conclusion:** From our work we could obtain positive aspects. They make up one-third of the working time of a general dentist, this restorative technology reduces the time session and helps to avoid stress for the patient.

P200

#### **Reanatomization of Anterior Teeth with Composite Resin: Case Report**

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*Faculty of Dentistry, Potiguar University, Laureate International Universities*

**Introduction:** Diastemas are spaces between two or more adjacent teeth between incisors. They are more common in the anterior region of the jaw but can be seen in any region of the mouth. Among its aetiological factors, there are: lip brake, discrepancy between bone bases and tooth size, being one of the most common complaints reported by patients in dental offices.

**Case Description:** Patient, 28 years old, female, attended the Dentistry Clinic of Potiguar University, complaining about the aesthetics of her smile. Clinical examination revealed the presence of diastema involving the upper anterior teeth. During the planning the patient opted for the cosmetic remodeling with composite resin nanohybrid B1 for enamel and B1 for dentin (SDI) by the direct technique using the silicone guide.

**Discussion:** The technique of direct reanatomization in composite resin was used because of the need of invasive preparations, and with this we guarantee the preservation of healthy dental tissue. The nanohybrid composite was chosen because of its high functional and aesthetic capacity generating a natural result with high polishing and finishing.

**Conclusion/Clinical Significance:** It is concluded that the cosmetic remodeling, through the use of direct composites, adhesive systems of last generation associated to the use of silicone guide are economic alternatives, fast and efficient for diverse situations, bringing positive influence in the patient's self-esteem and establishing a predictability to the size and shape of the teeth, promoting faster work.

Poster Session 03 | 05.09.2018, 10:00–11:00 | Screen 3

Theme: Epidemiology

P011

**Location of Point a in La Plata's Children**

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*Hospital Zonal Especializado En Odontología Infantil Dr. A. M. Bollini de La Plata, Buenos Aires, Argentina*

**Aim or Purpose:** Does Ricketts' normal value of facial convexity coincide with the norm of the infant population of the city of La Plata?

**Materials and Methods:** The design of the study is descriptive and cross-sectional study. The group consisted of 207 patients, with no history of having received orthodontic treatment. Analyzed variables: age (between 7 years and 6 months up to 12 years), sex (both), Ricketts' lateral cephalogram measurement, and facial biotype. For this study we used lateral cranial telerradiographies in occlusion with a natural position of the head obtained in a radiological center specializing in the subject. The data were processed by a computer assisted clinical cephalometric system and supervised by the work team. We compared the patient measurements with the norm and its deviations according to biotology.

**Results:** The values of the facial convexity in patients of both sexes remained within the norm in those with brachyfacial biotology. Average value was 2.53 mm. In patients with mesofacial biotology the values were slightly higher, with an average of 3.47 mm. In patients with dolichofacial biotology, the values were significantly higher, which differs from Ricketts' norm. Average value was 5.70 mm.

**Conclusions:** This study on facial convexity in subjects of the city of La Plata revealed the following: Children with brachyfacial biotypes, due to their European origins, follow Ricketts' norm. In other biotypes the facial convexity is increased, confirming other authors' opinion that all Latin American children have a relative dental and skeletal biprotrusion.

P012

**Assessment of Dental Caries Treatment Needs in Primary School Children**

Maria Shirley Garcia, Lia Pereyra, Daniela Martiez, Susana Amosa, Roxna Bozzaotra, Nestor Furci, Pamela Pérez Esprate  
*Facultad de Medicina y Ciencias de La Salud-Carrera Odontología, Universidad Abierta Interamericana, Buenos Aires, Argentina*

**Introduction:** This study was conducted as part of the preventive programme in school children undertaking by the School of Dentistry of UAI in agreement with the Ministry of Education of the Bs.As. city government. Indices to measure dental caries indicate different stages in the process. Community Caries Treatment Needs Index (INTCC-Bordoni 1993) is not difficult to use by undergraduate students in a field experience. The aim of the study was to estimate caries treatment needs in order to plan oral health programmes.

**Materials and Methods:** A cross sectional study involved 883 children aged 6 to 12 years. Informed consent was obtained from parents. Visual examination was carried out by dental students under professors' guidance using headlight. Findings were written down in the school files, a report was sent to parents and free dental services were offered. The frequency distribution of dental pathologies was calculated.

**Results:** Data showed that 15.62% of children were caries free; 19.47% exhibited occlusal grooves; 39.52% caries activity; 18.9% endodontic treatment need; 6.45% dental extractions. 64.87% required dental treatment and 35.09% required preventive programme with fluoride or sealants.

**Conclusions:** The INTCC index is a helpful guide for planning oral health programmes in primary school children.

Poster Session 04 | 05.09.2018, 11:15–12:15 | Screen 1

Theme: Oral Health and Systemic Health

P013

**Lead Poisoning, a Silent Disease**

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Saturnism is caused as lead enters the human body. This toxic substance builds up in organs such as the kidney, liver, bone marrow, CNS. Lead poisoning is particularly harmful to children. Main symptoms: headaches, irritability, memory loss, mental deficiency, learning impairments, behavioral disorders, anemia, weight loss (and even low height), or lesions in the oral cavity. In this presentation we will discuss the latter.

Our organization has carried out – since 2013 – a program for primary health care. For our case of study, we have worked with a group of 40 young children from Escuela N° 72 (1st and 2nd grade), located in Villa Jardín, Lanús by the river watershed Matanza-Riachuelo.

During the initial assessment we identified some major issues, such as caries and different lesions – possibly related to saturnism.

As the clinical diagnose continued, these children showed two main types of lesions: “Gubler spots” – spots in the inner side of the cheeks adjacent to molars; and gingival rim – “Lisere”, a greyish/blueish pigmentation on the incise and/or canine teeth. Consequently, further lab tests were requested.

Both the clinical diagnose and the lab results were consistent with the presence of lead in the organism.

Knowledge of these systemic – and sometimes rare – diseases which may manifest themselves through this type of lesions is vital for their timely detection and appropriate referral and monitoring.



P014

### General Population Knowledge, Diagnostic and Symptoms of Temporomandibular Disorders

Julieta Cecilia Palou<sup>1</sup>, Andrea Paola Ares<sup>1</sup>, Luis Antonio de Zavaleta<sup>2</sup>, Graciela Sandra Melito<sup>1</sup>, Guillermo Carlos Trigo<sup>2</sup>

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**Aim or Purpose:** Assess the interrelation between the social knowledge of temporomandibular disorders, diagnosed individuals and the symptoms of the general population.

**Materials and Methods:** An anonymous statistical evaluation has been carried out between December of 2017 and February of 2018. The survey was conducted among 102 individuals aged over 12 years old who attended dental offices, medical centers, pharmacies and kinesiology clinics.

**Results:** The 73% of the surveyed individuals was not aware of the existence of temporomandibular joint disorders. The 52% showed symptoms associated with these disorders. Only the 6% of them had been previously diagnosed by a health practitioner.

**Conclusions:** The results obtained in the study led to the conclusion that the society's knowledge about temporomandibular disorders is considerably poor. However, a vast number of individuals claimed they presented various symptoms compatible with muscular and joint pathologies associated with those disorders. This shows clear evidence of a high proportion of individuals that had not been diagnosed despite showing compatible signs with temporomandibular joint dysfunction. The principal causes of this misdiagnosis can be whether the lack of sanitary education among the society or a failure in the national health system.

P015

### Histiocytosis Lesions in the Oral Cavity. A Case Report

Verónica Herminia Pavan<sup>1</sup>, Betina Orman<sup>2</sup>, Melina Ienco<sup>1</sup>, Virginia Fernandez de Preliasco<sup>1</sup>, Carolina Benchuya<sup>1</sup>

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Langerhans cell histiocytosis (LCH) is a rare disease affecting different organs and tissues. Oral LCH lesions may be the first symptom of the disease, or a manifestation of disseminated disease or disease reactivation.

**Aim or Purpose:** In 2004, a 2-year old girl diagnosed with multi-system LCH (skin and skull since the age of 2-months, treated with chemotherapy) was referred by her attending oncologist to the Department due to oral pain.

Clinical dental examination showed mobility of several teeth (75, 74, 84, 65, 64, 55, 54, 52, 62). Tooth extractions were performed under general anesthesia. Histopathological examination confirmed diagnosis of LCH. Treatment with indomethacin was started, and an interdisciplinary care approach was used. During eruption of her first molars, the patient showed reactivation of the disease with lesions in gingival tissue.

Orthodontic treatment was initiated at age 15 years, by the members of our team. One year later, the patient presented for consultation due to pain in the right hemimandible (teeth 46, 47). Upon clinical examination, bright-red inflamed and swollen gingiva, bleeding on probing, attachment loss, and Grade 2 mobility were observed. Radiographic studies revealed the presence of a radiolucent area at the alveolar crest. A new biopsy was performed, diagnosis was LCH. The patient was referred to the oncologist, who observed the presence of skin lesions

**Conclusions:** An interdisciplinary approach to care for patients with LCH is essential for diagnosis and treatment of both initial lesions and reactivations, in view of the high frequency of manifestations of LCH in the oral cavity.

P016

### Self-Perception of Dental Fluorosis in Adolescents in Durango, México

Nelly Molina<sup>1</sup>, Omar Tremillo<sup>1</sup>, Leonor Sánchez-Pérez<sup>1</sup>, Enrique Castañeda<sup>1</sup>, Rogelio González<sup>2</sup>, Ronell Bologna<sup>3</sup>

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Enamel fluorosis is a hypomineralization caused by chronic exposure to high levels of fluoride during tooth development.

**Aim or Purpose:** To identify the self-perception concerns about color of dental fluorosis in adolescents of Durango.

**Materials and Methods:** A cross sectional and descriptive study was conducted in 15-year-old adolescents from an endemic area for dental fluorosis with different socioeconomic levels (medium SES and low SES) by applying a questionnaire designed and validated to assess self-perception about color of dental fluorosis. Fluorosis was clinically evaluated with Thylstrup and Fejerskov Index (TF) on the upper front teeth.

**Results:** The self-perception concerns about color was in adolescents with the medium SES in TF 2-3 (68%) and low SES (39%) OR 1262 (CI 95% 1005-1585)  $p = 0.022$ , in medium SES TF 4-5 (76%) and low SES (60.2%) OR 1542 (CI 95% 1007-2360)  $p = 0.024$ . All the adolescents with TF 6-7 of the medium SES expressed concerns about color while only six in the low SES group.

**Conclusions:** The result indicated that anti-aesthetics colorations due to dental fluorosis affect adolescent and their psychosocial relationships. Self-perceptions have more negative to low SES.

P017

### Filipino Endocrinologists' Awareness on the Diabetes Periodontal Disease Interrelationship

Bhabita Murjani, Kristine Estrera, Francheska Quintos, Patricia Zara

*College of Dentistry, University of the Philippines*

**Aim or Purpose:** The effects of uncontrolled diabetes on the periodontium have been established and the need for collaborative approach between endocrinologists and dentists cannot be over emphasized. This study aimed to gain insight on the need for further interdisciplinary education by determining knowledge and management of endocrinologist on oral health care of patients.

**Materials and Methods:** The study protocol, a descriptive cross-sectional survey design with the members of the Philippine Society of Endocrinology, Diabetes and Metabolism (PSEDm), was approved by the Research Ethics Board. The first part of the questionnaire was on demographics, the second part (questions 1–15) on associations between diabetes and periodontitis, and the last part was on patient management (questions 16–20).

**Results:** 96% said they were aware of the manifestations of gingivitis but only 3.6% accurately identified the symptoms. 73.3% claimed to be aware of the manifestations of periodontitis but only 3% answered correctly. 95.9% were aware that Diabetes Mellitus is a risk factor for periodontitis but only 38.3% listed periodontitis as a complication of uncontrolled diabetes. Only 23.3% asked patients if they have been diagnosed with periodontal disease. 72.2% do not inquire on the frequency of dental visits and only 38.6% discuss oral health upon counselling patients.

**Conclusions:** Majority of the endocrinologists are aware of the bi-directional relationship between Diabetes and Periodontitis but do not clearly know the difference between gingivitis and periodontitis. Their awareness is not observed and translated into how they manage the diabetic patients.

Poster Session 05 | 05.09.2018, 11:15–12:15 | Screen 2  
Theme: General Dentistry

P018

### Differential Gene Expression of bFGF-Treated SHEDs

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**Aim or Purpose:** Basic fibroblast growth factor (bFGF) regulates various cell responses. This study aims to determine the gene expression profiling of bFGF-treated stem cells isolated from human exfoliated deciduous teeth (SHEDs).

**Materials and Methods:** SHEDs were isolated using explant technique. Expression of mesenchymal stem cell surface marker was determined using flow cytometry analysis. Cells were treated with

10 ng/ml of bFGF and total RNA were isolated using RNA isolation kit. Next generation gene sequencing was employed to identify differential gene expression. Enriched pathway analysis was determined using Network Analysis online software. Target gene expression was validated using real-time polymerase chain reaction.

**Results:** Cells isolated from remaining pulp tissues of human exfoliated deciduous teeth expressed CD44, CD90, CD105, but lack of CD45. bFGF treatment enhanced gene related to cell cycle and proliferation pathway. Target gene, MKI67, was validated. bFGF significantly enhanced MKI67 mRNA expression at 24 h after treatment.

**Conclusions:** bFGF upregulated genes involved in the cell cycle regulation pathway and downregulated genes related to extracellular matrix pathway in SHEDs. The gene expression profiling results demonstrated the regulation of SHEDs behavior by bFGF and could be used to identify pathways controlling stemness maintenance mechanism.

P019

### Efforts of International Exchange to Dental Education in ODU

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**Aim or Purpose:** Our university is actively engaged in international exchange. In order to promote international exchange for dental education, we studied on the history of international exchange activities. Future directions and potentials of international exchange were also considered.

**Content:** Our research covers the 7 years since February 2008 in the following five contents: (i) History of international exchange; (ii) Report on exchange programs with partnership universities; (iii) Collaborative research achievements with five Chinese universities; (iv) Effect of international exchange events on the students; and (v) Rules concerning international exchange and letters.

**Conclusion and Discussion:** Our university has signed memorandums of international exchange with 15 universities. In the past 7 years, we have held implant seminars both in Japan and in USA. The special lectures of partnership universities improved motivation of the students. Collaborative research efforts have been continued actively and regularly with 5 Chinese universities. In student exchange, our 196 students visited 6 universities in 3 countries, while 93 overseas students came from 7 universities in 5 countries. In addition, overseas students have attained a profound knowledge of the dentistry in Japan, hence broadening their international perspectives.

**Outlook:** In the past 7 years, the international exchange projects at our university have reached maturity. We will continue interaction with partnership universities to enhance internationalization of dental education and promote international contributions.

P020

#### Indicators for Comparison of Profiles of the Dental Services

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**Aim or Purpose:** Dentists' chair-side treatment choices vary between preventative, conservative and non-conservative options which finally make the profile of the service system. This study created two simple indicators to assess the profiles of dental services and compared them between regions in Finland.

**Materials and Methods:** As part of the taxation-based National Health Insurance in Finland all inhabitants are eligible for partial subsidizing of private dental care except for prosthetics and orthodontics. Dentists use unified official codes to record all treatments by patient and visit. Annual data of the numbers of patients and of the treatments, aggregated in 11 main categories, are available in an open data bank. This study collected information of patients examined and of treatments categorized as prevention, restorations, endodontics, and extractions. The data include information of 998 000 patients having visited private dentists in 2017. Regions compared were Hospital Districts (HDs). The indicators created for comparison were relations between extractions and root canal treatments (EXT/RCT) and between restorations and intensified prevention (FILL/PREV). Comparisons between the HDs used the ratios between minimum and maximum values of each indicator.

**Results:** The EXT/RCT relation was 1.2 for the whole country, HD range being 0.8–1.5 and their ratio 1.9 which shows a dominance for extractions over endodontics and indicates a non-conservative service profile. The FILL/PREV relation was 15.3 for the whole country, HD range being 3.4–39.9 and their ratio 11.6 which indicates a strong non-preventative service profile.

**Conclusions:** The indicators revealed large variation in service profiles by region, especially for preventative approach.

P021

#### Prevalence of Gingivitis Among Young Dental Students

Svetlana Razumova<sup>1</sup>, Ellina Velichko<sup>2</sup>, Mariam Mohammed<sup>1</sup>, Natalia Karabushchenko<sup>3</sup>, Oleg Volovikov<sup>1</sup>

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**Aim or Purpose:** One of the most prevalent dental diseases worldwide is gingivitis and it affects people of all ages. The aim of this

study was to assess the occurrence of gingivitis and the level of oral hygiene among first and second year dental students, and initially to compare these results with the general population as well as by gender. Furthermore, the study intends to evaluate the changes occurring in the prevalence as the students' progress to the final years of their education.

**Materials and Methods:** 70 dental students both male and female aged 18 to 23 years were clinically examined. A dental mirror, probe and a coloring agent were used when assessing the presence of inflammation of the gums as well as the level of oral hygiene.

**Results:** The study showed a lower prevalence of gingivitis among the participant compared to the corresponding age group in the general population - 44.29% versus 50.85% respectively. The intensity of periodontal pathology was at a low or medium level, and the level of oral hygiene was good. Gingivitis appeared more often and on a higher level of intensity amongst the young men compared to the young women and the level of oral hygiene was better among the girls ( $p < 0.05$ ).

**Conclusions:** The dental students participating in this study were found to have less gingivitis compared to the same age group in the general population. The female participants showed to have less gingivitis which corresponded with a better oral hygiene.

P022

#### Prevalence of Dental Caries Among Young Dental Students

Svetlana Razumova, Mariam Mohammed, Sergei Ivanov, Nino Lezhava

*Department of Propaedeutics of Dental Diseases, Medical Institute, Peoples Friendship University of Russia*

**Aim or Purpose:** Despite the fact that the prevalence of dental caries has been known to decrease worldwide due to immense preventive efforts, it continues to be one of the main oral diseases. The aim of this study was to evaluate the caries prevalence among first and second year dental students and compare the results to the occurrence of caries in the general population as well as by gender.

**Materials and Methods:** 70 dental students both male and female aged 18 to 23 years were clinically examined. Their caries status was assessed and their DMFT index calculated using a dental probe and mirror.

**Results:** The study showed a caries prevalence of 92.86% among all of the participants and a mean DMFT of 5.27 ( $\pm 3.82$ ). The girls showed a DMFT value higher than the young men 5.47 ( $\pm 3.86$ ) versus 4.96 ( $\pm 3.81$ ) but with no statistical significance ( $p > 0.05$ ). In comparison with the DMFT level of the corresponding age group in the general population the value found in this study was slightly lower (5.96).

**Conclusions:** The dental students participating in this study were found to be representative of their age group in the general population in regards to their caries status. The female participants registered with a higher caries prevalence due to a higher number of filled teeth whereas the young men registered with more active caries lesions.

**Theme: Orthodontics**

P023

**Cementoblasts Inflammatory Markers Expression Under Compression and Photostimulation Treatment**Chia Tze Kao<sup>1,2</sup>, Tsui Hsien Huang<sup>3</sup><sup>1</sup>*School of Dentistry, College of Oral Medicine, Chung Shan Medical University*, <sup>2</sup>*Orthodontic Department, Chung Shan Medical University Hospital, Taiwan*, <sup>3</sup>*Dental Department, Chung Shan Medical University Hospital, Taiwan*

**Aim or Purpose:** The present study was to investigate the inflammatory markers expression of the cementoblasts (OCCM-30) under low level laser treatment (LLLT) in compression culture system.

**Materials and Methods:** The OCCM-30 cells were cultured in compression hydrogel plates under 2.5 kPa Flexcell FX-5000 oven for 24 h. The cultured cells were then extracted by collagenase/Hyaluronidase kits and seeded OCCM-30 in 6-wells plate. The low-level diode laser with emitted energy 3J and 5J were using on the experimental groups. The experimental groups: the extracted OCCM-30 after 24 h culture in normal oven, each well was received various low-level laser treatment (LLLT) for twice. The control groups treatment was using same method as experimental group except LLLT. After LLLT, OCCM-30 cells were harvested at 1, 12, 24 h, 1, 3 and 7 days. The western blot assay was used to detect the OCCM-30 inflammatory markers expression.

**Results:** The results showed that the OCCM-30's IL-1, IL-6 and COX-2 expression were decreased as the harvesting time from 1 to 24 h. The OCCM-30's TNF-alpha showed no statistic difference as comparing with the control group at *t* 1 to 24 h. The OCCM-30's IL-1, IL-6, COX-2 and TNF-alpha expression showed no statistic difference as compare with the control groups.

**Conclusions:** The LLLT may be effective in reducing the early stage of the cellular inflammation. It is hope that by reducing the root inflammation might be helpful to reduce the external root resorption.

P024

**Unusual Complication of a Dilacerated Maxillary Central Incisor: Case Report**CM McNamara<sup>1</sup>, A Crotty<sup>1</sup>, JR Sandy<sup>2</sup><sup>1</sup>*H.S.E Orthodontic Department St James Hospital, Ireland*,<sup>2</sup>*Dental School University of Bristol, UK*

**Introduction:** Orthodontic management of an unerupted dilacerated central incisor is demanding technically and time consuming. This case was further complicated by poor access for bond attachment at surgical closed-flap exposure. This report outlines the successful management of this unusual complication.

**Case Description:** A Caucasian male, aged 11 years, presented for orthodontic treatment of a Class II division I malocclusion with crowding, significant DMF and an unerupted ectopic dilacerated maxillary right central incisor. No medical history was found. Treatment was to relieve crowding, re-establish space and align

the dilacerated incisor. Maxillary first premolars, impacted mandibular second premolars were extracted at surgical exposure of the unerupted central. Given the degree of rotation the surgeon had to place the bonded attachment on the palatal surface. Conventional orthodontics re-establish space. Light vertical forces were utilized. as anticipated, the dilacerated central presented in a 'reverse' position on bringing it into the arch, Orthodontic force couples were used to correct this marked rotation.

**Discussion:** Dilacerated maxillary central incisors pose a significant challenge in orthodontics. as in this case report they are usually associated with a history of trauma with space loss inevitable if not managed early. Prognosis was very guarded. Root formation was complete, the ectopic location and rotation was marked. Successful outcome was achieved by careful traction throughout.

**Conclusions:** Management of an unerupted dilacerated maxillary central incisor requires an orthodontic-surgical approach. This case illustrates the successful management of this dental presentation, where conventional orthodontic traction access/application are unfavorable.

P025

**Interdisciplinary Treatment of Class II Malocclusion with Severe Periodontitis**Eddie Hsiang-Hua Lai*School of Dentistry, National Taiwan University, Taiwan*

**Introduction:** The interdisciplinary treatment of a Class II malocclusion patient with severe periodontitis by using temporary anchorage devices, large overjet and deep overbite is corrected and proper occlusal function has been re-established.

**Case Description:** A 54-year-old female suffered from severe periodontitis, pathological tooth migration and multiple missing teeth asked for full mouth rehabilitation. Class II division 1 malocclusion with large overjet and deep overbite with exaggerate curve of Spee in the lower arch was observed. She also exhibited convex profile with retruded chin and lip protrusion. The treatment strategy included extraction of upper right second premolar, upper left first premolar, and poor prognosis upper right second molar with the aid of skeletal anchorage in the upper posterior region and early application of reverse rectangular NiTi wire in the lower arch, the large overjet and deep overbite has been corrected.

**Discussion:** Orthodontic treatment in adult patient may be complicated by preexisting pathological conditions and required close cooperation between different specialists. With well-controlled orthodontic force magnitude and direction, the flared upper incisors have been retracted without any further threats on periodontium. Even more, providing a more favorable environment for periodontal maintenance. Normal overjet and overbite with stable occlusion was established, and significant improvement in facial profile was achieved.

**Conclusion/Clinical Significance:** This case demonstrates the effectiveness of interdisciplinary orthodontic treatment in patients with severe periodontitis and pathological tooth migration.



P026

### Effects of Banded Rapid Maxillary Expansion on Occlusal Force Distribution

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**Aim or Purpose:** To evaluate the effects of banded rapid maxillary expansion (RME) on occlusal force distribution.

**Materials and Methods:** The sample included 13 patients (8 girls and 5 boys) with a mean age 13.1 years, in permanent dentition, having Angle Class I or II malocclusion with optimal growth pattern and had bilateral posterior crossbite with an indication for RME. Banded RME appliance was applied and activated twice a day. The study was terminated when the palatal cusps of the maxillary posterior teeth were occluding with the buccal cusps of the mandibular posterior teeth. Average treatment time was 14 days. The post-retention period was 3 months. The T-Scan III device was used to analyze the percentages of occlusal force distribution on anteriors, posteriors, premolars, molars and total. Records were taken at the pretreatment (T1), posttreatment (T2), and the postretention (T3) periods. Paired *t* test was used for statistical analyses.

**Results:** A significant increase was observed in total occlusal force during treatment (T1–T2) ( $p < 0.05$ ); nevertheless, at the end of retention period, no significant difference was found (T1–T3). The percentage of occlusal force distribution on premolars decreased significantly during treatment ( $p < 0.05$ ), no significant difference was found between the beginning of the treatment and at the end of retention (T1–T3).

**Conclusion:** A change in occlusal force distribution was occurred during treatment with banded RME appliance, but no significant effect was observed at the end of retention period compared to the beginning of the treatment.

P027

### Self-Perception of Malocclusion Among Saudi Adolescents Using the IOTN

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**Aim or Purpose:** This study was carried out to assess the self-perception of dental appearance among Saudi adolescents in Qassim province using aesthetic component (AC) of the IOTN index in order to compare it with an investigator's rating and whether the age and gender had any influence on it.

**Materials and Methods:** A sample of 600 randomly selected school adolescents comprising 297 (49.5%) males and 303 (50.5%) females with age of 12–17 years old were included in the study, the AC of the IOTN was the instrument used to measure the perception of malocclusion by both the school adolescents and the investigator. *T*-test and chi-square statistics were used to analyze the data with statistical significance set at  $p < 0.05$ .

**Results:** Majority of the students (86.7%) scored themselves as having an attractive dentition with no need of orthodontic treatment. There was a significant difference between the investigator's rating and the student's rating ( $p < 0.05$ ). Further, the gender was not found to be statistically significant in relation to the self-perception of treatment need ( $p = 0.123$ ), while the age was found to be statistically significant ( $p < 0.001$ ).

**Conclusions:** A significant difference was found between the investigator's rating and the students' ratings of the attractiveness of their occlusions. The age was found to influence the self-perception of orthodontic treatment need, whereas the gender was not found to have any influence. Therefore, for effective orthodontic treatment plane, the self-perception of dental appearance must be taken into consideration to ensure patient satisfaction.

Poster Session 07 | 05.09.2018, 12:30–13:30 | Screen 1

### Theme: Digital Dentistry

P028

### Digital Workflow for Construction of a Removable Partial Denture

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**Introduction:** This case report presents the fabrication of a clasp retained removable partial denture (RPD) in a model-free, digital workflow.

**Case Description:** A healthy 72 old patient with an existing mandibular partial denture required a new denture. Teeth 43 to 33 were present. Furthermore, implants carrying ball attachments were present in position 37 and 47. Digital impressions were obtained by an intraoral scanner (Trios, 3Shape). Jaw relation was recorded with an individual bite plate, constructed from data of the previous intraoral scan, by performing a second intraoral scan. The prosthesis framework was digitally designed with a CAD/CAM software (Sensable Freeform, 3D Systems). Afterwards the framework was additively manufactured by means of selective laser melting (SLM). After intraoral try-in of the framework, the digital set-up of denture teeth was performed. Denture base, as well as denture teeth were fabricated in a subtractive CAD/CAM way. Denture teeth and prosthesis framework were manually polymerized into the denture base by the dental technician. The prosthesis showed a perfect intraoral fit with only minor need for occlusal adjustment.

**Discussion:** The present case shows that manufacturing of denture frameworks by SLM is a viable option today. However, a skilled dental technician, who is familiar with digital techniques is required. Especially the design process of the framework, and the model-free assembly of denture base and denture framework are challenging aspects in the described workflow.

**Conclusion/Clinical Significance:** Clasp retained RPDs with additively manufactured frameworks can successfully be produced in a model free digital workflow.

P029

### Simplified Protocol for 3D Printed Dentures Using Poly(Methyl Methacrylate)-TiO<sub>2</sub> Nanocomposite

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**Aim or Purpose:** Of the present study was to assess patient-centered outcomes of a simple and predictable protocol for 3D printed functional complete dentures manufactured using an improved poly(methyl methacrylate)-nano-TiO<sub>2</sub>.

**Material and Methods:** 35 fully edentulous patients, aged 48–81 were enrolled in this prospective study (Bioethical Committee approval nr. 98/2016, ClinicalTrials.gov Identifier: NCT02911038) with informed consent obtained from all participants. A 0.4% TiO<sub>2</sub> nanoparticles reinforced PMMA composite with low adherence of microbial factors and improved mechanical strength, was used according to an additive CAD/CAM protocol for complete dentures fabrication. The protocol proposed involved a two-step appointment process: First appointment - impressions, jaw relation records, occlusal plane orientation, tooth mold, shade selection and maxillary anterior teeth positioning. All data were digitalized and the casts were mounted in a virtual articulator. Functionalized dentures designed in CAD software were sent to the clinician and patient via social media. After approval, the second clinical appointment was for insertion. At the one-year follow-up, the following parameters were assessed: denture fit, occlusal scheme, vertical dimension, lip support and patient's evaluation through Visual Analogue Scale (VAS 0-10) and Oral Health Impact Profile for Edentulous Patients (OHIP-EDENT), with a higher score meaning poor quality of life.

**Results:** 45 complete dentures have been inserted. No drop of nor complications were registered, and patients OHIP-EDENT scored better after one year of denture wearing 20.31 (±4.60) compared to 52.58 (±8.14), before treatment; mean overall VAS was 8.6 (±1.2).

**Conclusions:** The clinical and patients-centered outcomes for the 3D printed dentures were favorable evaluated at one-year follow up.

P030

### Experiences and Satisfaction of Using Dental Navigation in Taiwan

Yi-Shing Shieh, Kuo-Chou Chiu

Tri-Service General Hospital, National Defense Medical Center

**Aim or Purpose:** Proper pre-surgical evaluation and precise accurately insert implant position is key point for implant success. A new technology integrated CT, implant system, surgical guide plate and implant navigation technology was developed in Taiwan. We compared and analysis dentists using this new image-guide implant system for placing implants.

**Materials and Methods:** A survey was conducted in experienced implant dentists using traditional or image-guided system (IGS) during the period of 2017 and 2018. Likert scale and VAS score were used in the survey questions, the independent *t*-test and one-way ANOVA were performed ( $\alpha < .05$ ). 5 open questions associated with experience and reflections were also listed at the end of the questionnaires.

**Results:** The IGS minimize postoperative morbidity, reduce surgical treatment time, assist surgeon in placing implant precisely, according to precise planning and avoid critical structures. The IGS increases the opportunity with flapless surgical access with less soft tissue manipulation. The operators who process implant with IGS expressed higher satisfaction with conventional implant systems ( $p < .05$ ). Most of operators gave an answer that they will be willing to recommend IGS system to others but still 30% operators concerned about the cost.

**Conclusion:** Through the use of image-guided dental implant placement, the IGS promotes the ideal dental implant placement and enhances safety. with the real time reflection system, it connected with a safe and precise tool during stage 1 implant treatment. The cost still is a concern from users.

P031

### In Vivo Evaluation of Reproducibility of Digital Occlusal Registration

Yotaro Iwauchi, Shinpei Tanaka, Emi Kamimura, Masayuki Takaba, Kazuyoshi Baba

Department of Prosthodontics, School of Dentistry, Showa University, Tokyo, Japan

**Aim or Purpose:** When digital impressions are made with intraoral scanners (IOS), occlusal registrations are also taken by IOS. This method does not require mounting stone models on the articulator with the aid of occlusal registration material, which are associated with dimensional errors, and therefore theoretically more accurate and precise than the conventional technique, which has not been demonstrated, yet. Therefore, this study evaluated the reproducibility of digital occlusal registration technique in vivo.

**Materials and Method:** Six study subjects (mean age  $25 \pm 1.9$  years) with complete natural dentition were included in this study. First, digital impressions of the mandibular and maxillary molars of these subjects were made using IOS. Then, occlusal registrations were repeated four times with the same subject, and stereolithography (STL) data were directly exported to the 3D image evaluation software from the IOS system. Two datasets out of the four recorded STL datasets were compared in round-robin fashion using the best-fit-algorithm method and averaged discrepancies between the two datasets in the absolute value were calculated for each pair and then average for each subject.

**Result:** Approximately 74 000 and 42 000 polygon points were obtained from the STL data from the digital impressions and occlusal registrations, respectively. The averaged discrepancy for all subjects resulted to be  $19.3 \pm 6.0 \mu\text{m}$  (max =  $87.2 \mu\text{m}$ , min =  $10.8 \mu\text{m}$ ).

**Conclusion:** Considering that the reported reproducibility of the digital and conventional impression techniques (14 and 23  $\mu\text{m}$ ),

the results of this in vivo study suggest that reproducibility of digital occlusal registration technique might be reasonably high.

P032

### Facial Comparison in 3D

Arik Lerman, Cesar Pablo Fraire, Lucas Fraire  
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**Aim or Purpose:** With the evolution of technology, a facial scanner was incorporated to obtain digitalized three-dimensional facial images, which allow obtaining digital measurements with speed, precision, simplicity, reproducibility and predictability. So the final conclusion was the application of this advanced tool, which allows manipulation, visualization and virtual facial comparison in the three senses of space, which is more real and precise. In this way, the result is a significant difference with the two-dimensional world that the photographs offer us.

**Materials and Methods:** For the superposition and digital comparison of the patient facial face's, who was in pre and post orthodontic treatment, a facial scanner (multifotograma device) was used to obtain a three-dimensional image (stored in an extension file .stl), which can be visualized and manipulated by the professional in a computer (CPU or cellular) from an open source software called Meshlab.

**Results:** It was possible to observe in the three spatial senses 3D facial images that can be superimposed, and thus evaluating the differences in the treatment of the patient from the initial and final comparison.

**Conclusions:** The technology advances in leaps and bounds in all areas of life, so the introduction of 3D images in the health profession should be implemented in all routine institutions. The 3D facial visualization allows to observe the changes in a person with or without treatment (initial, intermediate, final or post-treatment), and could be used in different areas related to health (medicine, anatomy, stomatology, surgery, orthodontics, etc.).

Poster Session 08 | 05.09.2018, 12:30–13:30 | Screen 2

### Theme: Caries Prevention

P033

### Caries in Brazilian Schoolchildren: Relationship with Socio-Demographic Factors and Obesity

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**Purpose or Aim:** To investigate the association between dental caries in the permanent dentition and socio-demographic factors and obesity in this population segment.

**Materials and Methods:** A cross-sectional study with a sample of 385 schoolchildren between 6 and 15 years old was conducted in a municipality in the south of Brazil. The prevalence of caries was evaluated by the CPO-D index, adopting criteria of the World

Health Organization; sociodemographic characteristics were obtained through interviews; and the nutritional status determined by anthropometric measures of weight and height, using reference values from the National Center for Health Statistics. The Chi-square, Mann-Whitney and Kruskal-Wallis tests were used, with a significance level of 5%.

**Results:** The mean CPO-D index was 1.23 (SD = 1.95) and the overweight rate was 24.2%. The highest caries rates were recorded among girls ( $1.40 \pm 2.14$ ,  $p = 0.012$ ), in the age group of 12 years and over ( $2.34 \pm 2.34$ ,  $p < 0.001$ ), among schoolchildren whose mothers were over 45 years old ( $1.68 \pm 2.16$ ,  $p = 0.027$ ) and had up to 8 years of schooling ( $1.94 \pm 2.56$ ,  $p = 0.024$ ). The lowest CPO-D index ( $0.58 \pm 1.69$ ,  $p = 0.005$ ) was detected among students with a diagnosis of obesity.

**Conclusions:** Socio-demographic factors such as gender and school age, age and maternal schooling were important determinants of caries patterns observed. Further studies to investigate which specific factors for obesity in childhood and adolescence could be protective against caries in the permanent dentition should be conducted.

P034

### Long-Term Effect of Supervised Tooth-Brushing on Prevalent Teenage Caries

Tatiana Kupets, Svetlana Gunko, Svetlana Matelo, Lyudmila Zhugina, Peter Leous  
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**Aim or Purpose:** Assessing 10-year effect of school-based supervised toothbrushing program among young children on caries incidence in adolescents.

**Materials and Methods:** Longitudinal clinical study in several schools randomly selected in Minsk, Belarus. Study group: 110 first grade 7-year-old school children (M = 51, F = 59) in 2008 were involved in 2-year supervised toothbrushing program, using commercially available remineralizing toothpaste (Ca - P - Mg - xylitol complex) for free. Comparison group: 118 first grade 7-year-old children (M = 48, F = 70) in neighboring schools. The project was approved by State Medical University ethical committee and parents consented. DMFT of permanent teeth were recorded at baseline and every year until 2018. We present here only initial and final data (after 10 years' monitoring). Study and comparison groups were given standard school oral health education and oral hygiene instruction during 10-year period. For home toothbrushing, mineralizing and fluoridated toothpastes were recommended with no control of actual use. DMFT data were analyzed by Student *t*-test.

**Results:** Initially, study group mean DMFT was  $0.29 \pm 1.12$  SD; comparison group DMFT was  $0.42 \pm 1.09$  SD ( $p > 0.1$ ). After 10 years, study group of 73 adolescents 16–17-year-old (av. 17.2 years; M = 33, F = 40; drop-out 37 subjects - 34%) mean DMFT was  $2.53 \pm 1.78$  SD Comparison group, 80 adolescents, 16–17-year-old (av. 17.1 yrs.; M = 43, F = 37; drop-out 38 subjects - 32%) mean DMFT was  $3.2 \pm 2.31$  SD DMFT difference between groups was 0.67 (21%;  $p < 0.05$ ).

**Conclusion:** A supervised toothbrushing program for young children using mineralizing toothpaste had a trace effect in reduction of dental caries in adolescents.

P035

#### **The Introduction of Antimicrobial Additive in Composite Material**

Svetlana Razumova, Ruzanna Bragunova, Elena Volina,  
Natalia Karabuschenko, Lamara Khaskhanova  
*Medical Institute of Peoples' Friendship University of Russia, Russia*

**Aim or Purpose:** To assess the effect of the antimicrobial agent chlorhexidine additive on the basic physical, mechanical and aesthetic properties of composite materials

**Materials and Methods:** Samples of the composite material Restaurin containing the antimicrobial agent at a 0.001, 0.010, 0.500 and 5000% concentration were produced. as antimicrobial agent chlorhexidine acetate produced by Unilab Chemicals & Pharmaceuticals Pvt., Ltd. was used. The color characteristics of the samples (disks) with a diameter of  $10.0 \pm 0.1$  mm and thickness of  $1.0 \pm 0.1$  mm were determined on a white and black background using the VITA Easyshade spectrophotometer of the CIEL \*a\*b\* system. Analysis of the curing depth of the samples with and without the antimicrobial additive was conducted.

**Results:** Addition of the antimicrobial agent into the composite material in small amounts (0.001%–0.010%) did not affect the color of the samples significantly. A concentration of 0.500% to 5000% increased the brightness (L) or whiteness and reduces the hue (H) in regards to the a and b factor. The curing depth of the samples containing 0.500% antimicrobial agent was reduced by 16.67%, and in samples containing 5000% a reduction of 37.50% was observed.

**Conclusions:** The addition of an antimicrobial agent at a concentration of 0.001% and 0.010% does not affect the curing depth of the composite. The introduction of higher concentrations of antimicrobial agent into the composition of the composite material Restaurin adversely affected curing depth and aesthetic properties of the material.

P036

#### **Evaluation of Antimicrobial Activity of Dental Composite Materials**

Svetlana Razumova, Ruzanna Bragunova, Elena Volina, Lamara Khaskhanova, Nikolay Razumov  
*Medical Institute of Peoples' Friendship University of Russia, Russia*

**Aim or Purpose:** To conduct a comparative analysis of the antimicrobial effect of composite materials including those containing an antimicrobial additive of various concentrations on the strain of *Escherichia coli* ATCC25922.

**Materials and Methods:** In order to evaluate the antimicrobial activity samples of Restaurin composite material containing calculated amounts of chlorhexidine acetate at a concentration of 0.001%; 0.010%; 0.500% and 5000% were produced. The antimicrobial activity was assessed using a disc-diffusion method

and a control strain of *Escherichia coli* ATCC25922, The American Type Culture Collection.

**Results:** The inhibition zone around the polished Restaurin samples containing 0.500% chlorhexidine acetate was 7.3% higher than in the unpolished samples. Polished samples with a 5.00% concentration had a 2% higher inhibition zone than that of the unpolished samples containing the same concentration of antiseptic agent. No inhibition zone was visible for the control samples without added antiseptics.

**Conclusions:** The diameter of the inhibition zones for all polished and unpolished Restaurin composite samples containing 0.50% chlorhexidine acetate was  $10 \pm 0.49$  mm ( $n = 8$ ), and for the total samples containing 5.00% of antiseptic -  $12 \pm 0.397$  mm. The inhibition zone around the polished Restaurin samples containing 0.50% chlorhexidine acetate was 7.3% higher than in the unpolished samples. Polished samples with a 5.00% concentration of antiseptic agent had a 2% higher inhibition zone than that of the unpolished samples containing the same concentration of antiseptic agent.

**Poster Session 09 | 05.09.2018, 12:30–13:30 | Screen 3**

#### **Theme: Public Health**

P037

#### **Educational Strategy in Oral Health for Children with Visual Disability**

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**Introduction:** Visual disability is referred to as the partial or total reduction in the ability to see due to problems in the eyeball. Low empathy between patients and oral health professionals, with the subsequent reduction in oral health, lead to deterioration of oral health in this population. This study assessed results after implementation of an educational strategy in oral health for children with visual functional diversity.

**Materials and Methods:** interventional study carried out in 32 children with visual impairment in ages between 6 and 20 years. A previous diagnosis on knowledge and practice of oral health was performed through surveys applied to the parents and a study on previous knowledge and practices applied to the participants. Oral health conditions were assessed via clinical examination. A series of educational strategies, specifically designed for this population, were proposed, including the development of an educational booklet in the Braille system of writing. Descriptive statistics and comparison of levels of bacterial plaque before and after application were performed.

**Results:** 24% of participants had never received oral health treatment and 68% showed active caries upon examination. An improvement in bacterial plaque control was observed; after two months, patients who were classified as good in the plaque index increased from 28.57% to 71.43%.

**Conclusion:** educational strategies contribute to improve the oral health in school children as long as such strategies communicate the information properly and keep people motivated. In order to



do so, it is fundamental to include playful activities in an interdisciplinary approach.

P038

#### **Prevalence of Caries in Schoolchildren of San Miguel de Tucumán**

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**Aim or Purpose:** The objective of this work was to determine the prevalence of caries and the needs of attention for caries in students of the Bernabé Araoz primary school in San Miguel de Tucumán.

**Materials and Method:** A cross-sectional study was carried out, morning and afternoon shift, between August and September 2017. The clinical examination consisted of DMFT-deft, according to the WHO criteria; of Löe and Silness Plaque Index (IP) and the Need for Treatment Index. A survey on oral hygiene habits and dental experience was also conducted. The informed consent of parents or guardians of 201 students was obtained, 170 were evaluated.

**Results:** Age: range 6 to 9 years; IP = 1 ( $\pm 0.13$ ) with an IC 95% (0.92; 1.08); 94% need dental care for cavities; 55% of the schoolchildren needed sealants in the first permanent molars, 38% had white spots, 78% needed restoration of one surface, 54% had seals of two surfaces, 15% needed root canal treatment and 22% needed tooth extractions; 85% of the children surveyed had a toothbrush; 22% of the children shared the toothbrush; 58% consider that the visit to the dentist was pleasant.

**Conclusion:** The prevalence of caries in this population is very high and associated with risk factors reported but not controlled.

P039

#### **Technological Innovation in Educational Practices. 20 Years "Sembrando Sonrisas"**

Patricia Mónica Scavone, Silvia Beatriz Clotet  
*Círculo Odontológico de Paraná Comisión Prevención, Paraná, Argentina*

**Aim or Purpose:** To implement a Health Education Program and specific protection of school children with ages ranging from 3 to 14 years old who attend schools in Paraná through remote training for teachers.

**Materials and Method:** This program is developed around Two in-person classes and Five remote classes; Three levels of training and an annual Advanced Seminar, with a bonus score, through the General Education Council. The content developed in this curriculum is presented as text and images, with links to specific educational videos to reinforce topics or put into practice in the

classroom. These can be displayed on any device. Remote classes start on the stipulated day and end before the next lesson begins. They are supported by a tutor. The speakers of this Course are Healthcare Professionals. The website can be accessed through [www.sembrandosonrisas.com.ar](http://www.sembrandosonrisas.com.ar), which is maintained by a System Administrator.

**Results:** 2014, we started with 522 teachers and 13.157 students. 2015, were added with a total of 433 teachers and 10.970 students, and 495 teachers and 13.380 children in 2016. 2017, a 696-teacher Advanced Seminar was added with 20.108 students

**Conclusions:** We are a team of Dental professionals that has been executing a Bucco Dental Health Prevention Program for 20 years in a continuous and supportive manner. The spirit that encourages us to carry out this task is the concern for the welfare of others, for the need to give and complete with a heartfelt vocation what we have proposed in favor of children, young people and society as a whole.

P040

#### **The School as a Link of Education, Community and Oral Health**

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Health education and promotion programs in school are an opportunity for intersectoral coordination. The school is the par excellence institution for the creation of knowledge producer. These children will carry the message learned in their school to their direct (family) and indirect (community) links.

As a result, it will be possible to promote changes in lifestyles.

In our city, teachers of initial and primary in public and private schools are trained with an annual course, which trains them on basic notions of oral health prevention and specific preventive actions. Dental coordinators are in charge of monitoring what is being done in the classroom. Linked activities are carried out together with de Municipal Public Health Secretariat to incorporate healthcare providers.

Thanks to the interdependence between health and education and the coordination of public and private sectors, an oral health promotion program could be carried out in the city of Rosario. This program has obtained important results, such as the integration of health promotion into school planning activities. By joining this program with public healthcare providers, the students were able to find the necessary healthcare, closing the circle of what we consider an efficient prevention program should be.

Health promotion and education provided in school is reinforced by the specific preventive actions and the appropriate dental assistance of healthcare provider.

P041

### A Public Assistance Extramural Educational Model in Community Dentistry

Yolanda Adela Colombo, Belén Fernández, Andrea Terris, Susan Muñoz, Rodríguez Camila

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**Aim or Purpose:** This educational model has two goals 1) to provide dental care to the underserved and promote community understanding of oral health while (2) giving dentistry students both an understanding of community social conditions and oral health needs of the underserved and involving them in the delivery of care of the needy from the start of their careers.

**Materials and Methods:** The model integrates teaching and learning with care delivery at community facilities: preschools, public schools, shelters, civil associations and soup kitchens. This model has two modules: Initially dental students act as dental health educators promoting oral health. Through this Preventive Educative module, they also learn how to handle dental materials and document pertinent information. Advanced students provide primary oral healthcare. Tutors are available to these preventative-educative care students to assist them in developing research projects.

**Results:** Creating alliances with diverse community organizations that lack access to dental care enables dental students to participate in diverse social environments, identify community risk factors and promote healthy lifestyles. Students learn how to train community oral health advocates while providing primary care and periodic monitoring of oral health activities.

**Conclusion:** The participation of dental students in this preventative model program in diverse community organizations was found to improve the oral health of the people they served. We observed great interest among dental students who participated in this model project in assisting those lacking access to dental care.

Poster Session 10 | 05.09.2018, 13:45–14:45 | Screen 1

### Theme: Periodontics

P042

### Efficiency of UNC-15 and a Second-Generation Probe in Periodontal Examination

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**Aim or Purpose:** Previous researches comparing first and second-generation force-controlled probes have failed to yield unequivocal results. This study aimed to compare the efficiency between a UNC-15 and a second-generation periodontal probe in measuring probing pocket depths (PPD).

**Materials and Methods:** The study protocol was approved by the Research Ethics Board of the University. Eight senior and eight junior Dentistry students participated in the study. A periodontal model was positioned on a digital scale. Subjects performed probing twice, using a UNC-15 or a second-generation force-controlled probe. The order of probe usage was randomly assigned. The

forces employed, PPD, and time spent probing were recorded. Data were analyzed using *t*-test at 0.05 significance level.

**Results:** When using the UNC-15 probe, both seniors and juniors used significantly higher forces than the standard 25 g, while the juniors obtained accurate probing forces when using the second-generation probe ( $p = 0.28$ ). The mean PPD obtained by both groups were not significantly different to the actual PPD, except for significantly higher values obtained when juniors examined posterior teeth using the second-generation probe ( $p = 0.0003$ ). Significantly less time was spent for probing when using the second-generation probe, both for junior ( $p = 0.0028$ ) and senior students ( $p = 0.0103$ ), while correlation between probing time and probing force revealed negative correlation for the UNC-15 and positive correlation for the second-generation probe.

**Conclusions:** Based on the results, the second-generation probe yielded forces closer to the standard, with significantly less time spent for probing. The UNC-15 probe obtained more accurate PPD values, but with longer probing time.

P043

### Advantages of Cross Sling Suture Technique on Free Gingival Grafting

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**Introduction:** Free gingival graft is widely used to solve mucogingival problems. It is used to increase the width of the keratinized gingiva around teeth and implants and to partly cover exposed root. Placement of free gingival graft can also increase vestibular depth and the amount of attached gingiva.

Securely fixing the graft on periosteum in recipient site and the lack of blood clot underneath free graft is vital for success. The cross-sling suture contributes to immobilize the graft in recipient site by applying even pressure.

The purpose of this case presentation is the introduction of the advantages of cross sling suture applied during free gingival graft surgery.

**Case Description:** Patients with the complaint of gingival recession were admitted to our clinic. Clinical parameters including clinical attachment level, keratinized tissue width, probing depth and vertical recession depth were recorded. The examination revealed insufficient keratinized gingiva and 1–2 mm of sulcus depth. Free gingival graft applied to the affected area.

**Discussion:** The main goal of free gingival graft surgery is to treat the attached gingiva insufficiency. For the success of the operation, clot formation should not occur between the periosteum and the graft in the recipient site, so full adaptation is achieved by applying pressure on the graft following surgical procedure.

**Conclusion:** Cross sling suture in free gingival graft surgery affects the success of the surgical procedure positively.

P044

**Case Study: Food Intolerance**

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**Introduction:** The work describes a case of a 25-year-old patient with a geographical tongue who has been diagnosed with food intolerance.

**Case Description:** Patient with a diagnosis of geographic tongue tend to have the allergies and food intolerances. The patient's symptoms indicated mycosis, oral cavity syndrome or a systematic disease. After patient's mycological examination being negative, a more thorough interview was conducted and as a result the preliminary diagnoses were rejected. Subsequently, when the food intolerance was found, the elimination diet was applied and the nagging symptoms subsided.

**Discussion:** The geographical tongue may suggest hypersensitivity to food stimuli. It must also be differentiated from leukoplakia, lichen planus or candidiasis. In the case of symptoms described the patient, several possible diseases could be considered, such as: candidosis, BMS, food intolerance, pregnancy or autoimmune disease.

**Conclusion/Clinical Significance:** If we suspect that a patient is intolerant to food, it is a good idea to prepare a questionnaire with accompanying symptoms, because some of them may be underestimated or related to some other systemic diseases. Elimination diet is not recommended without the confirmation (by examination) and the consultation with a dietitian.

P045

**Clinical Periodontal Parameters and C-Reactive Protein in Aggressive Periodontitis Patients**

Stepan Podzimek, Jaroslav Mysak, Tatjana Janatova, Radka Vrbova, Alex Vinsu, Jana Duskova

*Institute of Dental Medicine, General University Hospital and First Faculty of Medicine, Charles University, Prague 2, Czech Republic*

**Aim or Purpose:** Aggressive periodontitis is periodontal disease which is characterized by severe destruction of the periodontal attachment apparatus and by the rapidness of this process. CRP is a plasma protein that reflects the extent of the acute phase response to inflammation.

**Materials and Methods:** All patients (N = 45) were examined prior to the initiation of periodontal treatment. Patients were divided into two groups. Group GEN (N = 23) consisted of patients with generalized form of aggressive periodontitis and group LOC (N = 22) consisted of patients with localized aggressive periodontitis. Determination of CRP in the peripheral blood samples and clinical periodontal parameters in patients with aggressive periodontitis during the first twelve months of periodontal treatment.

**Results:** Results of our study have shown decreasing values of CRP as well as BOP and PD indices in the course of periodontal treatment.

Descriptive statistics were used to describe different groups in terms of age, CRP and indices. For evaluation of the differences between groups, Student's *t*-test and Fisher test were used.

**Conclusions:** Unchanged levels of CAL index in the course of periodontal treatment, especially in patients with generalized aggressive periodontitis, corresponds to healing of periodontium and careful deep scaling and root planning that was performed as periodontal treatment.

CRP levels decreased in the course of periodontal treatment in a similar way as BOP and PD indices; therefore, it is possible to use this marker to follow patient's periodontal health in specific conditions. Nevertheless, further studies are needed to clarify this association and the associated confounding factors.

P046

**Regeneration Treatment with T-PRF: Case Report**

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**Introduction:** This case report aimed to investigate the 18 months follow-up of the non-surgical endodontic treatments, followed by the periodontal flap surgery of the extensive periapical lesions.

**Case Description:** A 23-year-old female patient; during routine control, a periapical lesion with affected bifurcation area on the tooth number 37 was detected. Two visit root canal treatment was performed. The same session scaling and root planning process was performed. A 12-month follow-up of the tooth revealed significant improvement in the apical lesion, but 8 mm pathological periodontal pocket of the corresponding tooth buccal surface was detected. For this reason, periodontal flap surgery was needed in addition to canal treatment. The 2 tubes of T-PRF (each tube contains 15 ml blood) from the patient were covered on the defect as membranes. The flexed flap 4.0 with polypropylene suture was closed as tension-free primer by extension with buccal flap periosteal cuts.

**Discussion:** At the 10th and 20th day controls, the alveolar mucosa healed smoothly. Changes in defect volume were assessed by comparing orthopantomographs images taken preoperatively and at 6 months. It was observed that the periapical lesion associated with the OPG was reduced and markedly improved 18 months after the canal treatment. It was observed that there was no periodontal pathologic pocket and the tooth was asymptomatic. At the 18 months follow up a considerable amount of healing was seen.

**Conclusion/Clinical Significance:** Periodontal flap surgery and T-PRF were performed successfully in addition to canal treatment for affected teeth in bifurcation area.

**Theme: Endodontics**

P047

**CBCT Scanning of Mandibular First Molars Root Canal Morphology**

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**Aim or Purpose:** Successful endodontic treatment depends on the knowledge of root canal system. The root canals have complex morphology and wide individual variations. The aim of this study was to evaluate the root canal morphology of the mandibular first molars among residents of the Moscow region using Cone-beam computed tomography scanning (CBCT).

**Materials and Methods:** 300 CBCT images for patients aged 20–70 years old were analyzed to study the root canal system (the number of canals and the configuration according to Vertucci's classification) of the mandibular first molars. The prevalence of additional canals in mesial and distal roots was recorded. Data were statistically processed using the IBM SPSS Statistics V22.0 licensed package.

**Results:** it was identified two separated roots of the mandibular 1st molar in 100% of cases, two canals in the mesial root were found in 99.5% of cases and in the distal root were 20.9%. The canal morphology in the mesial root was 97.5% type IV, 1.5% type II. In the distal root, type I canal configuration was the most common with 79.11%

**Conclusions:** the most common configuration in the mesial root was type IV. Using CBCT scanning is a useful technique to evaluate and analyze the root canal system.

P048

**Endodontic Treatment of a Mandibular Second Premolar with Type IX**Omar Al-Dayel<sup>1</sup>, Shahad Al-Shawwa<sup>2</sup>, Mohammed Al-Enazy<sup>3</sup>, Younsa Alkhairallah<sup>2</sup>*<sup>1</sup>Department of Restorative Dentistry, Prince Abdulrahman Advanced Dental Institute, <sup>2</sup>Dental Department, Prince Sultan Military Medical City, <sup>3</sup>Dental Department, Ministry of Health, Saudi Arabia*

**Introduction:** Mandibular premolars are considered the most complicated root canal system. Vertucci and Zallich reported the incidence of having three canals in mandibular second premolar to be 0.0% and 0.4% respectively. This case report presents a successful nonsurgical endodontic treatment of mandibular second premolar with two roots and three root canals, in which computed tomography (CT) was used as a supporting diagnostic tool.

**Case Description:** A 26 years old Saudi female patient present to Prince Abdulrahman Advanced Dental Institute for deep occlusodistal caries for mandibular left second premolar (#35) with severe pain indicated for RCT. Radiography revealed the presence of

multiple roots through Cone beam computed tomography (CBCT). A non-surgical root canal treatment was rendered.

**Discussion:** Generally, in the mandibular having three canals, the cervical part of that root is wider than the usual situation with a little or mostly taper. Utilization of the advanced radiographic technique such as CBCT is very helpful to explore the internal and external, morphological variations in comparison to the conventional radiographic technique. Several authors have reported that the pulpal floor of the second premolar with three canals has no orifices in the buccal side (MB and DB) and one orifice lingually. In this case, the similar pulpal map was discovered.

**Conclusion/Clinical Significance:** This case highlights the radiographic evaluation and endodontic management of a mandibular second premolar with two roots and three separated canals, described as Sert and Bayirli's type IX canal anatomy. Proper morphology determination leads to good treatment and successful outcome.

P049

**Root Canal Morphology of the Maxillary First Molars Using CBCT**

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**Aim or Purpose:** The maxillary 1st molar is the earliest permanent tooth that appears in the oral cavity and that makes it vulnerable to caries and endodontic treatment. It has 3 roots and 4 canals in the most common form. The aim of this study was to evaluate the root canal morphology of the maxillary first molars among residents of the Moscow region using Cone-beam computed tomography scanning.

**Materials and Methods:** 300 CBCT images for patients aged 20–70 years old were analyzed to study the root canal system (the number of canals and the configuration according to Vertucci's classification) of the maxillary first molars. The prevalence of a second mesiobuccal (MB2) in the mesiobuccal root (MB) was recorded in each age group.

**Results:** it was identified three separated roots of the maxillary 1st molar in 100% of cases, MB2 canals were found in 59.8% of cases. It was identified a second distobuccal canal (DB2) in 0.5% of cases. The canal morphology in the MB root was 40.2% type I, 22.4% type II and 37.3% type IV.

**Conclusions:** The highest frequency of the fourth canal was found in the mesiobuccal root. Using CBCT technique is a non-invasive method for endodontic diagnose and enhance the detection of fourth or fifth canals.



P050

### Distance Between Mandibular Molars Apices and Mandibular Canal Using CBCT

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**Aim or Purpose:** The mandibular canal identification is important in endodontic treatment planning and extraction of the posterior mandible. The aim of this study was to determine the distance between the apices of the mandibular molars and the mandibular canal among residents of the Moscow region using Cone-beam computed tomography scanning (CBCT) in different age groups.

**Materials and Methods:** 105 CBCT images for patients aged 20–70 years old were analyzed to study the distance between the mandibular molars root apices and the mandibular canal. Patients were divided into three age groups; young (20–44), middle (45–59), and elderly (60–70). The distance between the nearest roots and the mandibular canal in sagittal plane was recorded. Data were statistically processed using the IBM SPSS Statistics V22.0 licensed package.

**Results:** For the mandibular first molars, the mean distance between the root apices and the mandibular canal was  $3.2 \pm 1.0$ ,  $2.6 \pm 1.1$  and  $2.1 \pm 1.0$  mm for young, middle and elderly groups, respectively. For the second molars, the mean distance was  $1.6 \pm 1.4$  mm in the young group,  $2.0 \pm 1.0$  mm in the middle group and  $2.0 \pm 0.9$  mm. The mean distance for the mandibular third molar was  $0.7 \pm 1.0$ ,  $0.7 \pm 0.8$  and  $0.9 \pm 1.8$  mm in the young, middle and elderly groups, respectively.

**Conclusions:** Within the limits of this study, the third molar roots were shown to be the nearest to the mandibular canal. It is essential for clinicians to be aware of the very close anatomical relationships between the posterior teeth and the mandibular canal.

P051

### Distance Between Maxillary Molars Apices and Maxillary Sinus Using CBCT

Ammar Howijieh, Svetlana Razumova, Anzhela Brago, Haydar Barakat, Lamara Khaskhanova

*Department of Propaedeutics of Dental Diseases, Medical Institute, Peoples' Friendship University of Russia, Russia*

**Aim or Purpose:** The anatomical relationship between the maxillary sinus floor and maxillary molars always possess a challenge in dentistry, especially during the endodontic prosthetic procedures and extraction. The aim of this study was to determine the distance between the apices of the maxillary molars and the maxillary sinus floor among residents of the Moscow region using Cone-beam computed tomography scanning (CBCT) in different age groups.

**Materials and Methods:** 105 CBCT images for patients aged 20–70 years old were analyzed to study the distance between the maxillary molars root apices and the sinus floor. Patients were divided into three age groups; young (20–44), middle (45–59), and elderly (60–70). The distance between the buccal roots and sinus floor in

sagittal plane was recorded. Data were statistically processed using the IBM SPSS Statistics V22.0 licensed package.

**Results:** For the maxillary first molars, the mean distance between the root apices and the sinus floor was  $0.1 \pm 0.3$ ,  $0.2 \pm 0.4$  and  $0.4 \pm 0.9$  mm for young, middle and elderly groups, respectively. For the second molars, the mean distance was  $0.1 \pm 0.2$  mm in the young group and  $0.2 \pm 0.4$  mm in the middle group. The mean distance for the maxillary third molar was  $0.7 \pm 0.1$  mm in the young group and  $0.9 \pm 0.5$  mm in the middle group.

**Conclusions:** the young age group has shown little distance between the root apices of maxillary first and second molars and the maxillary sinus. These results should be considered when planning and performing the endodontic treatment or surgery procedures especially during extraction.

Poster Session 12 | 05.09.2018, 13:45–14:45 | Screen 3

### Theme: Pedodontics

P052

### Predictors of Treatment Outcome in Temporary Molars' Pulp Capping

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**Aim or Purpose:** To assess possible predictors of clinical success in pulp capping treatment of deep carious lesions in temporary molars (TM) with calcium hydroxide-based materials.

**Materials and Methods:** A retrospective study was performed at the Department of Paedodontics, between 2010 and 2016. The study was conducted on 122 TM of 78 children with the age between 2 and 10 years (mean 6.1; SD 1.8). Vital pulp therapy was conducted by 2 treatment techniques: indirect and direct pulp capping. Clinical success was considered if the pulp was maintained vital and healthy. Data distributions were expressed as means, standard deviations (SD), medians, ranges, and percentages, as appropriate. Associations between two dichotomous variables were tested using chi-squared test. Possible predictors for success were analysed using multivariate logistic regression. A p-value of 0.05 was considered statistically significant.

**Results:** The average follow-up interval was 22.9 months (SD 16.6; median 20.5; range 0 to 78). The indirect pulp capping treatment was applied at 95 molars (77.9%). Clinical success in pulp capping of TM appeared to be associated with indirect pulp capping and higher FRANKL scores.

**Conclusions:** Type of pulp capping and child's behavior may be considered as reliable predictors of the treatment outcome in vital pulp therapy of TM.

P053

### Anaesthesia with Sanative Dental Intervention in Children in Ambulatory Conditions

Alexey Gritsan<sup>1</sup>, Alexander Kvitkevich<sup>2</sup>, Vasilii Aliamovskii<sup>1</sup>, Michael Strelkov<sup>2</sup>, Ivan Artyukhov<sup>1</sup>

<sup>1</sup>Krasnoyarsk State Medical University Named After Professor VF Voyno-Yasenetsky, Krasnoyarsk, Russia, <sup>2</sup>Dental Clinic «Mira», Krasnoyarsk, Russia

**Aim or Purpose:** Improving the quality of anaesthesia during sanitization of teeth in young children.

**Materials and Methods:** A prospective, randomized, cohort study was conducted among 300 children aged 1.5 to 3 years. All patients underwent combined anaesthesia according to the following technics: VIMA Sevoflurane with installation of laryngeal mask and local anaesthesia. The patients main group (150 observations) at the end of manipulation were intravenously administered Propofol at dose of 3 mg/kg; Propofol was not administered in the control group (150 cases). The depth of anaesthesia was determined by the BIS method, the frequency of post-nasopharyngeal excitation from Sevoflurane, the frequency of postoperative nausea and vomiting, the pain level on the VAS scale after 1 h of anaesthesia. Descriptive statistics for quantitative values are presented in form of a median (Me) and an interquartile range.

**Results:** Duration (110 [90; 160] min and 105 [85; 160] min, respectively) and depth of anaesthesia according to BIS (56 [52; 60] and 58 [54; 60]), PONW frequency (1.1% and 0.0%) and the level of pain on the scale of VAS was 1 [0; 1] and 1 [0; 1] for patients of both groups and not practically different. However, the frequency of post-causal arousal in Group I patients was 37.4% ( $p < 0.05$ ) less than in the control group.

**Conclusions:** The use of Propofol iv in dose of 3 mg/kg at the end of the readjustment allows improve the quality of anaesthesia because significantly reducing the frequency of post-anaesthesia excitation.

P054

### Assessment of Distribution of Pulpitis in Primary Dentition

Dobrinka Damyanova

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**Aim or Purpose:** Assessment of distribution of pulpitis in the primary dentition on an individual and community scale.

**Materials and Methods:** Subject of the study are 67 children with primary dentition and performed minimum one endodontic treatment of a deciduous tooth. Totally 37 girls and 30 boys are included into this research. Child's minimal age equals to 4 and maximal age of participants is 6. The research has been carried out at the Faculty of Dental Medicine, Medical University-Varna, in the period 2015–2017. The researchers are specialists at Pediatric Dentistry. Irreversible caries lesions with pulp involvement, categorized as d4, have been investigated through this retrospective study based on medical records of participants. Actual survey data processing package for mathematical and statistical analysis SPSS v 20.0 was applied.

**Results:** Approximately half of all the children who have taken part in the research, namely 46, 30% are characterized with 2 endodontic treatment procedures performed. One clinical situation of endodontic therapy concerns 22, 40% of all the participants. Maximum 5 teeth affected by pulpitis have been recorded per individual primary dentition.

**Conclusions:** The average value of the frequency of pulpitis equals to  $1.55 \pm 0.93$  per child. The highest relative ratio of conducted endodontic therapy in primary dentition, regarding 46.27% of all the participants included, amounts to 2 clinical cases of endodontic procedures. An average value of  $2.25 \pm 1.39$  endodontic procedures have been registered by a child.

P055

### Reducing Dental Phobia in Children with Animated Characters and Toys

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**Introduction:** People are faced with various fears at every stage of their life. According to research, children are more under the influence of fear and anxiety as they have less experience. One of these anxieties seen in most children is dental phobia. Well, what can we do to reduce this fear?

**Case Description:** In a patient group of 60 in pedodontics clinic, we asked parents and children about their general fears and their fears from dental treatments. as a result of this research, 67% of children's fear is common fear with parents or concerned about pain and dental instruments (30% is just concern about pain and instruments, 37% is in results of parents fears and concern about pain or instruments both). In adult patients, enlightening the patient about treatment steps is effective in reducing the stress of the patient. So how we can do this in children treatments?

**Discussion:** We investigated psychological, developmental, visual-auditory effects of animation, toys and colors on children in order to illuminate the treatment according to children's age and to communicate with the child to change child's mind. We asked children about their favorite animated characters.

**Conclusion:** By combining games, toys and animated characters, we get animation the treatment stages with characters that children love. According to the results obtained in the questionnaire, we redesigned the tools and devices used in dentistry with popular children's characters. We had 40 patients under control, and until this time we had positive results. However, clinical applications are still going on.

P056

### Prosthetic Rehabilitation of 4 Years Old with Papillon-Lefevre Syndrome

Hind Tallab

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**Introduction:** Papillon-Lefevre syndrome (PLS) is a rare autosomal recessive disorder of keratinization. The disorder is characterized by diffuse palmoplantar keratoderma and premature loss of both deciduous and permanent teeth. The palmoplantar keratoderma typically has its onset between the ages one and four years. The second major feature of PLS is severe periodontitis, which starts at the age of three or four years.

**Case Description:** A 4-year-old boy with a chief complaint of tooth mobility and simple dental caries. His parents also noted that he had gingival bleeding during eating and brushing. On physical examination, the patient had bilateral keratotic plaques on his palms. The knees and elbows were also hyperkeratinized. The gingival tissue surrounding teeth were inflamed, tender and swelled. Probing depth around almost all teeth showed deep pockets with excessive plaque accumulation. Gingival recession and exposed roots was also seen. In the radiographic examination, generalized aggressive periodontitis and severe alveolar bone loss as the teeth appear floating with no bone support.

**Management:** The child was uncooperative and, the treatment carried out under general anesthesia with extraction of all the primary teeth. A prosthetic rehabilitation by complete denture construction planned and the denture delivered to patient also antibiotic was given to patient.

**Conclusion:** Dentists have a significant role in early diagnosis of this condition. Papillon-Lefevre syndrome should be considered in the probable causes for early exfoliation of teeth in children. An early diagnosis of the syndrome can help to have a better prognosis of treatment, using a multidisciplinary approach.

Poster Session 13 | 05.09.2018, 15:00–16:00 | Screen 1

#### Theme: Materials

P057

### Criteria for Dental Restorations Replacement in Rio de Janeiro

Ana Cristina Tetzner<sup>1</sup>, Eliane Toledo<sup>2</sup>, Caroline Grijó E Silva<sup>2</sup>, Antônio Ricardo Borges Olival<sup>2</sup>, Catarina Saadi Miguez Ribeiro<sup>2</sup>, Larissa Gouveia Gusmão de Carvalho<sup>2</sup>, Denise Nascimento<sup>2</sup>, Sonia Groisman<sup>2</sup>

<sup>1</sup>Fluminense Federal University, Rio de Janeiro, Brazil, <sup>2</sup>Federal University of Rio de Janeiro, Brazil

**Aim or Purpose:** Criteria for dental restorations replacement at Rio de Janeiro State University Dental School.

**Materials and Methods:** During one-year, senior students of the dental school evaluated 159 dental files and the criteria for restorations replacement of 42 patients from integrated dental clinic. The ethics committee approval number of the Pedro Ernesto University Hospital is 178578. The restorations were 54 of silver amalgam, 92 of photopolymerized resin, 11 full metallic crowns

and 2 fixed partial prosthodontics. A percentage description of the data was elaborated in dental files.

**Results:** The restorations were replaced from 1 to 5 years period, 70% by secondary caries, 13% by restorations fracture and 9% by aesthetics reasons. Resin restorations had the largest percentage of secondary caries.

**Conclusions:** The criteria for restorations replacement were not based in health promotion, maintaining the repetitive restorative circle. There is a need to reinforce diagnosis and oral health promotion in this dental school.

P058

### Novel Coating Technique of PMMA Denture Base by Chitosan

Mieszko Wieckiewicz<sup>1</sup>, Klaus Boening<sup>2</sup>, Katarzyna Walczak<sup>2</sup>, Heike Meissner<sup>2</sup>, Marek Zietek<sup>3</sup>

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**Aim or Purpose:** The aim of this study is to present a novel coating technique of poly (methyl methacrylate) (PMMA) denture base by chitosan which could promote wound healing and serve as a carrier for pharmaceuticals in oral cavity.

**Materials and Methods:** Twenty PMMA square cubes with u-profiled channels were manufactured corresponding to the average size of edentulous alveolar bone. All channels were sandblasted and coated by 2% or 4% chitosan acetate (CSA) compounds using one or two-layer coating technique respectively. Four tested groups (n = 5 per group) were established based on the following coating protocols: (i) one layer of 2% CSA, (ii) one layer of 4% CSA, (iii) two layers of 2% CSA, (iv) two layers of 4% CSA. After coating each u-profiled channel was filled by dental stone and then cube was cut transversely. Thickness and adhesion of CSA layer was assessed for each specimen using light microscope in 7 measuring points. Statistical analysis of collected data has been performed.

**Results:** Mean chitosan coating thickness in the depth of the u-profiles were 71 µm (group I), 77 µm (group II), 121 µm (group III) and 517 µm (group IV). Thickness continuously decreased with rising angulation of the u-profile side walls. Adhesion quality was good in all tested groups.

**Conclusions:** Applied coating techniques allow to obtain stable CSA layer with good adhesion properties and different thicknesses. Coating with one layer of 4% CSA allowed a relatively uniform chitosan layer thus might be recommendable for clinical usage.

P059

### Characterization of a Pulp Capping Material Based on Tricalcium Silicate

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**Aim or Purpose:** Mineralogic, microstructural and adhesion characterization of a commercial pulp capping dental material based on tricalcium silicate for direct and indirect pulp capping procedures.

**Materials and Methods:** Cylindrical specimens were obtained. Also, the biomaterial was placed in class-I cavities of two extracted human teeth which have been sectioned. The samples were assessed by X-ray diffraction (XRD), complex thermal analysis (DTA-TG), scanning electron microscopy (SEM) coupled with energy dispersive X-ray energy (EDX), atomic force microscopy (AFM) and contact angle measurements (CA).

**Results:** The XRD analysis showed that the mineral phase is mainly formed of tricalcium silicate, barium zirconate and strontium zirconate. These mineral phases are distributed into the polymeric matrix; polymer presence is demonstrated by complex thermal analysis (DTA-TG). The SEM images showed good adherence of the material to the dentin and a high microstructural homogeneity, gated by the mineral phase which is uniformly dispersed in the polymeric matrix. The EDX spectra showed that the big mineral grains are composed predominantly of tricalcium silicate and the finely mineral grains are composed of barium zirconate and strontium zirconate, in good correlation with XRD results. The AFM measurements showed a relatively smooth surface with an average roughness (Ra) of 29.9 nm. The mean CA measurement had an average value of 62.83°.

**Conclusions:** The pulp capping material is a composite material formed of mineral phases, uniformly dispersed into the polymeric matrix, with a smooth and hydrophilic surface. The biocompatibility is high due to its composition and surface characteristics.

P060

### Translucency and Value of Resin Composite Multilayering Technique

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Letícia Brandão Durand<sup>2</sup>, Bibiana Gabardo Perez<sup>2</sup>,  
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**Aim or Purpose:** Evaluate translucency and value of resin composite multilayering technique.

**Materials and Methods:** Three resin composites shade A1 were evaluated. Ninety specimens (1.5 mm thickness and 11 mm diameter) were made and randomly allocated to 18 groups (n = 5), according to different combinations of thicknesses (enamel-, dentin- and body-shades) for each resin composite. Three consecutive readings were performed by reflection spectrophotometer for standard illuminant D65, according to the CIE L\*a\*b\* color scale. The optical properties were measured by the translucency parameter (TP) and by value (lightness), on a white background (L\*w) and a black background (L\*b). The mean values for TP, L\*w and L\*b were analyzed by ANOVA (General Linear Model) and Tukey's post hoc tests ( $\alpha = 0.05$ ). Scatter plots and Spearman's correlation coefficient were used to assess the relationship between TP and L\*b, and TP and L\*w values.

**Results:** The groups presented different statistically significant values (p = 0.000). The highest TP value was reported with single layer enamel-shade, whereas the lowest TP value was observed with single layer dentin-shade. Strong negative correlation was observed between TP and L\*b, and weak positive correlation, between TP and L\*w.

**Conclusion:** Optical properties, such as translucency and value, depend on the material evaluated, and also on different combinations of thicknesses of enamel-, dentin- and body-shades. None of the groups were able to mask the backgrounds evaluated.

P061

### Development of Advanced Multi-Functional Material for Remineralization of Caries Lesion

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**Aim or Purpose:** The initial caries lesions are characterized by mineral loss in the enamel. The management of the initial caries lesions is to remineralize or inhibit progression. The aim of this study is to evaluate whether an advanced multi-functional material, Apatite ionomer sealant (AIS) is more suitable for remineralization and inhibition of initial caries lesions.

**Materials and Methods:** Commercial conventional glass ionomer sealant (GIC) for pit and fissure sealant (GIS) was used as the control GIS specimens and the base material of AIS specimens. AIS powder contained 72% GIS glass powder and 28% spherical shaped hydroxyapatite powder. AIS specimens were made by mixing the AIS powder and GIS liquid at the same powder and liquid ratio as that of GIS specimens. The commercial multi-functional composite resin sealant (CRS) was used as the positive control. The mechanical strength, fluoride and the other several mineral release doses, and anti-cariogenic-bacterial property of GIS, AIS and CRS were evaluated in this study.

**Results:** The flexural strength of AIS was significantly higher than that of GIS, although significantly lower compared that of CRS. The release concentrations of all measured ions of the AIS was significantly higher than those of the GIS and CRS. Regarding the



antibacterial activity, the luminescence intensity of AIS was significantly lower than those of GIS and CRS.

**Conclusions:** AIS has higher mechanical property compared to GIS, and higher remineralization ions release and anti-cariogenic-bacterial properties than GIS and CRS. AIS is a clinically appropriate material for remineralization of initial non-cavitated caries lesion.

**Poster Session 14 | 05.09.2018, 15:00–16:00 | Screen 2**

**Theme: Prosthodontics**

P062

#### **Evaluating Dimensional Stability: Plaster and Epoxy Resin Dental Casts**

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**Aim or Purpose:** Of this research study was to compare the dimensional stability between casts made of plaster type IV and of epoxy resin.

**Material and methods:** A master model was produced to provide two pillars ready to receive a regular three-unit bridge. Upon this a superstructure of chrome-nickel crowns with central horizontal fins was crafted. Afterwards we proceeded to produce the impression of a moulds from said master model out of duplicating silicone in order to obtain 30 copies, fifteen of which were made of plaster type IV and fifteen of epoxy resin. The measurements obtained from the master model and the superstructure we considered the control group. The superstructure was fitted to both kinds of casts, plaster type IV and epoxy resin ones. Three separate sets of measurement were taken: after 24 h, after 48 h and 7 days after the production of the casts. Microscopic analysis of the vertical and horizontal maladjustment measured in the central horizontal fins was carried out.

**Results:** As for the horizontal maladjustment, the plaster presented better dimensional stability after the first 24 h since the maladjustment found was statistically expected from that found in the control measurements. Regarding the vertical maladjustment, both materials presented significant differences from the measurements found in control, however, this difference was the same between the two kinds of material being tested.

**Conclusion:** That epoxy resin may be considered a viable alternative for the production of dental casts.

P063

#### **Mechanical Strength of Ceramic Abutments in Different Load Angle**

Magomed Salamov, Nina Tsalikova, Alisa Oganyan

*Moscow State University of Medicine and Dentistry Named After A.I. Evdokimov, Russia*

**Aim or Purpose:** Investigation of mechanical strength of abutments made of zirconium dioxide and lithium disilicate in front dental area.

**Materials and Methods:** 30 samples of zirconium dioxide and 30 samples of lithium disilicate hybrid abutments were virtually designed using the software and then they were produced by milling. Abutments were divided into equal series according to the load angle: 15°, 30° and 40°. All samples had a diameter of 3.5 mm implant connection. The samples were virtually designed and produced by milling. They were covered with incisor form crowns made of the same material. The tests were carried out using universal investigation machine. The upper clamp held a cylinder with a sample. In the lower clamp there was a triangular support for incisors. The sample and the support were neatly pulled together before touching. Three series of tests for single static loads were carried out. The samples were loaded at an angle of 15°, 30° and 40° depending of the series.

**Results:** Results of the average breaking load on the samples: 15° load angle: Zirconium dioxide  $\pm 1563.3\text{N}$ , lithium disilicate  $\pm 740\text{N}$ . 30° load angle: Zirconium dioxide  $\pm 845\text{N}$ , lithium disilicate  $\pm 650\text{N}$ . 40° load angle: Zirconium dioxide  $\pm 840\text{N}$ , lithium disilicate  $\pm 506\text{N}$ .

**Conclusion:** The results obtained demonstrate that both materials can be used for abutments in the frontal part of the dentition according to data of chewing forces published in scientific sources.

P064

#### **Mechanical Strength of Zirconium Dioxide Post-Core Structures**

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**Aim or Purpose:** To determine strength properties of individual zirconium dioxide post-core structures in different parts of the dentition at different occlusal load angle.

**Materials and Methods:** Removed natural teeth (incisors 20, premolars 20, molars 20). Individual milled post-cores and crowns from zirconium dioxide on CAD/CAM system. Glass-ionomer cement, bone cement, individually designed cylindrical fixture for universal testing machine. The teeth and root canals were prepared with the creation of a ferula. Individual post-core structures and crowns made of zirconium dioxide were scanned and milled. Post-cores and crowns were fixed in the teeth on the glass-ionomer cement. Next, the teeth are filled with bone cement in cylindrical forms. The test was carried out using the universal test machine in a static mode under conditions of a single overload at angles of 10° and 45°.

**Results:** The strength of the incisors at an angle 10° was  $\pm 2855.94\text{N}$ , at an angle of 45°  $\pm 2452.18\text{N}$ . The strength of premolars at an angle of 0°  $\pm 9696.01\text{N}$ , at an angle to 10°  $\pm 7732.68\text{N}$ . The strength of molars at a load at an angle of 0°  $\pm 14926.62\text{N}$ , at an angle of 10°  $\pm 12662.46\text{N}$ .

**Conclusions:** The loading angle increase has a significant effect on the strength characteristics of individual zirconium dioxide post-core structures. Our values correspond to the values of chewing forces described in scientific literature and the construction may be used in different parts of the dentition.

P065

**Fracture Resistance of Different Post & Core Systems**Sareh Habibzadeh<sup>1</sup>, Shima Esmalizadeh<sup>2</sup>, Farshad Dehnavi<sup>3</sup><sup>1</sup>*Department of Prosthodontics, Tehran University of Medical Sciences, International Campus, Dental School, Tehran, Iran,*<sup>2</sup>*Department of Dental Biomaterials, School of Dentistry/Research Center For Science and Technology in Medicine, Tehran**University of Medical Sciences, Tehran, Iran,* <sup>3</sup>*Dental School, Shahid Beheshti University of Medical Sciences, Tehran, Iran*

**Aim or Purpose:** In order to increase the longevity of the final restoration, use of a post and core system is often indicated. Proper post selection and load distribution along the roots greatly reduces the risk of root fracture. However, fracture resistance and mode of failure were also the same for prefabricated zirconia, fiber and casting posts and controversies still remain regarding the comparison of these systems with traditional casting ones. So the aim of the study was to evaluate the fracture resistances of zirconia, cast nickel-chromium alloy and fiber-composite post systems under all-ceramic crowns in endodontically treated teeth.

**Materials and Methods:** A total of 36 extracted human mandibular premolars were selected, subjected to standard endodontic treatment, and divided into three groups as follows: cast Ni-Cr post-and-core, one-piece custom-milled zirconia post-and-core, and prefabricated fiber-glass post with composite resin core. Each specimen had an all-ceramic crown with zirconia coping and was then loaded to failure using a universal testing machine at a cross-head speed of 0.5 mm/min, at an angle of 45° to the long axis of the roots. Fracture resistance and modes of failure were analyzed

**Results:** Fiber-glass posts with composite cores showed the highest fracture resistance values, and the zirconia post system showed the lowest resistance

**Conclusions:** The fracture resistance of zirconia post-and-core systems was found to be significantly lower than those of fiberglass and cast Ni-Cr post systems. Therefore, the use of cast Ni-Cr post systems and tooth-colored systems with a similar elastic modulus to the dentin might provide more acceptable results

P066

**Minimally Invasive Full-Mouth Rehabilitation in Worn Dentition:****A Case Report**

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**Introduction:** Tooth wear management is clinically challenging. Wear of anterior teeth facilitates the loss of anterior guidance with collapse of posterior teeth. This case presents minimally invasive adhesive rehabilitation with lithium-disilicate restorations.

**Description:** A 71-year-old woman was referred with aesthetic complaints and reduced chewing ability. Soft-tissue facial analysis showed a straight profile with a forward functional mandibular shift. Dento-labial analysis revealed a flat dental smile arc. Occlusal analysis showed loss of anterior guidance, posterior group

function during excursive movements and sharp alteration of Spee-Wilson curves. Minimally invasive full-mouth rehabilitation was proposed. Additive wax-up was conducted and direct composite resins mock-up was transferred as follows: Anterior Guidance to establish anterior vertical dimension, mandibular posterior area, and maxillary posterior area.

After 6-months, preparations were performed. Restorations were made using lithium-disilicate: pressable plus cut-back-technique for incisal edges laminated veneers in aesthetic area; and fully anatomically shaped monolithic for table-tops or crowns for posterior teeth. Finally, a maxillary occlusal splint was installed.

**Discussion:** This case reports minimally invasive full-mouth rehabilitation with lithium-disilicate may be successfully used for severely worn dentition. Achieving organic occlusion by pursuing a specific order based on integrated biological principles can lead to a predictable and favorable prognosis.

**Conclusion/Clinical Significance:** Management of worn dentition is complex and complicates clinical decision-making. Systematic approach pursuing mutually protected organic occlusion accomplishment is crucial. Oral rehabilitation with glass-matrix ceramics based on adhesive strategy allowing minimum thickness restorations could be an alternative option to achieve biological, mechanical and esthetic success.

Poster Session 15 | 05.09.2018, 15:00–16:00 | Screen 3

**Theme: Implantology**

P067

**Alveolar Ridge Augmentation with Two Mandibular Buccal Shelf Cortical Plates**

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**Introduction:** Implant placement in the posterior mandible and maxilla is frequently complicated by the presence of inadequate bone quantity and quality. We describe a procedure for buccal bone grafting with two mandibular buccal shelf cortical plates for bone augmentation of the ridge crest with palatal-buccal and vertical defects.

**Case Description:** A buccal bone grafting with two mandibular buccal shelf cortical plates was applied for bone augmentation of the ridge crest with palatal-buccal and vertical defect. The cortical bones were harvested by splitting the outer cortical plate and the removed bones were then shaped to place on the exposed alveolar crest. The bone graft was placed in the top and buccal sides of the defect and fixed with titanium screws. After decompression of the periosteum, the mucoperiosteal flap was repositioned and carefully closed with a 5-0 nylon mattress suture. Three months after the bone graft operation, implant placement could be performed with conventional technique.

**Discussion:** A buccal bone graft is usually applied for bone augmentation of the ridge crest with palatal-buccal defect. However, the augmentation of vertical bone defect and the plasty of the smooth ridge crest appearance are usually difficult because of its hardness. The buccal bone graft with two mandibular buccal shelf

cortical plates that we used is suitable for bone augmentation of the ridge crest with palatal-buccal and vertical defect.

**Conclusion/Clinical Significance:** In patients with vertical defects of the ridge crest, this procedure is suitable, minimally invasive, safe, and reliable.

P068

#### Use of Biomodels in Osseous Graft Procedures

Samira Salmeron, Raquel Abreu Bueno, Sabrina Franco, Jose Ricardo Mariano, Vanessa Coelho Batalha  
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The description of this clinical case demonstrates the use of a prototype of maxilla in assisting a bone graft block surgery. Female patient presenting edentulous maxilla and great bone resorption. Treatment with frozen fresh homogenous bone graft was proposed, and bone blocks were planned to be installed in the anterior maxilla region. A Cone Beam computed tomography was performed and a prototype of the maxilla was made with the DICOM file. The process of wear and adjustment of the blocks to the receiving region was performed on the prototype of the maxilla, streamlining and optimizing the adaptation of the blocks. The intimate adaptation between the block and the recipient area is important for the incorporation of the block grafts, with the blocks already prepared the surgical procedure was started. The installation of the blocks in the recipient region was performed more easily due to the previous preparation of the blocks reducing the open surgical field time and consequently the risks of infection. With the accomplishment of this clinical case we conclude that the use of prototypes can aid the adaptation of the blocks in the appositional bone grafts and make the surgical procedures simpler and safer.

P069

#### Non-Splinted Single Tooth Restorations Based on Short Implants in Maxilla

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**Aim or Purpose:** Short dental implants are considered to be an alternative method of treatment to a maxillary sinus elevation and bone augmentation procedure at the sites of reduced alveolar ridge height. The aim of the study was to determine if implant length and the compromised crown to implant (c/i) ratio of single tooth restorations based on short implants influences the implant stability and the loss of the marginal bone level (MBL).

**Materials and Methods:** The research group was n = 30 patients who had single tooth implant placed in maxilla, two types of implants were used: short (L6Ø4 mm) and regular (L11Ø4 mm). Non-splinted single crowns were used for all restorations. The

evaluation was based on patient's clinical and radiological examination. Radiographs were taken initially and after 36 months to assess the crown-implant ratio and to measure MBL. The secondary implant stability was measured with Periotest after 36 months.

**Results:** The evaluation of stability after 36 months showed good result of secondary stability in both groups ( $0.93 \pm 3.39$  PTV and  $1.0 \pm 2.7$  PTV for short and regular implants). The MBL loss was low ( $0.22 \pm 0.46$  and  $0.34 \pm 0.24$  mm for short and regular implants) and similar in both groups. No statistically significant correlation between c/i ratio and the secondary stability was found. No significant correlation was observed for the c/i and MBL.

**Conclusions:** Short implants can be successfully used to support single crowns. Clinical performance of short implants is comparable to regular implants.

P070

#### Acoustic Emission Employment to Verify Stability of Bone-Dental Implant Interface

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**Aim or Purpose:** Dental implants are widely used in the replacement of missing teeth and to support fixed and removable dentures. Although implants have high success rates, failure still occurs. The difficult aspect to control is the interface between the implant and the bone in which it is inserted. Monitoring dental implants remains a challenge, since there is no effective and non-invasive way to accurately determine the stability of the bone-dental implant interface. The present work proposes the use of Acoustic Emission technique, to monitor the primary stability of the bone-implant interface.

**Materials and Methods:** To achieve the proposed objective, insertion of titanium implants was made in a synthetic material with properties similar to the jaw bone: phenol-formaldehyde resin; and then, the verification of the primary stability in the interface of the synthetic material with each implant was made, using the Acoustic Emission technique, applying a compression load to the set. Since a material with characteristics similar to bone, the phenol-formaldehyde resin was used; the present work has the characteristic of being "in vitro"

**Results:** The compression load applied to the set produces a breakage in the interface, which is detected by the Acoustic Emission technique. In addition, ISQ (Implant Stability Quotient) and ultrasound determinations were made before and after the application of the load, whose results allowed to support the proposed hypothesis.

**Conclusions:** The advantages of the use of Acoustic Emission technique was proved, since it allowed to determine the existence of poor bone-implant integration.

P071

**Implant Union and the Strength of the Prosthetic Screw**

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**Aim or Purpose:** Analyze the resistance to the reverse torque of prosthetic screws and prosthetic abutments installed in fixed prosthesis of three elements anchored by two implants, on connections of external hexagon, morse cone and combination of these.

**Materials and Methods:** Six fixed prostheses of three elements, in metal-ceramic, were manufactured and anchored by two implants, with a pontic joining pillars, divided into three groups, with two sets of prostheses in each group: Group I: fixed prosthesis of three elements with two external hexagon implants; Group II: fixed prosthesis of three elements with two morse cone implants; Group

III: fixed prosthesis of three elements, with a morse cone implant and an external hexagon implant. The sample were made and the prosthetic pieces were fixed by means of titanium screws, which received a torque of 10 N.cm. The prosthetic abutments received a torque of 20 N.cm. Fixed prostheses were submitted to mechanical masticatory cycling programmed at 1 000 000 cycles and 2HZ velocity at 50N load. At the end of the cycles the samples underwent the reverse torque and the values found were submitted to statistical analysis.

**Results:** The results showed that the reverse torque of the prosthetic screws was not significantly affected independently of the group tested, but for the prosthetic abutments, when there was a combination of the two types of connection, there was a difference in the reverse torque of the two abutments.

**Conclusions:** Results show that the union of systems seems to interfere in the value of the reverse torque of prosthetic pillar.