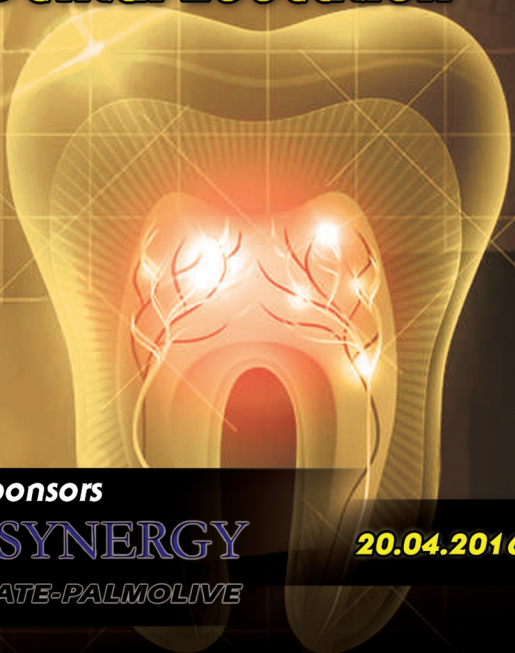





UNIVERSITI  
TEKNOLOGI  
MARA

# 6<sup>th</sup> | UiTM Dental Students' Symposium 2016

**"A Decade of Endurance...  
A Lifetime of Excellence  
in Dental Education"**



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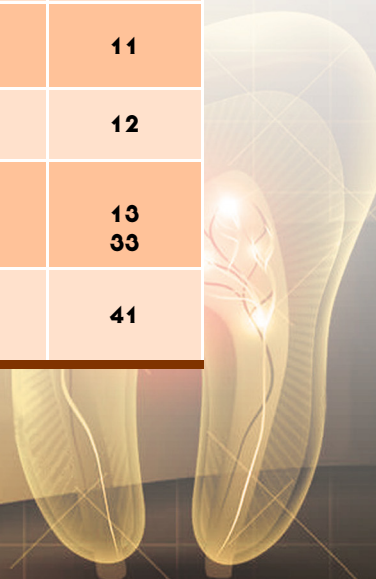
20.04.2016



Organised by Faculty of Dentistry, UiTM



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## Welcome from Rector UiTM Selangor

**Assalamualaikum and Salam 1 UiTM,**

It gives me great pleasure to be invited to the 6<sup>th</sup> UiTM Dental Students' Symposium with the theme "*A Decade of Endurance, A Lifetime of Experience in Dentistry*". This is my first official student event in this Faculty. I have watched this faculty thrive, grow and mature over the past ten years and it has indeed been a fulfilling experience for me.

The influx of teaching members and students have escalated and the outcome has been very fruitful. Variety of activities conducted throughout the symposium and pre-symposium signify the involvement of all students and faculty members and it certainly provides a platform for UiTM to expand our horizons in the field of research. With an in-house journal '*Compendium of Oral Sciences*' spreading its wings, it is my hope that all the students' research will be published.

I would like to take this opportunity to welcome all the delegates from Indonesia and India who have taken great effort to attend and participate in this programme. I am also honoured to commemorate this event as a part of the faculty's 10<sup>th</sup> year anniversary. This marks as another great milestone for the Founding dean and UiTM.

Congratulations to the organising committee under the guidance of a visionary Dean for ensuring that the symposium continues to be a landmark annual event since it's first commencement 6 years ago. I anticipate with the team spirit and Prof Mohamed's governance, Faculty of Dentistry will continue to reach greater heights in both the academic and research fields.

Thank you.

**Prof. Dr. Haji Zaini Abdullah**  
Rector Selangor  
Universiti Teknologi MARA



Welcome to the 6<sup>th</sup> UiTM Dental Students' Symposium, held this year in conjunction with our Faculty's 10<sup>th</sup> Anniversary. This also marks our new, up-and-running second home which was highly anticipated and has brought much joy to everyone in the faculty. The theme of *"A Decade of Endurance, A Lifetime of Excellence in Dentistry"* has drawn in delegates from our neighbouring countries, India and Indonesia: Coorg Dental Institute, Manipal Institute of Dental Sciences, Universitas Andalas, Universitas Gadjah Mada, and Universitas Indonesia.

Our aim has always been to nurture a holistic graduate who is not only able to perform his/her duty as a dentist but become a future leader in research benefitting the society. As previous years, our students continue to innovate and explore different horizons through research and development activities such as video competition, debate, table clinic, and research presentations.

We are also grateful to our sponsors whom have supported our programme financially and physically, contributing to the smooth running of our symposium. Last but not least, I would like to congratulate the organising committee, led by Dr. Maryati Md Dasor and Dr. Annapurny Venkiteswaran who have worked relentlessly to ensure the success of this programme.

Good luck to all the participants and wishing you a successful journey and enriching experience throughout this symposium.

Thank You.

**Prof. Dr. Mohamed Ibrahim Abu Hassan**  
Founding Dean



On behalf of the organizing committee, it is my proud privilege to extend heartiest welcome to 6<sup>th</sup> Dental Students' Symposium 2016, Faculty of Dentistry, Universiti Teknologi MARA (UiTM). We are thrilled you are joining us for this unparalleled opportunity to learn, educate, and network with the dental education community.

In conjunction with our faculty's 10<sup>th</sup> year anniversary celebration, this year's theme highlights on "*A Decade of Endurance ... A Lifetime of Excellence in Dental Education*". It focused on the growth and development of our dental education and constant aim to achieve excellence. This annual programme has provided you with several academic activities that is beneficial and entertaining.

We hope this year Dental Students' Symposium will help you stay connected with your peers and provide you a new information to ignite the minds and unlock your full potential for excellence.

**Dr. Maryati Md Dasor / Dr. Annapurny Venkiteswaran**  
Chairperson / Deputy  
6<sup>th</sup> Dental Student's Scientific Symposium  
UiTM



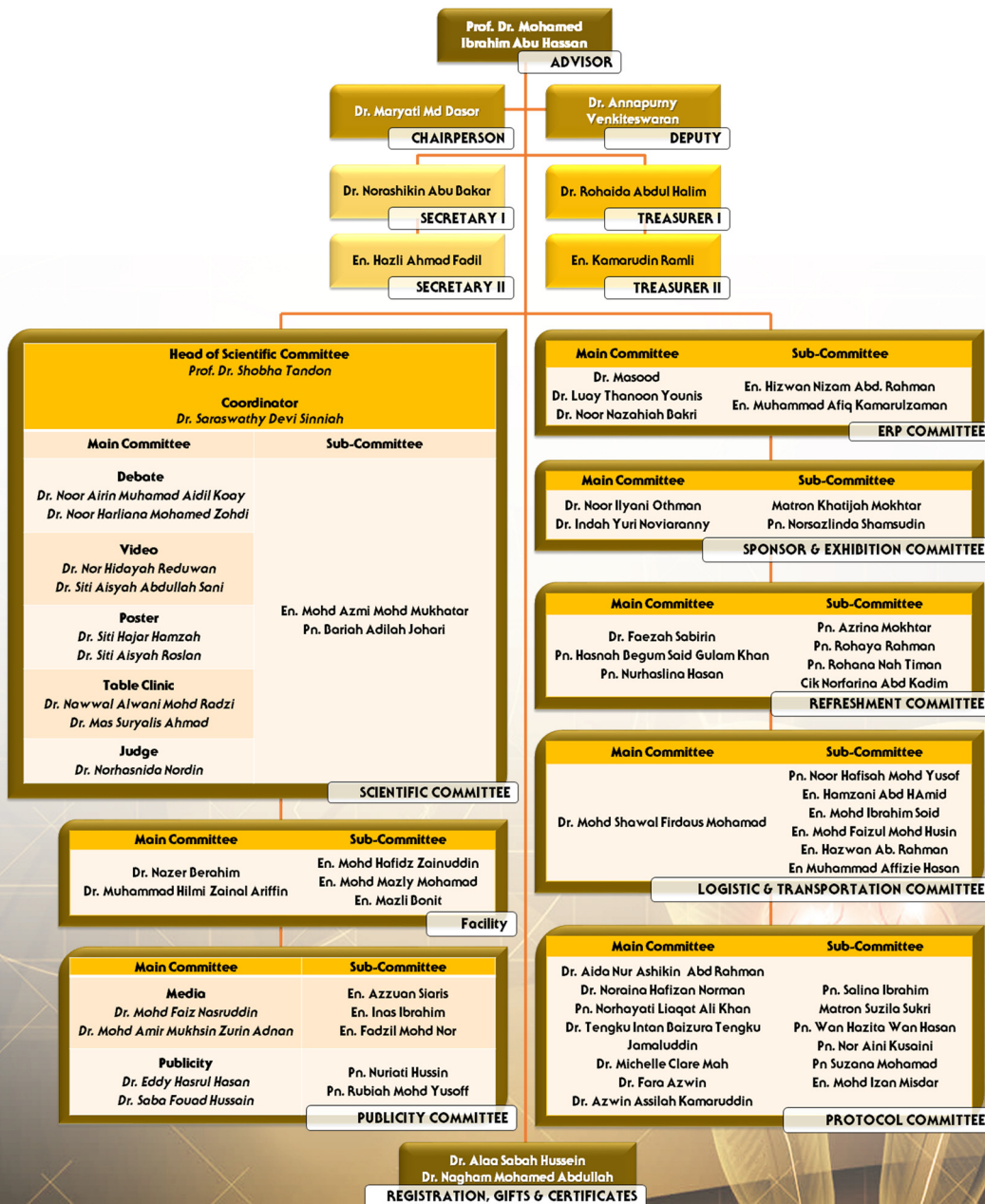


# Programme Tentative

TIME	VENUE			
	<i>Al-Biruni</i>	<i>Al-Zahrawi</i>	<i>Citrine-Tourmaline Hallway</i>	<i>Al-Razi Hallway</i>
<i>8.00-8.30am</i>	Registration ( <i>Al-Biruni</i> )			
<i>8.30-9.00am</i>	Opening Ceremony ( <i>Al-Biruni</i> ) - Opening Remarks by the Conference Chairperson			
<i>9.00-10.30am</i>	Oral presentation 1	Oral presentation 2	E Poster Presentation (PG)	Table Clinic
<i>10.30-10.45am</i>	TEA BREAK ( <i>Al-Jabbar Hall, Level 1</i> )			
<i>10.45-12.00pm</i>	Oral presentation 3	Oral presentation 4	E Poster Presentation (PG)	Table Clinic
<i>12.00-2.00pm</i>	LUNCH BREAK ( <i>Al-Jabbar Hall, Level 1</i> )			
<i>2.00-3.00pm</i>	Oral presentation 5	Oral presentation 6		
<i>3.00-4.00pm</i>	Debate (Final)			
<i>4.00-5.30pm</i>	<p style="text-align: center;"><i>(Al-Biruni)</i> CLOSING CEREMONY</p> <ul style="list-style-type: none"> <li>• <i>Song</i> <ul style="list-style-type: none"> <li>- <i>Negaraku</i></li> <li>- <i>Wawasan Setia UTM</i></li> </ul> </li> <li>• <i>Doa</i></li> <li>• <i>Speech</i> <ul style="list-style-type: none"> <li>- <i>Dean</i></li> <li>- <i>Rector</i></li> <li>- <i>Officiation</i></li> </ul> </li> <li>• <i>Award session 1</i></li> <li>• <i>Performance</i></li> <li>• <i>Award session 2</i></li> </ul>			



# Organising Committee





# Student Committee



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Shameera Mohaideen Meera  
Nur Hazwani Hashim

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TC 04	Who bit Alice	Oral Medicine & Diagnostics
TC 05	Cleft Lip & Palate	Paediatric Dentistry & Orthodontics
TC 06	Xylitol, the Sugar Substitute vs Sugar	PreClinical Sciences
TC 07	Maxillofacial Trauma: Track the Crack	Oral Surgery
TC 08	The Magical Web	Periodontics

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UP 02	Stop Smoking! Start Repairing!	Centre of Population Oral Health and Clinical Prevention Studies
UP 03	Diabetes: Know Where It Leads	Centre of PreClinical Science Studies
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UP 05	Maximise Your Oral Health by Stopping Bruxism	Centre of Oral & Maxillofacial Diagnostics & Medicine Studies
UP 06	Tips and Tricks in Oral Health Care for Cerebral Palsy Children	Centre of Comprehensive Care
UP 07	Have a Look of Confidence with Maxillofacial Prosthesis	Centre of Restorative Dentistry Studies
UP 08	Are You Aware of These Problems?	Centre of Paediatric Dentistry & Orthodontics Studies

### List of Undergraduate Videos (Competition)

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Group 2	Facts & Myths on Oral Health Care
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Group 7	Faculty of Dentistry, UiTM – 10 Years of Excellence
Group 8	Faculty of Dentistry, UiTM – 10 Years of Excellence
Group 9	Smoking & Oral Health
Group 10	Faculty of Dentistry, UiTM – 10 Years of Excellence



# ABSTRACTS

(Undergraduates)



OP 01

## Bcl-2 Protein Expression of Oral Squamous Cell Carcinoma in Human Tissues

*Alyaa Nurain Hamdan<sup>1</sup>, Noor Haniza Ab Rahman<sup>1</sup>, Khor Goot Heah<sup>2</sup>*

<sup>1</sup>*Faculty of Dentistry*

<sup>2</sup>*Centre of PreClinical Science Studies, Faculty of Dentistry, Universiti Teknologi MARA Sungai Buloh Campus, Sungai Buloh, Selangor*

**Objectives:** To evaluate Bcl-2 protein expression using immunohistochemistry (IHC) in archival tissues of normal mucosa and OSCC. It also aims to identify relation of Bcl-2 protein expression with patient's age, gender, race and habits. **Methods:** Retrospective study of archival of formalin fixed paraffin embedded (FFPE) samples was conducted in the study. 5 normal mucosa and 36 OSCC tissues were obtained from Oral Cancer Research Coordinating Center (OCRCC), University Malaya. These FFPE tissues have been fixed and cut into sections. The sectioned tissues were deparaffinized and rehydrated prior performing of antigen retrieval technique and immunohistochemical staining. Images of IHC were then captured by image analyzer and immunostaining intensity was evaluated by software of NIS-Elements version 3.1. Data analyses were conducted using descriptive statistics, Chi-square test, and T-test of IBM SPSS Statistics Software Version 23 in the study. **Results:** Bcl-2 protein expression demonstrated in 19 samples out of 36 samples (52.7%) in the study. The rest of 17 samples showed negative protein expression (47.3%). In statistics analysis, the relation between Bcl-2 protein expression with patient's age showed  $p$  value of 0.000, gender showed  $p$  value of 0.483, race showed  $p$  value of 0.757 and habits showed  $p$  value of 0.299. **Conclusion:** Bcl-2 protein expression was positively detected through IHC in half of the OSCC cases. It's protein expression has significantly related with patient's age, but have no relation with patient's gender, race and habits. Therefore, Bcl-2 protein expression may be used as diagnostic and prognostic tools in identifying OSCC.

**Keywords:** *Bcl-2, oral squamous cell carcinoma (OSCC), immunohistochemistry (IHC), prognosis*

OP 02

## Malaysian Dental Students' Perspectives about Their Clinical Education

*Muhamad Faizran Loo Szen Fadly Loo, Ahmad Aizat Ahmad Shaifuddin, Nagham Mohammed Abdullah, Budi Aslinie Md Sabri*

*Faculty of Dentistry, UiTM Sungai Buloh*

**Objectives:** To study the impact of clinical instructor communication on dental student's clinical training and to evaluate the effectiveness of the clinical instruction from the perspective of the students. **Materials and Methods:** A sample of 174 undergraduate clinical dental students were recruited to complete the Clinical Education Instructional Quality Questionnaire (ClinEd IQ) which contained forty-five questions, forty-three of which were multiple choice questions and six of which were open-ended. The multiple choice questions consisted of 3 subscales; Clinical Learning Opportunities, Involvement in Specific Learning Activities, and Interaction with Clinical Instructors which were measured on a six-point Likert Scale from "strongly disagree" to "strongly agree". The open ended responses were analyzed using the thematic analysis. **Results:** The clinical experiences of 150 UiTM dental students were evaluated. The students rated their interaction with instructors with the highest mean score of 4.64 on a 6.00 scale. Lower ratings were given for clinical learning opportunities with a mean score of 4.12. There were few areas of concern identified through the open ended responses. Students felt discouraged, demotivated, and stressed when they received negative feedback. The quality of students' performance is affected when being reprimanded in front of peers. **Conclusions:** While the quality of supervision in terms of interaction with clinical instructors and involvement in learning activities were considered satisfactory. There is room for improvements especially in regards to areas of concern.

**Keywords:** *Clinical education; Dental Student; Instructor Behavior*



OP 03

Perspective of Dental Aesthetics in Finding a Job as a Dentist

Ahmad Hashridz Ruslan, Nor Syahilla Ahmad, Zethy Hanum Kassim, Noraina Hafizan Norman, Tong Wah Lim

Centre for Restorative Dentistry Studies, Faculty of Dentistry, Universiti Teknologi MARA, Sungai Buloh, Selangor

**Objectives:** To determine the influence of dental aesthetics in finding a job as a dentist and their willingness to interact in personal and professional setting. **Materials and Methods:** 10 dental students of Universiti Teknologi Mara (UiTM) facial smiling photographs were taken prior to the correction of their dental aesthetic problems and digitally altered using Adobe Photoshop. Two different questionnaires were prepared (Groups A and B) with the photographs with or without alteration (ideal and non-ideal smile). The images were appeared randomly with an ideal smile and non-ideal smile in each group and assessed by 84 private dental practitioners who have the power of hiring another dentist in their practice. Four questions were asked on the likelihood of being hired, friendly and approachable, intelligence, good clinical skills and manual dexterity in each questionnaire. **Results:** The images with ideal smile were significantly more likely to be hired ( $p < 0.05$ ) except for images presented with buccally erupted canine and median diastema, which have no association with hiring. Images of ideal smile were evaluated higher in term of friendliness and intelligence than the non-ideal smile. There were no relations with regards to the skillfulness and manual dexterity with ideal or non-ideal smile ( $p > 0.05$ ). **Conclusions:** Person with ideal smile was graded more friendly and intelligent thus improve the willingness to interact in personal and professional setting and more likely to be hired in contrast to person with non-ideal smile.

**Keywords:** Dental aesthetics, Individual's perspective, Job, Dentist

OP 04

Effectiveness of Personalized Oral Hygiene Advice provided through the Facebook

Nur Aziah Arbain<sup>1</sup>, Norhanisah Roslan<sup>1</sup>, Mohd Masood<sup>2</sup>

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**Objectives:** to measure the effectiveness of oral hygiene instructions provided through Facebook in improving oral hygiene of young adults. **Methods:** The participants were selected from 18-35 year old patients who attended dental clinics at the Faculty of Dentistry, UiTM. A total of 60 participants were selected and divided randomly into intervention (IG) and control (CG) groups. At baseline ( $T_0$ ), plaque score was measured and oral hygiene advice was given to all the participants in Dental Health Education clinic. Participants in the intervention group were asked to like the UiTM Oral Hygiene Instruction Facebook page. Oral hygiene advice and encouraging information were posted every 24-hours. A specific enquire from the participants was also answered. Plaque scores were measured for all the participants at  $T_1=2$ weeks,  $T_2=4$ weeks and  $T_3=6$ weeks. **Results:** Mean (SD) plaque score at  $T_0$  was not significantly different between the groups (CI=52.6(8.4), IG=55.9(10.6), P-value=0.19). However, mean (SD) plaque score at  $T_3$  was significantly lower in intervention group (CG=13.7(9.4), IG=8.3(9.9), p-value=0.01). Mean change (SD) in the plaque score was significantly higher in intervention group only at  $T_0-T_3$  (CG=38.8(11.6), IG=47.6(14.2), p-value=0.01). Effect size was also significantly higher in the intervention group at  $T_0-T_3$  (CG=4.3, IG=5.6, p-value=0.01). Mean change and effect size were not significantly different between control and intervention groups at  $T_0-T_1$  and  $T_0-T_2$ . **Conclusion:** Results of this study demonstrated that Facebook is an effective method to deliver oral health education to improve oral hygiene of the young adult patients. It significantly improves the plaque score of the patients.

**Keywords:** Facebook, plaque score, oral hygiene advice, DHE

OP 05

### Effectiveness of Two Audiovisual Distractions for Paediatric Patients Undergoing Restorative Treatment

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**Objectives:** To identify the most preferable and effective types of behaviour management/ distraction methods among paediatric patients and to identify clinician's perception in using audiovisual distraction. **Material and Methods:** A total of 21 children who fulfilled the inclusion criteria were included in this study. The children were assessed over two visits. During each visit, the children were given different types of audiovisual distraction. Children's pre-operative anxiety level was assessed using the Facial Image Scale (FIS). The pulse rates of the patients were taken over five different clinical situations. A post-op modified MCDAS questionnaire was given to the patient to measure the patient-perceived pain level. A self-administered questionnaire was also given to the operator after the treatment to assess the operator's perception in using audiovisual distraction. **Results:** There were no statistically significant differences in heart rate between cartoon and interactive games. However, it was noted that there was a significant increase in the heart rate during administration of local anaesthesia, followed by placement of clamp and onset of caries removal. MCDAS scoring between cartoon and games were significantly different ( $p < 0.05$ ), and showed that patients with cartoon had lower scores compared to interactive games. **Conclusion:** Both types of audiovisual distraction, interactive games and cartoon are effective in reducing anxiety among paediatric dental patients. Although there was no significant difference in heart rate, the children seemed to prefer cartoons to interactive games. The preferred method of audiovisual distraction among operators was also cartoon.

**Keywords:** *audiovisual distraction, paediatric patient, dental anxiety*

OP 06

### Formulation and Evaluation of New Biodegradable Periodontal Chips from Malaysian Propolis in Chitosan Base

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**Objective:** To formulate periodontal chips from Malaysian propolis in chitosan base and to evaluate the physical, biological and microbiological properties. **Materials and methods:** Raw propolis produced by *Trigona thoracica* bee were purchased from Ayer Keroh, Malacca. The sample was extracted using ultrasonic method. The ethanol was evaporated by using rotary evaporator. Then diluted with distilled water and mixed with chitosan to produce the propolis chips. Thickness and morphology of the propolis chips were evaluated using SEM, while the roughness of the chip was measured using profilometer. Chip was tested for biodegradability towards trypsin. Absorption test done on artificial saliva and distilled water. *In vitro* release of propolis was analyzed by using spectrophotometer at 350nm for 15 days. Microbiological properties of the propolis was analyse using minimal inhibitory concentration (MIC) and minimal bactericidal concentration (MBC) method against Gram positive and Gram negative bacteria. **Result:** Data was analyzed by using Statistical Package (SPSS) version 22.0. by using Post Hoc t-test, one-way ANOVA and regression analysis. A  $p$ -value of  $\leq 0.05$  is considered significant. The propolis chips shows an increment of weight in 8 days. The release of propolis was increase until day 15. Results showed significant differences for biodegradation with trypsin, artificial saliva and water ( $38.546 \pm 21.664$ ,  $47.10 \pm 25.685$ ,  $48.787 \pm 26.471$ ), respectively. MIC for Gram positive and Gram negative bacteria were found to be 25, 0.048 mg/ml, 1.562, 12.5 mg/ml respectively. For the MBC, the value were found to be 3.12 and 25 mg/ml respectively. **Conclusion:** Malaysian propolis in chitosan based were found to be biodegradable, high release rate, have antimicrobial activity against Gram positive and Gram negative bacteria.

**Keywords:** *Propolis, chitosan, biodegradable*

**Acknowledgement:** We would like to thanks all the staff of the laboratory research in our faculty and the IMB staff in the faculty of medicine.

OP 07

### Micronuclei Assay in Patients using Various Forms of Smokeless Tobacco

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**Objectives:** Oral cancer is prevalent and is caused by a variety of genetic alterations, induced by various factors. The present study aims to assess the nuclear changes caused by different forms of smokeless tobacco (betel quid, gutkha and arecanut). **Materials and Methods:** The study evaluated the changes in the cell by using a micronuclei assay. Buccal smears of 51 subjects with different smokeless tobacco habits and of 17 controls were obtained. The smears were stained using Feulgen staining and then observed under 40X magnification. **Results:** The micronuclei, age and sex comparisons were done using one-way ANOVA analysis. Males were found to be more likely to use smokeless tobacco products. Subjects who chewed gutkha were predominantly male while those who chewed betel quid and areca nut were predominantly females. Older individuals were found to be using smokeless tobacco products. This could imply that subjects generally develop these habits when they are older. The highest micronuclei values were found in betel quid chewers. **Conclusion:** It can be concluded that smokeless tobacco is genotoxic. Since micronuclei assay is a minimally invasive, inexpensive and a highly sensitive test, it can be used in early detection and screening of individuals prone to the risk of cancer. The results from the study can be used to educate the public on the adverse effects of smokeless tobacco.

**Keywords:** Tobacco, micronuclei, oral cancer

**Conflict of Interest:** This study has been accepted by ICMR (2015-00207) in its entirety

OP 08

### The Effectiveness of *Ficusdeltoidea* on Oral Ulcer - Animal Study

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**Objectives:** The purpose of this study is to investigate the effectiveness of *Ficusdeltoidea* (*F. deltoidea*) as an anti-oral ulcer on animal models. **Materials and Methods:** 12 adult male Sprague Dawley (SD) rats were sedated with dose of 50 mg/kg of Nembutal through intraperitoneal route; oral ulcer models were made by applying 99.5% of glacial acetic acid moistened paper disc on rat buccal mucosa. After 2 days later, this technique was generated an immediate tissue necrosis, which then was produced a single crater form ulcer. Four groups of adult male SD rats were treated respectively with: no treatment (group 1: negative control); 250 mgkg<sup>-1</sup> *F. deltoidea* extract (group 2: experimental); 500 mgkg<sup>-1</sup> *F. deltoidea* extract (group 3: experimental with high dose) and Triamcinoloneacetonide (group 4: positive control) for five minutes, twice a day for 10 consecutive days, respectively. On the day 2, 4, 6, 8 and 10, the ulcer size had been assessed. Data was analyzed statistically by Independent t-test with significant *p* values of <0.05. **Results:** The negative control rats exhibited buccal mucosa injury whereas treatment with *F. deltoidea* and Triamcinoloneacetonide resulted in significantly reduced the size of oral ulcer. The oral protection or the percentage of inhibitory area of oral ulcer was more prominent in 500 mgkg<sup>-1</sup> *F. deltoidea* extract than 250 mgkg<sup>-1</sup>. **Conclusion:** The present finding suggest that *F. deltoidea* extract promotes oral ulcer protection as ascertained by the comparative significant decreases in oral ulcer areas, and this extract could be developed as a therapeutic agent for oral ulcer healing.

**Keywords:** *Ficusdeltoidea*, oral ulcer, oral health, anti-oral ulcer, animal

**Acknowledgement:** The authors express gratitude to the staff of Faculty of Pharmacy UITM and also Faculty of Health Science UITM for their continuous support especially the supply of rats and laboratory facilities.

OP 09

### The Quantity Differentiation of Bacterial Aerosols With and Without Using Chlorhexidine as Pre-procedural Mouthwash in Ultrasonic Scaling Treatment

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**Objective:** The aim of this study is to measure the quantity differentiation of bacterial aerosols with and without using chlorhexidine as pre-procedural mouthwash in ultrasonic scaling treatment. **Materials and Methods:** A total of 32 samples that consist of 16 samples rinsed using 10 ml of chlorhexidine gluconate 0.2% mouthwash for 1 minute and 16 samples rinsed using 10 ml of sterile water for 1 minute before ultrasonic scaling treatment was started. Bacterial aerosols were collected using blood agar plate for 10 minutes during ultrasonic scaling treatment and placed at three different positions: the chest of patient (15 cm from patient's oral cavity), the right side of patient-8 o'clock (45 cm from patient's oral cavity), and the left side of patient-4 o'clock (40 cm from patient's oral cavity) with each of the plates within 80-105 cm from floor. Bacterial aerosols were counted after incubation process at 37°C for 24 hours and quantified as colony forming units (cfu). Results were analyzed statistically using Mann-Whitney Test. **Results:** The results show that bacterial aerosols quantity in patients using chlorhexidine gluconate 0.2% mouthwash is less than patients using sterile water. The result also shows a significant different with ( $p < 0.001$ ) of bacterial aerosols quantity between patients using chlorhexidine gluconate 0.2% mouthwash and patients using sterile water. **Conclusions:** The chlorhexidine gluconate 0.2% as pre-procedural mouthwash can be used on bacterial aerosols reduction during ultrasonic scaling treatment. The chlorhexidine gluconate 0.2% mouthwash can be recommended as an antibacterial in preventing cross infection.

**Keywords:** *bacterial aerosol, chlorhexidine, cross infection, ultrasonic scaling*

OP 10

### The Effectiveness of Oral Hygiene Instruction for Orthodontics Patients at Universiti Teknologi MARA

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**Introduction:** Orthodontic therapy particularly for fixed appliance has been suggested to lead to an improved oral hygiene care through mechanisms such as increased ease of plaque removal and a thorough systematic instruction given by the clinician. **Objectives:** Purpose of this study is to compare the effectiveness of oral hygiene instruction given at dental chair and in the dental health education room. **Materials and Methods:** The evaluation used the means score of plaque score before bond up ( $T_0$ ) and after the first review 2-5 weeks ( $T_1$ ) for patients with orthodontic fixed appliances. This study included 30 samples aged from 17 to 35 years old. The patients involved in this study were the patients treated by the orthodontic postgraduate students in faculty of dentistry UITM Sungai Buloh. **Results:** Based on this study, it was found that there is no significant difference between oral hygiene instruction given at dental chair and in dental health education room. **Conclusion:** This research provides valuable information whether to give oral hygiene instruction at dental chair or in dental health education room.

**Keywords:** *fixed appliances, plaque score, oral hygiene*

OP 11

Effectiveness of Smart Burs in Caries Removal

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Stainless steel burs in dentinal caries removal are not found to be fundamentally conservative as they are not able to distinguish between normal and carious dentin. In search of new burs for more conservative caries excavation, the Polymer burs and Ceramic burs were introduced into the market. **Objective:** Comparative evaluation of stainless steel burs, polymer burs and ceramic burs in selective dentinal caries removal and time taken for caries removal. **Materials and method:** Forty children aged 8-14 years with three occlusal caries in first permanent molars were selected. The selected carious teeth in each patient were randomly assigned to one of the caries removal groups: Steel bur, Polymer bur and the Ceramic bur randomly by using lottery technique. The lesion extension of 1 mm from DEJ and minimum of 1-2 mm from pulpal floor was confirmed using digital radiograph. The amount of time taken for caries removal was recorded using a stop watch. The efficacy of caries removal was confirmed by visual and tactile examination using scoring criteria for the assessment of efficacy of the caries removal. Patient acceptance was determined using Wong-Baker Faces pain rating scale. **Results:** Steel bur was found to have taken significantly less time ( $p$  0.0109) in caries removal. Steel bur, Polymer bur and Ceramic bur were effective in caries removal but was not significant ( $p$  0.0727). Polymer bur was acceptable by the patients and was highly significant ( $p$  0.006). **Conclusion:** Polymer and Ceramic bur exhibits promising trends in caries removal and patient acceptance.

**Keywords:** Caries removal, Steel bur, Polymer bur, Ceramic Bur

OP 12

Nitrous Oxide-Oxygen Sedation: View of Paediatric Dentist in Malaysia

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**Objectives:** The aim of this study is to determine use of nitrous oxide-oxygen sedation and its barriers in the usage for the paediatric patients in Malaysia. **Materials and methods:** This is a cross sectional descriptive study involving a convenient sample of paediatric specialist in Malaysia. Forty five questions regarding the nitrous oxide sedation had been developed in an online survey site (Survey Monkey) and had been electronically mailed to 80 paediatric specialist registered with Malaysia Association of Paediatric Specialist. **Results:** From 39 respondents, 21 of them are using N<sub>2</sub>O sedation in their practice and slightly less than half did not use nitrous oxide sedation in their practice. Majority of respondents pointed that lack of facilities/equipment and lack of training had been the two main reasons of not practicing nitrous oxide sedation in their practices. **Conclusion:** Practice of nitrous oxide sedation among the paediatric specialists in Malaysia is still low. Lack of facilities/equipment is the main barrier that prevents the paediatric specialists from practicing nitrous oxide sedation.

**Keywords:** Nitrous oxide-oxygen sedation, anxiety, Paediatric dentist

OP 13

**Evaluation of Awareness regarding Practice of Interdental Aids among a Group of Dental Students - A Cross Sectional Questionnaire Based Study**

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**Objectives:** The present study aimed to evaluate the knowledge and practice of inter dental aids among dental (undergraduate and postgraduate) students. **Methodology:** Sample size and design: A total of 351 Undergraduate and postgraduate students were included by simple random sampling method. Method of collection of data: For the collection of data, a specially designed pre tested questionnaire was used. The questionnaire consisted of two sections. First section contained questions pertaining to demographic information such as age, sex, oral hygiene habits and practices, and additional aids used. Second section contained questions regarding knowledge and attitude of inter-dental aids. **Statistical Analysis:** Done using Chi square test. **Results:** A total of 351 dental students (267 female and 84 male) from the 1<sup>st</sup>, 2<sup>nd</sup>, 3<sup>rd</sup>, 4<sup>th</sup> year, interns and postgraduates completed the questionnaire. 78.6% of students had knowledge regarding interdental aids. Clinical students had good knowledge regarding interdental aids compared to pre-clinical students. It was observed that 143 students practice interdental aids. Out of these, 27.9% of the students gave reason of general oral hygiene. **Conclusion and Suggestions:** The study conducted observed a gradual increase in the knowledge as well as usage of interdental aids with progression from preclinical to clinical education in the dental curriculum. A disparity was noted between the prevalent knowledge and its application in day to day life for which, motivation seems to be the key to overcome this gap.

**Keyword:** *Interdental Aids, Awareness, Practice, Knowledge*

OP 14

**PEMBRA (Periodontal Management by Risk Assessment): An Assessment of the Risk Profile of Periodontal Patients**

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**Objective:** To analyse the risk profiles of periodontal patients during examination & diagnosis and two months after completed treatment during periodontal review in order to utilise the outcomes of the assessment of profiles in the application of PEMBRA. **Material and methods:** Periodontal Risk Assessment (PRA) functional diagram was used to construct the risk profiles of the periodontal patients in the Faculty of Dentistry UiTM during Examination & Diagnosis (EGD) and periodontal review (PR) stage. **Results:** 81 patients met the inclusion criteria. There were 74.1% (60) of the patients with generalized chronic periodontitis during EGD and this was reduced to 43.2% (35). 25.9% (21) diagnosed with localised chronic periodontitis during EGD, however during PR, there was an increase to 56.8% (46). The assessment of PRA during EGD and PR was found to be: 2.5% (2) presented with low risk which increased to 21% (17), medium risk with 32% (26) to 35% (28) and 65% (53) with high risk reduced to 43% (35). The improvement in the profiles during periodontal review was seen in the modifiable risk factors or parameters which were bleeding on probing and periodontal pocket depth, however minimum changes were observed in the non-modifiable factors (bone loss/age). **Conclusion:** Risk profiling during EGD exhibits status of the risk of periodontal health of the patients. The assessment will allow the clinician to develop a risk-based treatment plan, besides serving as an education tool for the patient to maintain good oral hygiene practice early in the management of PEMBRA.

**Keywords:** *PEMBRA, periodontal diseases, PRA, risk factors*

**Acknowledgement:** We would like to extend our thanks and gratitude to the Dean of the Faculty of Dentistry UiTM, Professor Dr. Mohamed Ibrahim Abu Hassan for giving us the opportunity to be involved with this research and all the administrative staff for their cooperation.

OP 15

**The Anatomical Relationship between the Roots of the Mandibular Third Molar and the Inferior Alveolar Nerve among Malay Patients Seen at the Faculty of Dentistry, UiTM**

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**Objective:** To determine the nearest distance of the inferior alveolar nerve (IAN) to the roots of mandibular third molar in Malay patients. **Materials and Methods:** This retrospective study included 192 cone-beam computed tomography (CBCT) data of 161 patients seen at the Radiology Department, Faculty of Dentistry from 1<sup>st</sup> January 2011 to 9<sup>th</sup> September 2015. CBCT images were used to identify and measure the closest proximity of the IAN to the roots of mandibular third molar in sagittal and coronal view. **Results:** A total of 161 patients were included in this study and 192 CBCT images were evaluated. The mean closest distance of IAN to roots of mandibular third molars was 0.88mm in sagittal view and 1.56mm in coronal view. However, direct contact of roots to IAN was seen in 68.2% cases in sagittal view and 54.1% cases in coronal view. There was no significant difference between closest IAN distance to roots when compared between tooth 38 and 48, gender and all types of mandibular third molar impaction. **Conclusion:** Mean closest distance of IAN to roots of mandibular third molar was 1.56mm in coronal view with a 54.1% case of direct contact. Therefore, CBCT appears beneficial in presurgical assessment before removal of impacted mandibular third molars.

*Keywords: inferior alveolar nerve, mandibular third molar, wisdom teeth*

OP 16

**A Systematic Review of Randomized Controlled Clinical Trials on Effectiveness of Oral Pre-Emptive Analgesics in Mandibular Third Molar Surgery**

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**Objective:** The effectiveness of pre-emptive oral analgesics in mandibular third molar surgery is still controversial. This study aims to scrutinize the data systematically from randomized clinical trials to determine the efficacy of pre-emptive analgesics in reducing post-operative pain in mandibular third molar surgery. **Methodology:** A systematic review of literatures was performed on the English literatures published in PUBMED, ISI Web of Science and Cochrane Library. Randomized controlled clinical trials that have studied the effectiveness of oral pre-emptive analgesics in mandibular third molar surgery were identified. The review was performed following Preferred Reporting Items for Systematic Reviews and Meta-Analyses (PRISMA) guideline and the risk of bias has also been studied with Cochrane's Risk of Bias Tool. **Results:** A total of 26 trials have been included in this review. 14 of these articles have compared the efficacy of oral pre-emptive analgesics with post-operative analgesics, placebo or no treatment. Six trials have supported its effectiveness, while eight studies have shown no statistical significant difference between the study and control groups. Additionally, 8 papers have been identified to have low risk of bias in this review. **Conclusion:** Oral pre-emptive analgesics may be not effective in reducing post-operative pain of mandibular third molar surgery depending on the type and dose of the analgesics used. Nonetheless, some oral analgesics have shown to have more superior pre-emptive analgesics effect than others.

*Keywords: Pre-emptive analgesics, third molar, randomized controlled clinical trial*

OP 17

### Effect of Immersion Duration in Sodium Perborate Denture Cleanser Solution on Color Stability of Thermoplastic Nylon

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Thermoplastic nylon is a polymer that often used as denture base material because it has good aesthetic property. Immersion in sodium perborate denture cleanser solution is one of methods to maintain denture cleanliness. Routine immersion in denture cleanser solution could affect physical properties of denture base materials. **Objective:** To determine the effect of immersion duration in sodium perborate denture cleanser solution on color stability of thermoplastic nylon. **Materials and Methods:** Thermoplastic nylon materials (Valplast, USA) and sodium perborate denture cleanser solution (Polident, Ireland) were used in this research. Twelve thermoplastic nylon samples (20x20x2 mm) were made and divided into three groups of four. Initial color ( $L^*a^*b$ ) of all samples were measured by chromameter (Konica Minolta, Japan). Samples were immersed in 200 ml sodium perborate solution at 40°C for 5 minutes and repeated 60 times (300 minutes) for group 1, 120 times (600 minutes) for group 2 and 180 times (900 minutes) for group 3. At the end, the colors were measured again and color change value ( $\Delta E$ ) were calculated. The data were analyzed statistically using one way ANOVA and  $LSD_{0.05}$ . **Results:** The results showed average  $\Delta E$  value of thermoplastic nylon for group 1, 2, and 3 were  $1.30 \pm 0.18$ ;  $2.20 \pm 0.36$ ; and  $2.67 \pm 0.32$  respectively. One way ANOVA results showed the effect of immersion duration on color stability of thermoplastic nylon was significant ( $p < 0.05$ ). The  $LSD_{0.05}$  test showed there were significant differences between group 1 and other groups ( $p < 0.05$ ). **Conclusion:** Immersion duration up to 900 minutes significantly decreased color stability of thermoplastic nylon.

**Keywords:** *thermoplastic nylon, sodium perborate, color stability*

OP 18

### Gender Based Perceptions Regarding Oral Cancer in a School Population in Mangalore: A Short Study

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**Introduction:** Head and neck squamous cell carcinoma is the sixth most common cancer in the world with the incidence being more common in the elderly. However, the current trends in incidence have moved towards the younger age group which implies the role of changing lifestyles in addition to the role of conventional etiologic agents that are responsible in causing cancer. In the present situation, there arises a need for awareness regarding oral cancer and its causative factors that needs to be instituted at the school level of education. **Aim:** To understand the knowledge and attitude of pre-university students towards Oral Cancer and make them aware regarding the etiology, and signs & symptoms of Oral Cancer. **Methodology:** After ethical approval, around 800 students in the age group of 14-17 years, studying in various secondary schools of Mangalore city were included in the study sample. Students were asked to answer an oral cancer awareness questionnaire, after which they were given a lecture about factors causing oral cancer. The data obtained was compiled and subjected to statistical analysis. **Results:** It was observed that the students had a fair knowledge about the agents causing oral cancer. Furthermore, a gender-based analysis revealed that girls had better understanding and knowledge regarding the etiology of oral cancer when compared to boys in the study group.

**Keywords:** *Oral Cancer, Awareness, Knowledge*



OP 19

### Burnout Syndrome amongst First Year Dental Officers in Malaysia: A Psychometric Analysis

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**Objectives:** This is a multi-center cross-sectional study aimed to determine (1) the prevalence of burnout syndrome amongst First Year Dental Officer in Malaysia and its relation with two different methods of maxillofacial on-call; (2) to evaluate the level of perceived preparedness amongst First Year Dental Officer (FYDO) in conducting maxillofacial on-call cases and (3) the association between preparedness and burnout amongst (FYDO). **Materials and methods:** a cross sectional survey was carried out using self-administered questionnaire amongst FYDOs in Malaysia. The information on burnout syndrome was quantified using Maslach Burnout Inventory and level of perceived preparedness was studied using a survey adapted from Morrow *G et al.*, 2012. **Results:** a total of 156 samples were obtained in this study. Prevalence of burnout syndrome amongst FYDOs was 84% according to Grunfeld and 1.3% according to Ramirez. Statistically significant differences were found between duration of posting and on-call duty system. 89.3% of those who did active call duty had higher burnout score in depersonalization and personal achievement. Most participants felt most prepared in multi-professional working and least prepared in respiratory care. Our study found that participants who had lower burnout score were the most prepared in 8 of 11 domains in perceived preparedness. **Conclusion:** Our study found that burnout syndrome is significantly prevalent among FYDOs in Malaysia. We propose the need for comprehensive guideline on on-call system to improve the quality of medical care without compromising the psychological well-being of FYDOs. Lack of perceived preparedness among dental undergraduates in handling clinical emergency management of maxillofacial surgery such as CPR in particular is apparent.

**Keywords:** *First Year Dental Officer, on-call duty, burnout syndrome*

OP 20

### Effect of Panoramic Radiography Exposure to Gingival Crevicular Fluid (GCF) Volume

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X-ray injures cells by ionizing and forming free-radicals within  $10^{-13}$ s after its exposure. The dose applied in radiodiagnostic is relatively lower compared to that of radiotherapy, yet there is no safe radiation dose. Panoramic radiography caused cytological changes in oral mucosa. Additionally, GCF volume will increase if inflammation happened around gingiva. **Objective:** To observe the effect of panoramic radiography to the GCF volume. **Materials and Methods:** Research had been done in Prof. Soedomo Dental Hospital, Faculty of Dentistry, UGM, Yogyakarta, Indonesia. Subjects were divided into exposed-group ( $n=10$ ) and non-exposed-group ( $n=10$ ). Each group consisted of 5 men and 5 women. Subjects were all aged between 18-25, non-smokers, good oral and systemic health. They were free from any radiographic exposure 2 weeks before. Filter paper was inserted on the labial side of maxillary-anterior teeth gingival sulcus for one minute. Exposed-group GCF was taken 30 minutes before and 10 minutes after panoramic radiography exposure. Non-exposed-group GCF was taken twice with 40 minutes interval. GCF absorption was made visible by dropping 2% ninhydrin solution and measured using sliding calipers. **Results:** Data were statistically analyzed using Student T-test ( $p<0.05$ ). GCF volume is significantly increased by average of  $0.011 \pm (0.003 @ 0.001) \mu\text{L}$  after panoramic radiography exposure. **Conclusion:** GCF volume increased after panoramic radiography exposure. Crevicular area is surrounded by capillary-blood-vessels which are sensitive to stimulus. Vasodilation is the earliest functional changes in tissue after radiation exposure which increased blood vessels permeability. Hence, it also increased the amount of blood plasma migrating to gingival sulcus.

**Keywords:** *GCF Volume, Panoramic Radiography, Radiation effect*

OP 21

### Comparison of the Patient's Satisfaction with the Dental Care Services Provided by Dental Students in UITM Dental Clinic and Mobile Dental Clinic, UITM

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**Introduction:** Satisfaction is one of the important factors which influenced performance of the quality of care, productivity in dental care and the future utilization of the dental services. **Objective:** Focus of study is to assess the level of patients' satisfaction and identifying the factors influencing on dental care in dental clinic and mobile dental clinic (MDC), UITM. **Methods:** Patients within the age of 18 to 69 years old were randomly chosen to complete self-answered questionnaire. Demographic background and 6 parameters which includes patient-student relationship, student technical competency, students' maintenance of cleanliness of equipment/ working area, appointment, facilities and administrative efficiency were measured to identify on patients' satisfaction to dental treatment. **Results:** Respondents younger age (67.6%-78.9%) for both locations majority are Malays, unmarried female (68.9%-92.9%), not working and up to undergraduates' level show higher satisfaction level with the patient-student relationship (87.0%) and students' maintenances of cleanliness (99.3%) for both locations. There is significance difference shown lower satisfaction on appointments by students (41.4%) and facilities (62.1%) in MDC compare to dental clinic. **Conclusion:** Students-patients relationship and students' technical competence showed most influencing factor for patients' satisfaction in both locations. Improvements on shorten the waiting time and upgrade the facilities in MDC has shown affecting factors related to patients' high satisfaction.

**Keywords:** satisfaction, Dental clinic UITM, Mobile dental clinic UITM, dental care

OP 22

### Perception of Gummy Smile in Different Facial Types

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**Objectives:** To determine the perception of gummy smile on three different facial types from layperson respondents. **Materials and Methods:** Smiling frontal photographs of a male and female subject were altered to simulate three variations of facial type (brachyfacial, mesofacial and dolichofacial) with different levels of gummy smile from 2.0mm to 5.0mm. 150 laypersons with no dental background were randomly approached to rate the attractiveness of 24 photographs; its acceptability and treatment need. These photographs were displayed on an A2 poster and respondents were to select and grade the attractiveness accordingly by marking a point along a visual analog scale. **Results:** Male subject with 2.0mm gummy smile in the brachyfacial face is the most liked photograph (22.0%) with 25.3% of male respondents and 18.7% of female respondents while the younger age group scored this photograph the highest compared to the older age group. The second most liked photograph is the female subject with 2.0mm gummy smile in mesofacial face (15.3%). The least liked photograph is the female subject with 5.0mm gummy smile in the dolichofacial face (33.3%) with the highest number of respondents irrespective of gender or age groups compared to the other photographs. **Conclusions:** Age group, gender and facial type may influence one's judgment at which a certain degree of gummy smile is considered attractive or unacceptable. Generally the laypersons can perceive two extreme ends of attractiveness range, that are 2.0mm maxillary gingival display in the male brachyfacial face as most attractive and 5.0mm maxillary gingival display in the female dolichofacial face as least attractive.

**Keywords:** Facial types, Gummy smile, Laypersons, Perceptions

**Acknowledgement:** Dr. Nawwal Alwani Mohd Radzi

OP 23	<p style="text-align: center;"><b>Dental Healthcare Providers' Knowledge, Attitudes, and Perceived Barriers to Reporting Child Physical Abuse in Malaysia</b></p>
<p>Aina Syazwani Yusoff<sup>1</sup>, Dalila Wan Ahmad<sup>1</sup>, Alaa Sabah Hussein<sup>2</sup>, Rohana Ahmad<sup>3</sup></p> <p><sup>1</sup><i>Faculty of Dentistry, Universiti Teknologi MARA, Sungai Buloh campus, Malaysia</i>  <sup>2</sup><i>Centre of Paediatric Dentistry and Orthodontics Studies, Faculty of Dentistry, Universiti Teknologi MARA, Sungai Buloh campus, Malaysia</i>  <sup>3</sup><i>Centre of Restorative Dentistry and Orthodontics Studies, Faculty of Dentistry, Universiti Teknologi MARA, Sungai Buloh campus, Malaysia</i></p> <p>Child physical abuse (CPA) is a global public health issue, however; the knowledge of dental healthcare providers regarding this issue is little in South East Asia and none in Malaysia. <b>Objectives:</b> To assess the knowledge, attitudes and experience of Malaysian dental healthcare providers regarding CPA in terms of frequency of occurrence, diagnosis, risk factors and reporting. <b>Materials and methods:</b> A questionnaire was distributed to all dental healthcare providers attending a nationwide paediatric dentistry conference in Kuantan, Malaysia. Demographic variables, knowledge, attitudes and experience about CPA, risk factors and the reasons for not reporting abuse cases were collected. <b>Results:</b> The response rate was 74.7%. Half of the respondents (52.8%) stated the frequency of occurrence of CPA is common in Malaysia. Full agreement among dental healthcare providers was not determined obtained concerning the identification of signs of CPA and its risk factors. Although 83.3% were aware that reporting CPA is mandatory, only 14.8% have reported. Lack of adequate history was the main reason for not reporting. Two-third of respondents (62%) indicated that they had not received sufficient information about CPA and were willing to have training in the diagnosis and reporting of child abuse (81.5%, 78.7% respectively). <b>Conclusions:</b> There were considerable disparities in respondents' knowledge and attitudes regarding the occurrence, signs of suspected cases, risk factors and reporting of CPA. Majority of them were aware of it, however; only few of them were reported CPA cases. Enhancements in the education of Malaysian dental healthcare providers on recognizing and reporting CPA is recommended.</p> <p><b>Keywords:</b> <i>Child physical abuse, Dental staff, Knowledge, Reporting, Malaysia</i></p>	
OP 24	<p style="text-align: center;"><b>The Effectiveness of Different Approaches in Educating the Patients for A Shared Decision-Making in Dental Treatment Choices</b></p>
<p>Ariff Ashraf Kamarulazli<sup>1</sup>, Norlian Othman<sup>1</sup>, The Adilla Mustaza<sup>2</sup>, Siti Mariam Ab Ghan<sup>2</sup></p> <p><sup>1</sup><i>Faculty of Dentistry, Universiti Teknologi MARA</i>  <sup>2</sup><i>Centre of Restorative Dentistry Studies, Faculty of Dentistry, Universiti Teknologi MARA, Sungai Buloh Campus</i></p> <p>Shared decision-making (SDM) is a developing trend in clinical medicine but received little attention in the dental literature. Informative education plays a vital role in SDM by helping patients and clinicians to decide on treatment plan. <b>Objectives:</b> To compare patients' improvement of knowledge by different educational approaches; face-to-face educational discussion and non-face-to-face mobile dental applications education (MDAE). <b>Materials and methods:</b> 320 respondents were segregated into three groups; Group 1: no MDAE or discussion session (n: 20), Group 2: discussion sessions only (n: 150) and Group 3: MDAE only (n: 150). Game quizzes on a mobile dental application (MDA) were used to gauge respondents' knowledge regarding dental treatment choices. The collected data were tabulated and further analyzed using chi square test. <b>Results:</b> Respondents showed no significant differences in their baseline knowledge, with 55.0% in Group 1, 52.7% in Group 2 and 60.7% in Group 3 answered more than half questions correct in the beginner level quiz. After receiving the different educational approaches, respondents were required to answer the expert level quiz; Group 2 (61.3%) had significant increase in knowledge compared to Group 1 (35.0%) and Group 3 (44.0%). On respondents' perceptions towards these different educational approaches, more than half of Group 2 and Group 3 gave positive feedbacks regarding the usage of these approaches in improving knowledge for SDM. <b>Conclusion:</b> Face-to-face educational discussion is still the most effective educational approach for patients in promoting SDM, compared to non-face-to-face MDAE. This result highlights the importance of communication and interaction between patients and clinicians.</p> <p><b>Keywords:</b> <i>Mobile application, shared-decision making, dental treatment choice</i></p>	

OP 25

### Prevalence of Dental Caries among Schoolchildren in Sungai Buloh using ICDAS Score System: A Pilot Study

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**Objectives:** The aim of this study is to evaluate the prevalence of dental caries among the schoolchildren in Malaysian population using ICDAS scoring system and to compare the severity of caries between the aged groups of schoolchildren for further caries prevention and dental health promotion. **Materials and Methods:** The clinical examinations were carried out by one examiner on a random sampling of 210 schoolchildren. They were divided into 2 groups; Group 1 (5-7 years old) and Group 2 (12-13 years old). The teeth were cleaned before any inspections were carried out. Dental mirrors and ball-ended probes were used to assess and to detect any discontinuity on the tooth surfaces. The teeth were then examined by using ICDAS scoring system. **Result:** The overall prevalence of dental caries in primary and permanent teeth was 79% (n=210). The prevalence of caries among 5-7-year-old was 85% (n=126) and among 12-13-year-old children was 70% (n=84). Kruskal-Wallis test was carried out across the groups with ICDAS score and revealed there is a significant difference with  $p < 0.05$ . Post-hoc test in Group 1 revealed the significant differences is in ICDAS 4;  $p = 0.06$  and ICDAS 5;  $p = 0.04$ , while in Group 2, a significant differences showed in ICDAS 2;  $p = 0.016$ . **Conclusions:** Prevalence of dental caries is higher in an early age as compared to the later age of schoolchildren. Group 1 has higher score of ICDAS which are ICDAS 4 and ICDAS 5 compared to Group 2 with mainly score of ICDAS 2.

**Keywords:** *Prevalence, ICDAS, dental caries, schoolchildren*

OP 26

### Assessment and Comparison of Nuclear Changes in Gingivitis and Periodontitis

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**Objectives:** The aim of this study was to observe the trends in genotoxicity (micronucleation, binucleation and multinucleation) from normal to periodontally-compromised gingival epithelium (gingivitis and periodontitis) and to compare the severity of damage between them. **Materials and Methods:** 45 subjects were selected, and grouped into 3 categories (15 control, 15 gingivitis and 15 periodontitis). Smears were collected from these subjects from the marginal gingival area using a wooden spatula and spread onto glass slides, which were then fixated. After fixation, the slides were stained with Acridine orange stain. 500 cells were evaluated under the fluorescent microscope for micronuclei, binucleation and multinucleation, which indicate abnormalities. The statistical analysis performed were one way ANOVA (analysis of variance) and post-hoc Tukey test. **Results:** There was significant difference ( $p < 0.05$ ) when the ages of the 3 groups were compared, while control group fell in the younger age category (mean=25.8) while periodontally compromised patients mainly fell under the older age group (mean=42.6). However, when genotoxic changes were compared within the groups, there was significant difference in binucleation (0.002) and multinucleation ( $< 0.001$ ), but not in micronuclei, suggesting advanced damage in the nucleus. **Conclusions:** The study compared binucleation and multinucleation, in addition to previously-conducted studies comparing micronucleation. The study also involves the use of fluorescent microscopy, which is a relatively newer technique. This study describes the different pathological presentations of gingival epithelium nuclei, used as an important marker to detect genotoxicity of oral cancer.

**Keywords:** *Gingivitis, Periodontitis, Nuclear Changes, Fluorescent Microscopy*

<p><b>OP 27</b></p>	<p align="center"><b>Developing an Evidence Based Smoking Cessation App for the Malaysian Population: The Self-Determination Theory Approach</b></p>
<p align="center"><i>Muhamad Asyraf Berhanuddin, Nurul Fasiha Mohamad, Eddy Hasrul Hassan, Dudi Aslinie Md Sabri</i></p> <p align="center"><i>Faculty of Dentistry, Universiti Teknologi MARA, Malaysia</i></p> <p><b>Introduction:</b> Tobacco use in Malaysia accounts for 35% of in-hospital deaths, principally from cancer, heart disease and stroke. Thus, effective interventions to support smoking cessation are urgently needed. Smartphones are increasingly receiving attention as a means to assist individuals' health management through the usage of apps such as smoking cessation apps. However, recent content analysis found that they do not typically adhere to evidence-based principles for smoking cessation and may not sufficiently stimulate autonomous-motivation. <b>Aims:</b> To develop and evaluate a bilingual (Malay/English) evidence-based smoking-cessation app which incorporates self-determination theory features for the Malaysian population. <b>Methods:</b> This project was conducted in three-phases. Content development phase involved identifying ideal features of an app for behaviour modification in smoking cessation. The technical development phase focused on the technical development of the app which involved creating a programming-language framework. The final phase involved testing and evaluation using the 23-item MARS rating scale which is a validated measure of rating mobile health apps. <b>Results:</b> A bilingual smoking-cessation app that incorporated the self-determination theory features for autonomous motivation was developed using an android platform. Preliminary evaluation showed that the MARS total mean score was (<math>M=3.35</math> <math>S.D \pm 0.50</math>), and by domain are; engagement (<math>M=3.30</math> <math>SD \pm 0.54</math>), functionality (<math>M=3.46</math> <math>SD \pm 0.64</math>), aesthetics (<math>M=3.46</math> <math>SD \pm 0.62</math>), information (<math>M=3.39</math> <math>SD \pm 0.63</math>), subjective quality (<math>M=2.91</math> <math>SD \pm 0.65</math>). More than 90% of the sample felt that this app may increase awareness, knowledge, and motivation, influence change and attitude to smoking. <b>Conclusion:</b> The app developed fulfils the criteria of an evidence based health-managements app and can potentially aid in smoking cessation activities.</p> <p><b>Keywords:</b> <i>smoking cessation, self-determination theory, mobile apps</i></p>	
<p><b>OP 28</b></p>	<p align="center"><b>Social and Behavioral Risk Factors and Early Childhood Caries - A Cross-Sectional Study on Preschool Children in Shah Alam</b></p>
<p align="center"><i>Luqman Arif Muhammad Ghazali<sup>1</sup>, Nur Shahirah Zulkifle<sup>1</sup>, Norashikin Yusof<sup>1</sup></i></p> <p align="center"><i><sup>1</sup>Faculty of Dentistry, Universiti Teknologi MARA</i></p> <p>Social and behavioral risk factors have been reported to influence the development of early childhood caries (ECC) among preschool children. <b>Objectives:</b> The aim of this study was to measure the caries prevalence among 2 – 5 years old preschool children and to determine the parents' socio behavioural factors on early childhood caries among preschool children in Shah Alam population. <b>Materials and methods:</b> In this cross sectional study, 124 preschool children were selected randomly from preschool and childcare centres in Shah Alam. Parents had to answer a set of structured questionnaires and their children were examined orally after receiving consent from parents. <b>Results:</b> Our findings showed prevalence of dental caries among the preschool children was 48.4% with mean decayed, filled teeth (dft) score of 2.51 (<math>SD</math> 3.73.). The study also demonstrated a significant association of children drinking formula milk and sweet drinks in their bottles: <math>p=0.002</math> and <math>p=0.024</math> respectively and ECC. Children from lower income family (less than RM3000) presented with higher mean dft score of 3.17 (<math>SD</math> 3.39) as compared to those from higher income family (more than RM8000) which is 1.45 (<math>SD</math> 3.02). <b>Conclusions:</b> This study has shown that a number of parents' socio behavioural factors are associated with development of ECC in their children. Hence, oral health promotion programs should be targeted to high risk social groups as well as low income family. Active participation of parents and child carers are needed in preventing development of ECC in preschool children.</p> <p><b>Keywords:</b> <i>Early childhood caries, socio behavioural factor, preschool children</i></p> <p><b>Acknowledgement:</b> This study has been given ethics approval by UiTM Research Ethics Committee. Ref no: 600-RMI (5/1/6) dated 19 January 2016. The research team would like to thank Dr. Mohd Masood for his kind assistance in analysing the data .</p>	

OP 29

### Selective Occlusal Features of Primary Dentition in Malay Children at a Centre in Sungai Buloh

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**Objective:** To determine the different occlusal characteristics of primary dentition in 3 – 6 years old Malay children. **Materials and methods:** 47 Malay children in the age of 3 – 6 years from kindergartens and nurseries located in Sg Buloh have been selected to assess various occlusal features according to the criteria of Foster and Hamilton and Kisling and Kerbs. Data and photographic records were taken for each child. **Results:** 72.34% of 47 children presented with straight terminal in both sexes. Class I canine relationship was recorded in 10 (97.87%) children. Both males and females were observed to have an ideal overjet in 29 (61.70%) and 25 (53.19%) respectively with an ideal overbite. Results obtained revealed that primate space in maxilla was the most prevalent that presented in 31 (89.36%) children compared to primate space in mandible which was seen in 11 (23.40%) children. **Conclusion:** Most of the children had a higher tendency to manifest a favorable permanent occlusion in permanent dentition based on the study done. However, a further longitudinal study in this population is essential to recognise any potential malocclusion to intervene at an early age.

**Keywords:** *Malay children, primary dentition, malocclusion, occlusal features*

**Acknowledgement:**

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OP 30

### Revisit to Oral Hygiene Practices in Children

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Early childhood caries (ECC) is a public health problem that continues to affect children worldwide. The reasons for such prevalence are socio-economic status of the parent's and oral hygiene practices followed by their children. **Objective:** To determine the role of socioeconomic status of parents and the oral hygiene practice in their children with severe ECC. **Materials and method:** The children aged between 6-72 months were screened for the presence of ECC. Informed consent was obtained from the parents after explaining the nature of the study. A questionnaire that included questions regarding socioeconomic status (education & occupation) of parents and brushing practices of their children was used. Based on total scores obtained from the questions and Kuppuswamy's socio economic status scale was grouped in different strata of the socioeconomic groups. The brushing practices in the different socioeconomic groups were observed. **Results:** The children from the lower middle & lower socioeconomic status and had alternate oral hygiene practice. The socio-economic status of the parents and behavioral practices of children influenced the ECC experience. **Conclusions:** Children from lower socio economic group experienced financial, social and awareness disadvantages that compromises their ability to afford professional health care needs and required immediate attention of oral health. So, we implemented cost effective oral health care strategy. It comprised the use of indigenous natural products for brushing, diet counseling and awareness of importance of the first dental visit at the age of one year.

**Keywords:** *Socio economic status, oral hygiene, brushing practice*

OP 31

Effect of Silicon Oxide Complex Enamel Protection Material on Tooth Colour

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**Objectives:** The aim of this study was to evaluate whitening efficacy of silicon oxide complex on teeth and to observe the stability of the silicon oxide complex bonding to enamel following application of hydrodynamic shear forces. **Materials and methods:** Teeth were treated with silicon oxide complex preparations at two different preparations (100% and 50% per volume) and the control group using commercially available whitening toothpaste (Colgate® Optic White™, New York). Tooth colour was measured using a dental spectrophotometer (Easyshade Vita, Germany) and the L\*a\*b\* recorded for the following time points t1, without any treatment; t2, immediately after treatment; and t3, 24 h after application of hydrodynamic shear forces to mimic mechanical loading. Three measurements were obtained after each test stage and the value between different measurements were expressed as ΔE. Following application of shear forces, two randomly selected teeth from the silicon oxide groups, as well as two untreated teeth serving as control groups were examined using Scanning Electron Microscope (SEM) (Hitachi SU 5000, Japan). **Results:** The results indicated significant differences between the 100% volume of silicon oxide complex with the control group. SEM images revealed smoother surface of enamel with less visible pores and surface roughness following application of 100% volume of silicon oxide complex as compared to the control group. **Conclusion:** Silicon oxide complex tested exhibited whitening effects of variable degrees on the enamel surface and showed good durability against the hydrodynamic shear forces. Silicon oxide complex based materials that can adhere to the enamel surface and contribute to tooth whitening have promising tooth-whitening potential.

*Keywords: Silicon oxide, tooth whitening, Dentcoat, tooth colour*

OP 32

Efficacy of Propolis Fluoride as Alternative to Silver Diamine Fluoride for Dental Caries Treatment

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**Background:** According to Riskesdas, 53.2% of Indonesians are having dental caries and most of them are from the lower socio-economic groups. This condition increases the need of dental caries treatment which is affordable yet effective. Silver Diamine Fluoride (SDF) has started to gain popularity in Indonesia. However, SDF has known to have a strong staining effect and costly. Propolis Fluoride (PpF) is expected to be an alternative to SDF for dental caries treatment. **Objective:** To determine efficacy of PpF as antibacterial and caries arresting agent in comparison to SDF. **Methods:** Antibacterial properties of PpF and SDF were compared by observing total bacteria count. *Streptococcus mutans* bacteria were inoculated into a neutral medium, medium containing the PpF and SDF solution of various concentration for 2 days. PpF and SDF caries arresting ability was determine using *in vivo* study. A total of 76 surface dentinal caries lesions were included in the study for 1 month period. The lesions were divided into two different groups – group 1: PpF and group 2: SDF. All samples were evaluated by observing the caries activity at 1<sup>st</sup> month follow-up. Results: PpF and SDF solution drastically decreased the growth of *Streptococcus mutans* ( $p < 0.01$ ). Caries activity was arrested up to 94,3% in PpF group and 95,1% in SDF group. The comparison showed no significant difference ( $p > 0,05$ ). **Conclusion:** Both PpF and SDF application on dentinal caries inhibit bacterial growth and arrest caries activity effectively. Therefore, Propolis Fluoride can be used as alternative to Silver Diamine Fluoride for dental caries treatment.

*Keywords: Propolis fluoride, Silver diamine fluoride, dentinal caries, antibacterial, caries arresting agent*

OP 33

### General Dentists' Knowledge, Practice Pattern and Attitudes about Providing Pulp Treatment in Children

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General dentists' preferences or recommendation about pulp therapy in children is questionable. **Objectives:** The present study explored the general dental practitioners' preference, practice pattern, and attitudes on providing pulp treatment in children. **Materials and methods:** Questionnaires on preference, practice pattern, and attitude in giving pulp therapy to children were distributed to general dentists (n=150). A total of 121 of general dentists responded. The data were interpreted using SPSS. **Results:** The results showed that every respondent has their own preference regarding pulp treatment. Their practice pattern and attitude contributed to the quality of the treatment in children. **Conclusions:** These data indicates that preference, practice pattern and attitudes of general dentist play an important role in providing pulp treatment for children. However, further study is needed regarding these three aspects of the GDPs.

**Keywords:** *knowledge; practice pattern; attitude; pulp therapy; preference*

OP 34

### The Long Term Effects of Various Chemical Cleansers on Denture Base Polymer

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**Objectives:** To investigate the effect of denture cleansers on surface roughness and colour changes of the denture base polymer. **Materials and Methods:** A total of 160 specimens of disc form (10x3) mm were prepared from Heat-Polymerizing Polymethyl Methacrylate (PMMA). All specimens were wet ground, followed by pumice and polishing paste. Surface roughness was measured (N=10) using stylus surface profilometer while colour changes measured using spectrophotometer CM-5. Specimens were immersed in distilled water for 7 days followed with 4 different chemical denture cleansers (distilled water, Fresh active Polident, Pearly White Denture Clean and Tesco daily care) at 37 °C for 1½ and 3 years. Data were analysed and statistical analysis were performed using two-way ANOVA for analysis of mean Ra and ( $\Delta E$ ). **Results:** Surface roughness of PMMA was statistically significant ( $p < 0.05$ ) when immersed in all denture cleansers within 1½ and 3 years compared to control group. Pearly White Denture Clean showed highest changes with mean Ra values ( $0.54 \pm 0.66$ ) and ( $6.89 \pm 0.10$ ) respectively. Mean colour changes of PMMA was higher in Tesco daily ( $1.83 \pm 0.80$ ) after 1½ years and with Fresh active Polident ( $3.04 \pm 1.06$ ) after 3 years immersion ( $p = 0.02$  and  $p = 0.001$ ). No significant different found when immersed in Pearly White denture for both 1½ and 3 years. **Conclusions:** PMMA became rougher, immersed in Pearly white denture cleanser within both 1½ and 3 years. Fresh active Polident denture cleanser causing marked colour changes in PMMA after 3 years immersion.

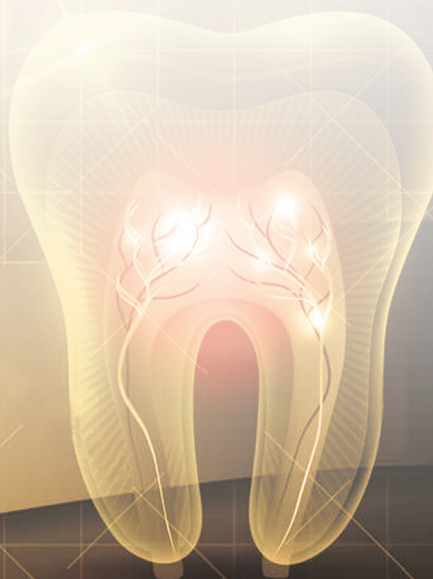
**Keywords:** *Denture cleanser, surface roughness, colour changes*



OP 35	<p style="text-align: center;"><b>Comparison of Palatal Rugae Pattern in Year 4 Students with Minangese Maternity Background from Faculty of Dentistry, Andalas University</b></p>
<p><i>Hidayani, Dishe<sup>1</sup>, Kasuma, Nila<sup>2</sup></i></p> <p><sup>1</sup><i>Undergraduate dental student</i>  <sup>2</sup><i>Lecturer, Faculty of Dentistry Andalas University</i></p> <p><b>Introduction:</b> Indonesia is one of the countries that frequently suffers from mother nature disaster therefore, forensic odontology is consider as an essential entity in the forensic identification process Palatal rugae is a very individualised characteristic anatomy in human and in certain population it may be descended through matrilineal lineage. Therefore, palatal rugae pattern has the potential to be used in identifying one's race and lineage. Minangese as an ethnic group has unique kinship which is matrilineal-based. <b>Objectives:</b> To compare the similarity of palatal rugae pattern in minangese year 4 students (batch 2012) from Faculty of Dentistry, Andalas University with their biological mother. <b>Materials and Methods:</b> This is an observational analytical study that utilized cross sectional approach in sample selection. Total of 30 pair's of children and his/her biological mother were recruited. Palatal rugae of each subject is marked using 2B pencil on the jaw mould accordingly. The method of identification of rugae pattern was adapted from Thomas and Kotze (1983) and Kapali <i>et al</i> (1997) which include the shape and length of rugae. Pattern comparison analysis is then performed using Wilcoxon Test. <b>Results:</b> Wilcoxon Test shows <math>p &gt; 0.05</math>. This suggests that there is a significant correlation between palatal rugae pattern and minangese maternity background in year 4 students of Faculty of Dentistry, Andalas University. <b>Conclusions:</b> There is a significant similarity of palatal rugae pattern based on shape and length between children and his/her minangese biological mother.</p> <p><b>Keywords:</b> <i>Forensic odontology, Palatal rugae pattern, Rugoscopy, Minangese</i></p>	
OP 36	<p style="text-align: center;"><b>Relationship between Smoking and Oral Health-Related Quality of Life among Shah Alam UiTM Students</b></p>
<p><i>Norahayati Mumi Mohamed Yusof@yusof<sup>1</sup>, Nur Amalina Hasnan<sup>1</sup>, Noor Nazahiah Bakr<sup>2</sup>, Nawwal Alwani Mohd Radz<sup>2</sup></i></p> <p><sup>1</sup><i>Faculty of Dentistry, Universiti Teknologi MARA, Sungai Buloh, Malaysia, 47000</i>  <sup>2</sup><i>Centre of Studies for Population Oral Health and Clinical Prevention, Faculty of Dentistry, Universiti Teknologi MARA, Sungai Buloh, Malaysia, 47000</i></p> <p><b>Objectives:</b> The primary objective of this study was to examine the association between smoking behaviour, the numbers of cigarettes with Oral Health-related Quality of Life (OHRQoL) among UiTM Shah Alam Student. <b>Material and Methods:</b> This is a cross sectional study of UiTM Shah Alam students aged above 18. Convenience sampling was used to obtain subjects who were asked to answer social demographic, Fagestrom score and a shortened version of validated Malaysian Oral Health Impact Profile (S-OHIP (M) questionnaire. T-test, one-way ANOVA and Kruskal Wallis tests using SPSS version 22 were used to measure the outcome variables with independent variables of this study. <b>Results:</b> The prevalence of smokers and non-smokers of this sample population were 15.6% and 84.4% respectively. Smokers had higher mean of S-OHIP (M) scores than non-smokers with mean of 21.00(0.371) and 10.78(0.470) respectively. There were significant association between OHRQoL and smoking status, number of cigarettes, Fagestrom score test, and gender. Smokers and males reported worse OHRQoL compared to non-smokers and females. There was a linear relationship between number of cigarettes and Fagestrom scores with OHRQoL, in subjects who smoke 8-10 cigarettes per day and those who have high nicotine dependence reported worse OHRQoL. <b>Conclusion:</b> Smoker reported worse OHRQoL compared to non-smoker and the higher number of cigarettes intake, the worse OHRQoL reported among UiTM Shah Alam students.</p> <p><b>Keywords:</b> <i>Oral health-related quality of life, cigarettes, UiTM Shah Alam students</i></p>	



# Notes





# ABSTRACTS

(Postgraduates)



PG 01

## The Effect of Mandibular Implant Overdenture on the Volume of Premaxillary Bone beneath Complete Denture

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**Background:** contradictory findings had been published regarding the premaxilla bone resorption beneath complete denture opposing mandibular implant retained overdenture. Utilization of 2-dimensional radiographs in these publications may have contributed to these contradiction.

**Objectives:** 1. To develop a novel 3-dimensional technique to objectively measure the edentulous premaxilla change in bone volume. 2. To locate and quantify the change in bone volume of the premaxilla beneath complete denture opposing mandibular implant retained overdenture.

**Methodology:** 15 patients were provided with maxillary complete dentures and mandibular 2-implant retained overdenture. CBCT were taken for the patients at two time points, P1 pre-treatment and P2 one-year post-treatment. The images were converted using Mimics research software. 3-D models of the maxilla were calculated for pre and post treatment for each patient, then these models underwent superimposition. The premaxilla models were section in the same region and the bone volume changes quantified. Finally the 3-D models were exported to 3-matic software to reveal the predominant region and depth of bone resorption.

**Outcomes:** The mean reduction of bone volume after one year was 7.24 %. The predominant areas of bone resorption were at the buccal aspect of premaxilla and at the top of the crest.

PG 02

## Proteomics Changes During Bone Remodelling Induced by Implant-retained Overdentures – Preliminary Result

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**Introduction:** The pressure induced by implant-retained overdentures (IRO) on the soft tissue mucosa of edentulous patients may have mediated proteomics changes that lead to bone resorption. Thus, this study has been carried out to identify the proteomics changes associated with bone remodeling induced by IRO.

**Methods:** Saliva, blood and tissue specimens were collected from implant-retained overdentures patients as well as the control group patients. The protein changes will be detected by SDS-PAGE, 2D Gel Electrophoresis and silver stain with the validation by Mass Spectrophotometry. The protein expression will then be correlated with bone resorption quantified by three-dimensional imaging.

**Results:** Spots were revealed and there were differences between the tested and the control group when the saliva samples were subjected to 2D gel electrophoresis. These data were believed to be significant in explaining the mechanism involved in bone resorption phenomenon associated with IRO.

**Conclusion:** The discovery of proteomic changes in IRO wearers is necessary in revealing the potential outcomes of the alveolar bone loss phenomenon and makes the identification of high risk patients in developing severe bone resorption possible. Personalized treatment may be initiated and will improve the efficiency of dental treatment in prosthodontics for edentulous patients.

**Keywords:** *Implant-retained overdentures, Proteomics, Bone remodelling, Bone resorption*

PG 03	<p style="text-align: center;"><b>3D TECA Hydrogel Modulates Cellular Senescence and Enhances Human Periodontal Ligament Fibroblasts Migration in Wound Healing</b></p>
<p><i>Luay Thanoon Younis<sup>1</sup>, Mohamed Ibrahim Abu Hassan<sup>1</sup>, Tommy Julianto Dustam<sup>2</sup>, Tara Bai Taiyeb AIP<sup>3</sup></i></p> <p><i><sup>1,2</sup>Faculty of Dentistry, <sup>2</sup>Faculty of Pharmacy, <sup>1,2</sup>Universiti Teknologi MARA, <sup>3</sup>Universiti Malaya</i></p> <p><b>Objectives:</b> This research is designed to investigate the effect of 3D TECA hydrogel on the inflammatory induced senescence marker, and to assess the influence of the gel on the human periodontal ligament fibroblasts (HPDLFs) migration.</p> <p><b>Methods:</b> Nuclear factor Kappa B (NF-KB) of HPDLFs was induced with 10 ng TNF-<math>\alpha</math> in the presence or absence of 50 <math>\mu</math>M of 3D TECA gel for 24 hours. The gel effect on the Secretary associated-<math>\beta</math>-galactosidase (SA-<math>\beta</math>-gal) activity was measured by a histochemical staining. For assessing fibroblasts migration, scratch wound healing assay and Pro-Plus Imaging software were used.</p> <p><b>Results:</b> The activity of senescence marker, SA-<math>\beta</math>-gal, was positive in the TNF-<math>\alpha</math>-induced NFKB cells. SA-<math>\beta</math>-gal percentage is suppressed (&gt; 30%) in the treated cells as compared to the non-treated cells (<math>P &gt; 0.05</math>). Scratch wound test indicated that the cells migration rate was significantly higher (14.9<math>\mu</math>m/hr) in the treated versus (1.1<math>\mu</math>m/hr) for control HPDLFs.</p> <p><b>Conclusion:</b> Inflammatory induced NFKB results in premature irreversible cell cycle arrest (cellular senescence) of HPDLFs. The new formula of 3D TECA suppressed the inflammatory mediated cellular senescence and decreased the cell DNA damage response. Enhancing fibroblasts migration may accelerate tissues regeneration capacity during wound closure. Therefore, 3D TECA may play a role in restoration of gingival and periodontal structures.</p> <p><b>Keywords:</b> <i>Cellular senescence; NFKB unclear factor; fibroblast migration</i></p> <p><b>Acknowledgment:</b> This study was supported by Ministry of Science, Technology and Innovation grant (MOSTI SF01.01.09) Research Acculturation Grant Scheme (RAGS 119/2013) and UiTM DANA (RIF 751/2012).</p>	
PG 04	<p style="text-align: center;"><b>Vitamin D deficiency and Dental Caries in Children: A Review</b></p>
<p><i>Manal Mohamed Almoudi<sup>1</sup>, Alaa Sabah Hussein<sup>1</sup>, Mohamed Ibrahim Abu Hassan<sup>2</sup></i></p> <p><i><sup>1</sup>Centre of Paediatric Dentistry and Orthodontics Studies, Faculty of Dentistry, UiTM</i></p> <p><i><sup>2</sup>Centre of Restorative Dentistry Studies, Faculty of Dentistry, UiTM</i></p> <p><b>Objectives:</b> The aim of this study is to review the existing literature about the association of serum vitamin D deficiency and dental caries experience in children.</p> <p><b>Materials and methods:</b> Literature search on PubMed, Medline, google scholar and EBSCO database for studies published in English from 2003 to 2016 was carried out. The search terms used were vitamin D deficiency, serum 25(OH)D, Early Childhood Caries, Severe Early Childhood Caries and dental caries.</p> <p><b>Results:</b> Out of nine studies, three studies were excluded and six studies assessed the relationship between serum vitamin D deficiency and dental caries in children were included. Four of them were cross sectional studies evaluated the correlation between serum vitamin D deficiency and dental caries in older children while two studies were case-control and appraised the association between vitamin D deficiency and Severe Early Childhood Caries. However, no systematic review has been found. Although few studies were reported with this regards, five of these studies reported a significant association between serum vitamin D deficiency and dental caries experience in children and no causation relationship was ascertained whereas the findings of only one cross sectional study did not support the existing evidence of an association between serum vitamin D deficiency and dental caries in children.</p> <p><b>Conclusion:</b> There is evidence of an association between vitamin D deficiency and dental caries in children. Further studies are recommended to strengthen this evidence and establish vitamin D deficiency-dental caries causation relationship.</p> <p><b>Keywords:</b> <i>Vitamin D deficiency, Early Childhood Caries, dental caries</i></p>	

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**Objectives:** To evaluate interradicular spaces of maxillary and mandibular anterior alveolar bone in subjects with class I, class II and class III skeletal relationship and to determine safe locations for miniscrew placement.

**Materials and methods:** Cone-beam computed tomography (CBCT) images of 104 adult subjects with skeletal class I, II or III relationship were assigned. Interradicular spaces were measured at the alveolar processes from canine to canine in 2 different vertical levels (6 and 8mm) from the cemento-enamel junction (CEJ).

**Results:** In the maxilla the highest interradicular space existed between lateral incisor and canine in class I and II (3.2mm and 3.5mm respectively), and between central incisors in class III (3.3mm). In the mandible the highest interradicular space was observed between lateral incisor and canine in all skeletal classes (2.3mm, 2.4mm, and 2.7mm for class I, II and III respectively). Maxillary measurements were higher than their respective mandibular measurement except for interradicular distance between lateral incisor and canine in class III subjects which was higher in the mandible. Interradicular measurements between maxillary lateral incisor and canine was significantly higher in class II subjects ( $P < 0.05$ ). An apical increase in interradicular space was noted in both arches, this increase was significant in all maxillary measurement, while in the mandible it was significant only between lateral incisor and canine ( $P < 0.05$ ).

**Conclusions:** Skeletal relationship could influence interradicular spaces and safe locations for miniscrew placement. The mandible shows no difference between skeletal classes in availability of interradicular spaces. However, in the maxilla space availability for miniscrew placement differ between skeletal classes.

**Keywords:** *Miniscrew; Interradicular spaces; CBCT; Skeletal relationship*

**Acknowledgement:** This research was supported by ERGS grant 37/2013

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**Objectives:** To investigate the reliability and validity of using the MicroScribe-3DXL system as an alternative method of the cephalometric radiographic.

**Material and Methods:** Nine landmarks were chosen (Facial angle, ANB, Maxillary depth, U1/FH, FMA, IMPA, FMIA, A-Na-Perp, and Pog-Np) to compare the reliability and the validity of the measurements obtained from the MicroScribe-3DXL with the conventional cephalometric radiographs. 60 Malay subjects were selected under specific criteria (30 males and 30 females). Two standard images were taken for each subject; conventional cephalometric radiograph and MicroScribe-3DXL. Then the tracing results of each image both methods were analyzed and compared. A paired t-test was conducted and p value was set at  $p < 0.05$ .

**Results:** The results showed statistical significant difference in five measurements (U1/FH, FMA, IMPA, FMIA and Pog-Np) and p value is ranging from 0.00 to 0.03. The difference in the measurements (FMA, IMPA, FMIA and Pog-Np) considered accepted clinically. On the other hand, U1/FH measurement showed clinically significant difference. The overall reliability of MicroScribe-3DXL was 92.7%; its validity was 91.8%.

**Conclusion:** MicroScribe-3DXL is reliable and valid to most of cephalometric landmarks investigated in this study to a certain limit as it saves time and cost. This study has introduced the MicroScribe-3DXL as a promising device to assist in diverse areas in dentistry, especially in Orthodontics in order to improve diagnosing and treatment planning.

**Keywords:** *Lateral Cephalometric Radiograph, Microscribe-3DXL, Non-Radiographic, Radiation, Malay norms*

PG 07	<p align="center"><b>Assessment of Morphological Deviation of Cervical Vertebrae in Cone-Beam Computed Tomography</b></p>
<p><i>Akansha Singhal<sup>1</sup>, Ravikiran Ongole<sup>2</sup></i></p> <p><i><sup>1</sup>Post graduate student, <sup>2</sup>Professor Department of Oral Medicine and Radiology Manipal College of Dental Sciences, Mangalore, Manipal University</i></p> <p><b>Introduction:</b> Deviations in the morphology of cervical vertebrae (CV) have been described in subjects with neutral occlusion and in patients with severe skeletal malocclusion traits. Therefore, an association exists between deviations of the cervical vertebrae column morphology and craniofacial profile, posture of the head and neck.</p> <p><b>Aim:</b> Assessment of morphological deviation of cervical vertebrae in Cone-Beam Computed Tomography (CBCT).</p> <p><b>Methodology:</b> CBCTs from the archives of Department of Oral Medicine Radiology were used for the study. The standard scan mode with an imaging volume of (200mmX170mm or 200mm X 100mm), exposure time of 27s and axial thickness of 1mm. The cervical vertebrae were analysed for morphological deviations using the PlanmecaPromax 3D Mid and Romexis 3.4.1 Software.</p> <p><b>Results:</b> Of the total number of individuals(45); 35(77.7%) individuals had normal cervical vertebrae morphology. Among these there were (53.3%)male and (46.7%) female. A total 11.1% male and 11.1% female showed changes in morphology. In the remaining individuals 8.8% showed pneumatocysts, 2.2% had decreased gap in vertebrae, 2.2% exhibited fusion of vertebra, 2.2% had loss of cortical outline, 2.2% overlapping in vertebrae and 2.2% thinning of cortical outline. While correlating with the age, we found maximum (8.8%) changes in the age group greater than 50 years and least (2.2%) in the age group between 21-30 years.</p> <p><b>Conclusion:</b> Maximum vertebrae changes seen at the age above 50 years with equal male and female involvement. While pneumatocysts were the most common anomaly found.</p> <p><b>Keywords:</b> <i>Cervical Vertebrae, CBCT, Morphology</i></p>	
PG 08	<p align="center"><b>EMT and OSMF: A Correlation of Epithelial Signet Cell Change with Vascularity and Collagen Maturation</b></p>
<p><i>Shakthi Dorai B<sup>1</sup>, Srikanth N<sup>1</sup></i></p> <p><i><sup>1</sup>Department of Oral Pathology and Microbiology Manipal College of Dental Sciences, Mangalore, Manipal University</i></p> <p><b>Introduction:</b> Oral Submucous fibrosis (OSMF) presents with progressive juxtaepithelial fibrosis leading to trismus. Histologically the degree of vascularity, collagen character and the epithelial changes are interlinked.</p> <p><b>Aim:</b> To assess the degree of vascularity and collagen character juxtaepithelial using picosirius red stain (PSR) and these are correlated with the epithelial signet cells quantified in different histological grades of OSMF.</p> <p><b>Methodology:</b> PSR-stained sections were assessed for blood vessel dimensions/number using Image J software in 10 juxtaepithelial fields. 200 collagen fibers were assessed for their thickness and birefringence pattern using polarizing microscope in corresponding fields. Signet cells were quantified in epithelium using H&amp;E stained sections.</p> <p><b>Results:</b> The increase in the signet cells corresponds with increasing grades of OSMF (<math>p=0.361</math>), increase in mature collagen (<math>p&lt;0.001</math>) as well as increase in blood vessel density (mean=<math>16\pm 4.32</math> in very early and <math>32\pm 12.633</math> in advanced; <math>p=0.057</math>).</p> <p><b>Conclusion:</b> Areca nut extracts via pathways like MAPK, NF<math>\kappa</math><math>\beta</math>, HIF1-<math>\alpha</math> and ROS induces increased collagen formation and epithelial mesenchymal transformation leading to cytoskeleton changes, one of which is visualized as signet cell change in epithelium. Angiogenesis is facilitated by VEGF, TNF-<math>\alpha</math>, IL1, b-FGF. These mechanisms explain the positive correlation of the progressive grades of OSMF with increase in the signet cells, vascularity and mature collagen.</p>	

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**Objectives:** Due to the rapid integration of CBCT into the practice of dentistry, various incidental findings from CBCT have become evident. However, its prevalence is still unknown. The aim of the study was to determine the reason for referral and to identify different types of incidental findings on referred CBCT scans.

**Materials and Methods:** Patient's demographic data was noted. Indication for CBCT imaging was considered. CBCT scans of multiple FOV were scanned. The referrals of CBCT were classified as diagnostic scan and treatment planning scan. Any finding on the CBCT interpretation other than the area of concern for which the patient referred was recorded as incidental finding which were noted under Airway, Developmental, Pathological, Endodontics, TMJ, Bone, Soft tissue calcifications and others.

**Results:** Correlating incidental findings with age, gender and FOV, on an average, more number of incidental findings were seen in patients above 70 years of age (6.8), more in females (5.30) when compared to males (4.93) and in Large FOV (4.77). Highest reason for referral was for treatment planning scans (78%) when compared to diagnostic scans (22%). Incidental findings were noted more under Airway (46%) > Developmental (32%) > Pathological (16.9%) > Others (9.1%) > Bone (7.30%) > Soft tissue calcifications (6.20%) > Endodontics (4.20%) > TMJ (1.30%).

**Conclusion:** Maxillofacial radiologists should be aware of possible incidental findings and should be vigilant about comprehensively evaluating the entire captured volume, which can help in early diagnosis and treatment of the patient.

**Keywords:** CBCT, Incidental findings, Maxillofacial region

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**Introduction:** Miniscrew or micro-implant is a type of dental implant that is used for anchorage in orthodontics which stays temporarily in patient's mouth. The complications of micro-implant such as pain, implantitis, mobility, root proximity are thought can deteriorate patient daily life. However there is no evidence to prove this hypothesis can be accepted. **Aim:** The purpose of this study is to assess oral health-related quality of life (OHQoL) among adult orthodontic patients who had micro-implant using S-OHIP14 (M).

**Material and methods:** This pilot study involves a total of sixteen (16) orthodontics patients were selected from the postgraduate orthodontic clinic. The sample were five male and eleven female (31%, 69%), range age between 19-28 years. The patients were divided into two groups. Eight patients with two micro-implants (diameter, 1.6 mm; length, 8 mm) in implant group and eight patients were treated without using micro-implant for the control group. The micro-implants were inserted by single operator. Cases with higher anchorage requirement were selected for micro-implant placement. The HQoL was assessed by using S-OHIP14 (M) Malay version at two times: before treatment (T<sub>0</sub>) and 4 weeks after treatment (T<sub>1</sub>). The data will be analysed using spss version 21.

**Results:** There were no significant different of OHQoL found on functional limitation, physical pain, Psychological discomfort, Physical disability, Psychological disability, Social disability and handicap between the study group and control group ( $P > 0.05$ ).

**Conclusion:** This pilot study showed that orthodontic treatment with micro-implants will not worsen the OHQoL of orthodontic patients and orthodontic patients without microimplant perceived as having a similar standard of OHQoL.



PG 11

## Orthodontically Induced Inflammatory Root Resorption (OIIRR) between Self-Ligating and Conventional Bracket Systems: A Randomised Clinical Trial

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**Introduction:** Orthodontically Induced Inflammatory Root Resorption (OIIRR) was introduced to describe a transient inflammatory, external surface resorption, which is an iatrogenic and unavoidable pathological consequence, of orthodontic tooth movement. Root resorption following orthodontic treatment is a surface resorption or transient inflammatory resorption and morphologically and radiographically present as blunt or round apex. The varying degree of magnification and the limitation of 2D imaging make the quantitative value questionable, ideally 3D imaging offers the most accurate information.

**Objective:** To compare the treatment effect between self-ligating and conventional bracket systems in terms of external root resorption using CBCT.

**Methods:** Sample size calculation: N=30; 15 in each group. Power of 80% to detect the difference in rate of root resorption between the two groups. Patients were randomly allocated to have treatment either self-ligating bracket system or conventional bracket system using a 0.022" x 0.028" bracket slot pre-adjusted straight wire appliance and progress to a 0.019" x 0.025" stainless steel working arch wire. Two CBCT radiograph images were captured at T0 (before treatment) and T2 (after 18 months) to analyse the amount of root resorption or bone changes around the canine to canine region of FOV 8x8. The models at two time point were superimposed and the dimensional changing quantified using Mimic Software and 3-Matics. T-test was carried out to compare between the 2 groups.

**Expected outcome:** CBCT as a tool that allows 3D visualization of the root resorption and result between the two groups may or may not have significant findings that may give influence to treatment outcome.

**Keywords:** *Root resorption, 3D imaging, cone beam computed tomography*

PG 12

## Tissue Changes in Bimaxillary Protrusion Treated with Miniscrew and Transpalatal Arch in Malay Population

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**Introduction:** Bimaxillary protrusion is commonly seen in Asian and African populations and presents in most every ethnic group. The Malay population facial profile is very diversified because of the admixtures with the other races from Indonesia, Chinese, Indian, and other races. Despite this diversification, the one common facial type that is frequently treated by orthodontists is bimaxillary protrusion. However, it is an arguable issue whether or not there is a difference between the changes in hard and soft tissue following of anterior retraction to correct bimaxillary protrusion.

**Objective:** To compare hard tissue and soft tissue changes following anterior retraction between the two methods of anchorage device using mini screw and transpalatal arch (TPA).

**Materials and Methods:** Thirty eight cases that required first premolar extraction for orthodontic treatment divided in two groups of mini screw and transpalatal arch were included in the study. Nineteen cases were treated using miniscrew and nineteen cases were treated using transpalatal arch. Lateral cephalometric analysis before and after space closure will be taken to measure hard and soft tissue changes in bimaxillary protrusion treated with miniscrew and transpalatal arch. Data will be analyzed using paired t-test and student t-test.

**Results:** Data collection of pre-treatment and post-treatment lateral cephalometric radiograph still in progress.

**Expected Outcome:** There will be changes of hard and soft tissues between two methods of anchorage device using mini screw and TPA.

**Keywords:** *anchorage, bimaxillary protrusion, tissue changes*

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**Introduction:** The bond failure should be encouraged within the bracket base-adhesive interface or within the adhesive in order to preserve the enamel structure during debonding of fixed orthodontic appliance. The type of bond failure can be assessed by using the Adhesive Remnant Index (ARI). During clinical investigation, adhesive remnant on the tooth surface is clearer to see if a disclosing solution is applied to adhesive remnant after debonding. However, there is no in-vivo or in-vitro study to assess ARI using a disclosing solution.

**Aims:** To evaluate the effectiveness of disclosing solution in ARI either with visual or photograph assessment and to investigate the reliability of two examiners in scoring ARI on the tooth surface using disclosing solution.

**Material and Method:** 10 extracted teeth were mounted separately on a block of stone. Bracket of MBT prescription were bonded up to the teeth using self-etching primer and light cure adhesive. All brackets from the samples were mechanically debonded using selected pliers by one operator. After debonding, disclosing solution was applied on the adhesive remnant and ARI score were recorded under visual assessment (eye ball). For photograph assessment, the ARI were scored from photographs (JPEG format) captured by DSLR Camera with a macro lens. Comparison ARI using photographs and visual assessment were analyzed using Chi-Square test. Intra-operator reliability will be assessed by re-measuring ten of the subjects at least 2 times with 2 hour interval. Inter-operator reliability of the measurement was assessed by orthodontist for ten debonding brackets. Reliability was evaluated using the Inter-rater agreement (Kappa) test. Good agreement will be achieved when K value is more than 0.61 and the level of significance was established at  $p < 0.05$ .

**Result:** Intra-operator reliability test showed that there was a good agreement in visual assessment ( $K = 0.667$ ) and very good agreement in the photograph assessment ( $K = 1.000$ ). Inter-operator reliability showed that there was a good agreement between the two examiners in visual and photograph assessment ( $K = 0.737$  and  $K = 0.722$  respectively). There is a significant difference between visual and photograph assessment from both examiner ( $p = 0.014$  and  $p = 0.033$ ). In clinical investigation, photograph assessment may lead to underestimate or overestimate the ARI score, especially when the adhesive left more than half (score 2) or less than half (score 1) on the tooth surface.

**Conclusion:** Disclosing solution can be used for further clinical investigation of adhesive remnant after debonding either by visual or photograph assessment.



## 6<sup>th</sup> Dental Symposium Logo



*Created by:*

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## Acknowledgements

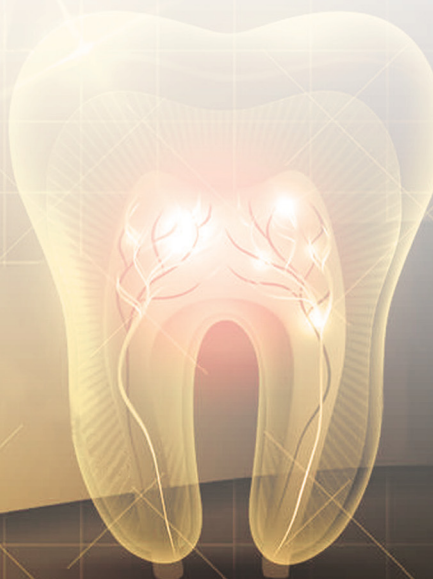
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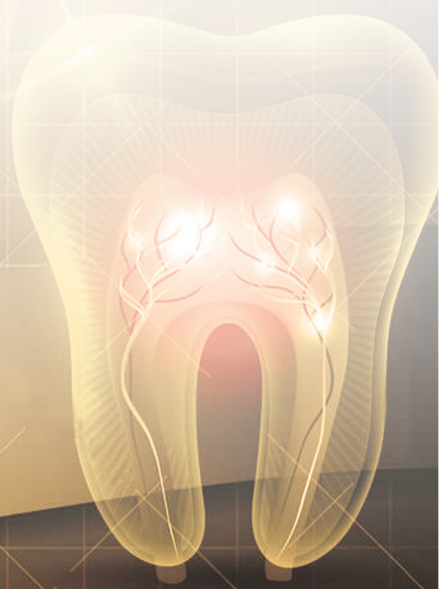
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# Notes

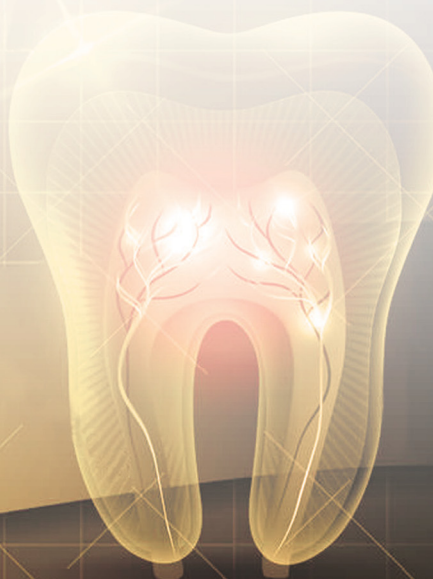


# Notes





# Notes





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