



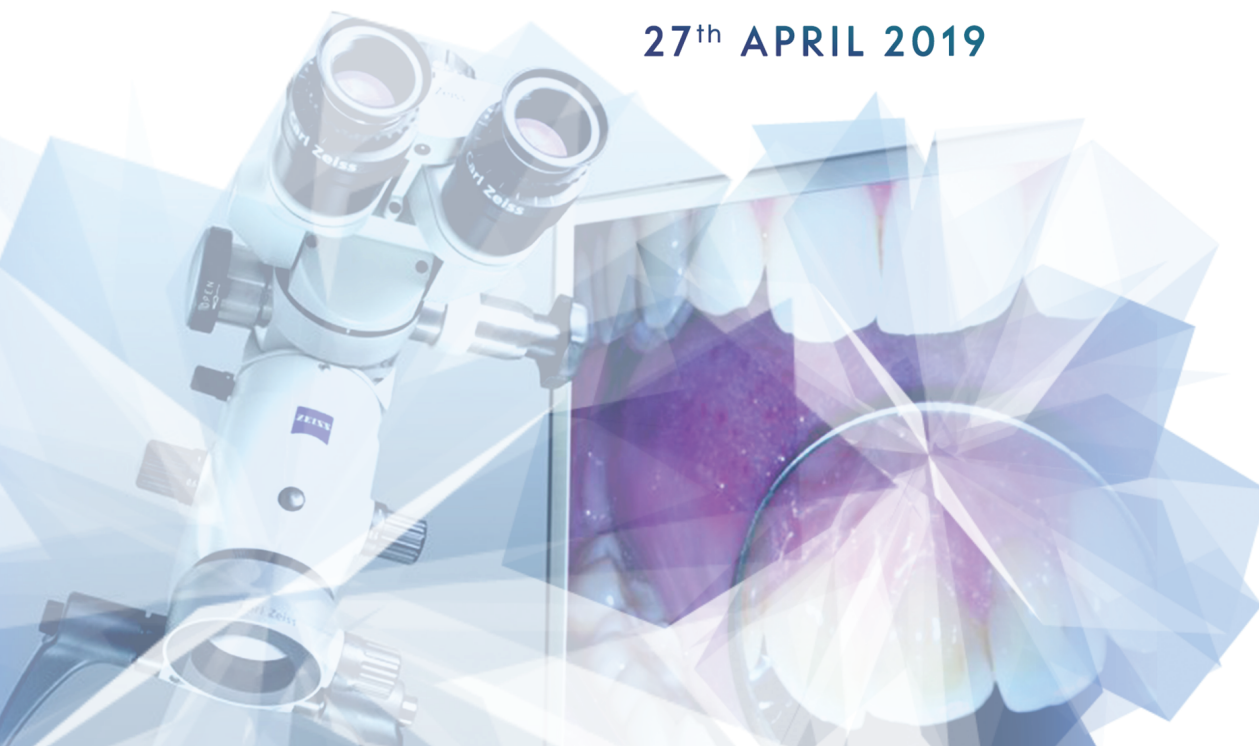
MAHSA  
UNIVERSITY



11<sup>th</sup>  
**NDSSC**  
**2019**

NATIONAL DENTAL  
STUDENTS' SCIENTIFIC  
CONFERENCE

27<sup>th</sup> APRIL 2019



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## PROGRAMME

TIME	EVENT	VENUE
8:00am - 8:45am	REGISTRATION	The Ballroom @ Sports Complex
8:45am - 9:30am	<b>GUEST LECTURE</b> By Dr. Ng Woan Tyng, President of MDA <b>TITLE:</b> Young Graduates: Aspiring to Advance into Dental Career	The Ballroom @ Sports Complex
9:30am - 10:00am	<b>OPENING CEREMONY</b> Officiated by Ybhg. Pro. Tan Sri Datuk Dr. Hj. Mohamed Haniffa bin Hj. Abdullah	The Ballroom @ Sports Complex
10:00am - 10:30am	TEA BREAK	Level 2 @ Empathy
10:30am - 12:30pm	ORAL PRESENTATION	Level 2 @ Humanity
	POSTER PRESENTATION	Level 2 @ Humanity
11:00am - 12:30pm	QUIZ PRELIMINARIES	Level2 @ Humanity
12:30pm - 2:00pm	LUNCH BREAK	Level 2 @ Empathy
2:00pm - 3:15pm	ORAL PRESENTATION- FINALS	Level 2 @ Humanity
	TABLE CLINIC COMPETITION	Level 2 @ Empathy
	QUIZ-SEMI-FINALS	The Ballroom @ Sports Complex
3:15pm - 3:30pm	TEA BREAK	Level 2 @ Empathy
3:30pm - 4:30pm	QUIZ-THE FINALE	The Ballroom @ Sports Complex
6:30pm onwards	GALA DINNER & TALENT SHOW	The Ballroom @ Sports Complex
	VALEDICTORY CEREMONY	

# YBHG. PROF. TAN SRI DATUK DR. HJ. MOHAMED HANIFFA BIN HJ. ABDULLAH

PRO CHANCELLOR AND EXECUTIVE CHAIRMAN, MAHSA UNIVERSITY



Warmest greetings from MAHSA University.

Faculty of Dentistry, MAHSA University is privileged to organize the 11th National Dental Students' Scientific Conference (NDSSC) which will be held on the 27th of April 2019 at MAHSA University's Bandar Saujana Putra campus.

In keeping with the nation's commitment to the pursuit of excellence in the field of dentistry, this conference serves as a platform for dental students all over Malaysia to connect, compete and exchange ideas. We believe that through this conference, dental students will realise the importance of research and scientific publications.

Over the past few decades a lot has changed in the knowledge, technology, materials and practice of dentistry. Research work and scientific publications are very critical for the progress of science and in bringing about changes based on evidence. Breakthroughs as a result of successful research have resulted in a higher quality of care, increased comfort and more treatment options are available for patients.

I am honoured to congratulate and wish the very best for everyone involved in the 11th National Dental Students' Scientific Conference.

## YBHG. PROF. DATO' ISHAK BIN ABDUL RAZAK

VICE CHANCELLOR, MAHSA UNIVERSITY

I am delighted to welcome all delegates to MAHSA University, as host for the 11th National Dental Students Scientific Conference 2019.

In an era where we strive to provide excellent care for the community, it is pertinent to ensure that the students receive the best quality education, one which is current and evidence based. It is also important to cultivate them to be lifelong learners. This can be achieved through the quest for new knowledge in pursuing answers towards meeting the healthcare needs of their patients.

The National Dental Students' Scientific Conference is an annual event organized by dental students and serves as a platform for all the dental undergraduates in Malaysia to come together and share knowledge mainly through the presentation of their research papers. Additionally several other side activities have been planned to engage the students in a spirit of friendly competition.

I wish the 11th National Dental Students' Scientific Conference to be an overwhelming success.



## PROF. DR ROSNAH BINTI MOHD ZAIN

DEAN OF FACULTY OF DENTISTRY, MAHSA UNIVERSITY



As the host for the 11th National Dental Students' Scientific Conference 2019, I am truly delighted to welcome all delegates to MAHSA University.

In order to deliver excellent care for the community, it is imperative that we provide quality education to our undergraduate students. This includes a body of research knowledge enabling them as practitioners to address the future healthcare needs of their patients.

The National Dental Students' Scientific Conference serves as an excellent platform for all dental undergraduates in Malaysia to interact and exchange knowledge, thus enhancing the standards of their professional courses and ensuring quality care for the community in the near future.

With the dream that this conference will continue to foster a trend of offering updated knowledge to the participants, it is my wish that the 11th National Dental Students' Scientific Conference be a monumental success.

## ASSOC. PROF. DR. PRATHAP CHANDAR MANIVANNAN

ORGANIZING CHAIRMAN,  
DEPUTY DEAN ( STUDENT EXPERIENCE),  
FACULTY OF DENTISTRY, MAHSA UNIVERSITY

I would like to take this wonderful opportunity to welcome all participants of the 11th National Dental Students' Scientific Conference to MAHSA University. With the vision of empowering dental students to be competent and professional practitioners in the future, we aspire to enlighten them with the current trends and advancements in the world of dentistry.

In order to become knowledgeable and effective practitioners, students should be well exposed to the ins and outs of conducting research. Undoubtedly, research is the golden key that can open any door for advancements in the field of dentistry. Thus, I believe this conference will serve as a prodigious way for us to achieve our goal of quality education.

I wish the best to all the participants of 11th National Dental Students' Scientific Conference, and once again, welcome to MAHSA University.





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## PHOTOGRAPHERS

Kam Kah Chin; Leong Zi Ming



## A1

# ORAL PRESENTATIONS

## KNOWLEDGE, AWARENESS AND PERCEPTION OF DENTAL STEM CELLS AMONG DENTISTS

### Presenting Author:

1. Yong Tze Jieh, Faculty Of Dentistry, Lincoln University College

### Co-Author :

2. Winlygrey Victor Bontong, Faculty Of Dentistry, Lincoln University College

**Background:** Stem cells research is still new and developing in Malaysia. Dental stem cells are a type of adult stem cells isolated from teeth-related sources with similar function to embryonic stem cells but without ethical limitations of embryonic stem cells. However, little is known about dental stem cells and they have yet to be implemented therapeutically.

**Aim:** This study aims to assess the knowledge, awareness, and perception on dental stem cells among dentists.

**Methodology:** A cross-sectional study was conducted between November and December 2018 using web-based questionnaire pertaining to knowledge, awareness, and perception on dental stem cells among dentists. Link to online questionnaire was distributed through email. The survey questionnaire which comprised of questions relating to knowledge (14), awareness (8) and perception (11) on dental stem cells was distributed with assistance from the Malaysian Dental Association, Dental Deans of Malaysian Universities and individual dentists. Participation was voluntary. Respondents were assumed to consent to participate when they clicked proceed which project the consent form. Data was collected from November to December 2018. Data management and analysis was carried out using SPSS program version 25 with descriptive statistics used.

**Results:** In all, 120 responses were received. Majority of the respondents were 30-39 years old (48%) and general dentists (65%). With assumption of only "Agree" responses as good knowledge and using mean value as cut-off point, 57.5% of dentists had good knowledge, 40% of dentists had good awareness and 54.1% of dentists had good perception of dental stem cells. Kruskal-Wallis tests found no significant relation between socio-dynamics of age, occupation, ethnicity and religion to knowledge, awareness and perception on dental stem cells.

**Conclusion:** Knowledge, awareness and perception level of dental stem cells are poor among majority of dentists with no significant relation to socio-dynamics.

## A2

## KNOWLEDGE OF DENTAL TREATMENT AND ORAL HYGIENE CARE DURING FASTING AMONG PATIENT ATTENDING USIM DENTAL POLYCLINIC

### Presenting authors:

1. Nur Ashikin Binti Ramlan (Final Year Dental Student, Faculty of Dentistry, Universiti Sains Islam Malaysia)
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### Co-authors:

3. Nor Azura Binti Ahmad Tarmidzi (Clinical Lecturer (OMFS), Faculty of Dentistry, Universiti Sains Islam Malaysia)
4. Nor Haliza Binti Mat Baharin (Clinical Lecturer (Perio), Faculty of Dentistry, Universiti Sains Islam Malaysia)

**Background:** Patients attendance during Ramadhan fasting month may be reduce due to patient's refusal to undergo dental treatment. Their refusal of getting treatment especially during the month of Ramadhan may not only cause significant reduction of attending patients, what even worse is that it may delay the treatment process.

**Aim and Objectives:** The aim of this research is to assess the awareness among patients attending USIM dental polyclinic regarding dental treatment during fasting.

**Methodology:** A pre-tested questionnaire was distributed among Muslim patients attending USIM dental polyclinic. Data were collected and analysed descriptively.

**Results:** A total of 132 patients involved in this research. The result concluded that 51% of the respondents prefer not to undergo dental treatment during fasting. A small percentage (30%) of respondent prefer to continue fasting rather than seeking dental treatment in cases of toothache. Most of the respondents understand the correct ruling of simple dental treatment during fasting such as filling (73.5%), scaling (71.2%) and denture construction (61.4%). Meanwhile there are still many people in a condition of not sure or stated them as nullified especially on root canal treatment (37.1%), extraction (39.4%) and local anaesthesia (47.7%).

**Conclusion:** Half of the respondents refuse dental treatment due to fear of breaking fast and minority of them refuse to seek treatment even in emergency cases. Most of the respondents are knowledgeable on ruling of simple dental treatment and oral hygiene care during fasting. However there are still confusion on ruling of certain complex dental treatment.

## A3

### ROLE OF BREAKFAST, BODY MASS INDEX (BMI) AND ENGLISH LANGUAGE PROFICIENCY ON ACADEMIC PERFORMANCE OF DENTAL STUDENTS

#### Presenting authors :

1. Ms. Harpreet Kaur A/P Jasvinder Singh (Penang International Dental College)
2. Mr. Abdul Wafi Bin Abdul Razak (Penang International Dental College)

#### Co-authors :

3. Ms. Koh Emy (Penang International Dental College)
4. Dr. Riddhi Chawla (Lecturer, Dept of Orthodontics, Penang International Dental College)

**Background:** Academic performance of students is a subject of interest for any institution. Many factors may affect the academic performance. Due to lack of evidence in existing literature, we evaluated the relationship between 'Breakfast Skipping', 'Body Mass Index [BMI]' and 'English Language Proficiency' on the academic performance of dental students.

**Aim and Objectives:** To investigate the trend of skipping breakfast, calculate the BMI and assess the level of proficiency of English Language among dental students and to relate all these parameters to academic performance.

**Methodology:** This study involved 68 students (year 3 & 4). The Cumulative Grade Point Average [CGPA] for students were obtained. Questionnaire was used for determining the study objectives. Data collected were analyzed with SPSS for Pearson correlation and p-values.

**Results:** It was observed that 61.76% were non-breakfast skippers, 51.47% scored excellent in English test and 11.76% scored satisfactory. 70.59% belonged to normal BMI category and 2.94% belonged to the severely underweight category. A significant correlation was observed between breakfast habit, English language proficiency on academic performance; whereas for BMI there was a weak correlation.

**Conclusion:** Breakfast habit and English language proficiency may have a significant effect on the academic performance of dental students.

## A4

### PRECISE, METICULOUS AND BEING HUMAN...DOES IT MATTER IN ALGINATE USE !!!

#### Presenting Authors:

1. Lai Chia Wei (Faculty Of Dentistry, AIMST University, Kedah)
2. Kreshaa A/P Mathivanan (Faculty Of Dentistry, AIMST University, Kedah)

#### Co-Author :

3. Lee Hui Yi ( Faculty Of Dentistry, AIMST University, Kedah)

**Background:** Improper alginate manipulation technique by students results in material shortage and pollution. Material shortage has a profound effect on University's budget incurring substantial monetary costs and a negative effect on the environment resulting in higher waste management costs.

**Aim and Objectives:** This questionnaire study aims at providing a detailed analysis of the knowledge and attitude towards dental materials wastage by undergraduate students at AIMST University. An investigation into the alginate manipulation technique will reduce the material wastage and also address environmental contamination.

**Methodology:** A questionnaire with multiple choice questions was administered to AIMST dental students in IV and V year adding to 100 respondents and collected for data analysis. Data was obtained from AIMST dental clinics relating to the overall consumption of number of alginate packets by students over a period.

**Results:** On analysis, 77.5% YearV students and 73 % of YearIV used the measuring scoops for powder with exact ratio. 53.5% YearV students and 49% YearIV students obtained an ideal alginate impression at their first attempt. 34% of YearV students and 39% of YearIV students repeated an impression more than five times. Moreover, 65% YearV students and 66% YearIV students took less than 40 seconds to mix alginate. 60.5% of YearV students and 63.5% of YearIV students used figure of '8' motion to mix alginate.

**Conclusion:** In conclusion, undergraduate students are less informed of consequences of dental materials wastage. Though they agree that alginate material is being wasted and should be avoided, they are unaware of the methods to prevent such wastage.



## A5

### AWARENESS AND KNOWLEDGE ON ORAL CANCER AMONG HIGH SCHOOL STUDENTS

Presenting Authors :

1. Nur Mizanina Iman Ahmad Barhanudin (Faculty Of Dentistry, Lincoln University College)
2. Qistina Nur Md Kamal (Faculty Of Dentistry, Lincoln University College)

Co-Author :

3. Intan Suraiya Merican Aljunid Merican (Faculty Of Dentistry, Lincoln University College)

**Background:** Oral cancers depend on the patients' lifestyles, including the use of tobacco and alcohol. Majority of smokers form the habit when they are young adults.

**Aim:** The purpose of this study is to evaluate the awareness and knowledge of oral cancer before and after providing educational talk and to assess the awareness and knowledge of oral cancer, in term of prevention, cause, and early detection among high school children.

**Methodology:** A cross-sectional study was conducted among 161 high school students. They were asked to fill out a questionnaire on oral cancer awareness and knowledge before and after the talk. Descriptive data was used to analyse frequency of students that answered correctly and paired t-test was used to compare student awareness and knowledge before and after the talk. Significant level was set at 0.05

**Results:** A total of 161 students with male (51.6%) and (48.4%) female. 32.9% of them were 14 years old, while 67.1% of them were 15 years old. Awareness level is low among school children around 50% whereas for the knowledge is slightly above 50%. There was no significant difference in awareness before ( $\mu=26.7$ ) and after ( $\mu=27.4$ ) the talk. However, there was a significant difference in knowledge before ( $\mu=5.1$ ) and after ( $\mu=7.6$ ) the talk.

**Conclusion:** The awareness and knowledge of the oral cancer among high school students are relatively low. Nevertheless, there is a significant increase in knowledge; however, no significant changes in awareness after the educational talk.

## A6

### JUST IN TIME (JIT) VIDEOS FOR DENTAL PROCEDURES: STUDENTS' PERSPECTIVES.

Presenting authors :

1. Alicia Wong Pui Lai (Penang International Dental College)
2. Reenie Doh Li Ryn (Penang International Dental College)

Co-authors :

3. Goh Wei Horng (Penang International Dental College)
4. Khor Wei Kent (Penang International Dental College)
5. Dr. P.V. Kalyan Chakravarthy (Associate Professor, Head Of Department Of Conservative Dentistry And Endodontics, Penang International Dental College)

**Background:** The undergraduate dental students who perform clinical procedures after completion of preclinical exercises on simulated patients usually have difficulties in adjusting to real life patient encounters. Just In Time (JIT) video was introduced before a clinical procedure as a tool to overcome this.

**Aim and Objectives:** This study evaluates the perception of undergraduate dental students on use of JIT videos before a clinical procedure.

**Methodology:** Procedures performed by an expert were filmed and made into JIT videos and were used as a tool for pre-procedural intervention (Fluoride Application, Restoration of Carious Tooth (ICDAS 03), and Rubber Dam Application). Feedback questionnaires were given to all participants (N=90) at the end of the procedure.

**Results:** The mean scores for the 21 individual questions varied from 3 to 4 for the three videos and the overall Cronbach's Alpha showed good internal consistency of 0.879. The qualitative data showed positive feedback for good video structure and informative JIT videos but constructive feedback for lacking of specific information and lengthy video.

**Conclusion:** Students' perceptions were generally positive. Majority of students agreed that the videos helped them during the clinical procedure to reduce anxiety level, improve knowledge, skills and professionalism apart from providing good video structures, allowing students to interact with the patients, and being useful to be recommended to other students in the clinical practice.

## A7

### LEFT-HANDEDNESS AMONG UNDERGRADUATE DENTAL STUDENTS IN UNIVERSITI SAINS ISLAM MALAYSIA

#### Presenting authors:

1. Khairunnisa' binti Harun (Final Year Dental Student, Faculty of Dentistry, Universiti Sains Islam Malaysia)
2. Rahimah binti Abd Wahab (Final Year Dental Student, Faculty of Dentistry, Universiti Sains Islam Malaysia)

#### Co-authors:

3. Azlan Bin Jaafar (Clinical Lecturer (Dental Public Health), Faculty of Dentistry, Universiti Sains Islam Malaysia)
4. Aws Hashim Ali (Clinical Lecturer (Restorative), Faculty of Dentistry, Universiti Sains Islam Malaysia)
5. Dato Wan Mohamad Nasir Wan Othman (Lecturer (Dental Public Health) Faculty of Dentistry, Universiti Sains Islam Malaysia)

**Background:** Being left-hander in a right-handed world is a "pressure in disguise" among dental students. These different ability somehow impose disadvantage situation among the left-handers.

**Aim and Objectives:** To identify the prevalence, problem faced and difficult dental procedure to performed by left-handed dental students of USIM.

**Methodology:** An Edinburgh Handedness Inventory questionnaire was distributed to all USIM dental students to identify the left-handers. The left-handed students were approached for a face-to-face, in-depth semi-structured interview at their residential college. The recorded interviews were subsequently transcribed verbatim. Transcripts were analysed through data coding.

**Results:** The prevalence of left-handed dental students of USIM was 7% while ambidextrous is 6%. Left-handers reported that they were not aware of right-handed situation before entering the course. They felt anxious and low of confidence in performing dental procedures. The difficulty they experienced the most were hand angulation and facing right-handed supervisors. Besides, they felt that their performance is tumbling including reduce in precision and increase of time in performing dental procedures. Among dental procedures, scaling and root debridement were the most difficult for them to perform.

**Conclusion:** The current right-handed dentistry environment cause difficulty among left-handed dental students. A special programme should be incorporated within the curriculum to help them adapting in the situation.

## A8

### OBESITY AND PERIODONTAL DISEASE: A DOUBLE TROUBLE FOR MALAYSIANS

#### Presenting authors :

1. Kher Yee Teoh (Faculty Of Dentistry, Aimst University, Kedah)
2. Jun Xiong Tew (Faculty Of Dentistry, AIMST University, Kedah)

#### Co-Authors :

3. Wee Min Tee (Faculty Of Dentistry, Aimst University, Kedah)
4. Dr Ramasamy Chidambaram (Faculty of Dentistry, AIMST University, Kedah)

**Background:** There is growing evidence that obesity have been identified as a potential risk indicator for periodontal disease. Medical doctor is the first one to detect and treat any disease and obesity is one such. Interdisciplinary approach has become the patient management strategy in recent years. Meanwhile, in Malaysian perspective, meagre literature is available pertinent to attitude and knowledge of the association between periodontal disease and obesity among medical doctors.

**Aim and Objectives:** To assess the attitude and knowledge of medical doctors towards the association between periodontal disease and obesity.

**Methodology:** A cross-sectional study was performed and 13-item survey questionnaire was distributed to the 75 medical doctors currently teaching MBBS undergraduates in AIMST University, Malaysia. Chi-square and Spearman co-efficient were conducted to compare subgroups and correlate factors with the knowledge score of medical doctors.

**Results:** Only 27% of medical doctors answered all the knowledge questions correctly and 47% reported limited understanding of the association between periodontal health and obesity. Only 6% of medical doctors inquired from obese patients regarding the periodontal disease and 16% refer patients to a dentist for evaluation. 47 % of medical doctors never perform periodontal disease screening. 67% of medical doctors considered informing obese patients regarding periodontal disease is not one of their roles.

**Conclusion:** Our study being the first of its kind in Malaysian experience found that more than half of medical doctors showed good knowledge of the association of obesity and periodontal disease. The attitude of medical doctors towards assessing and referring obese patients at risk of having periodontal disease were reassuring.



## A9

### PATIENT SATISFACTION TOWARDS DENTAL SERVICES IN FACULTY OF DENTISTRY, UNIVERSITI TEKNOLOGI MARA (UiTM)

#### Presenting authors :

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#### Co-author :

3. Nik Mohd Mazuan Nik Mohd Rosdy (Center of Oral Maxillofacial Diagnostic & Medicine, Faculty of Dentistry, Universiti Teknologi MARA)

**Background:** The healthcare sector is now transforming rapidly in consonance with the demand and new technology development. This colossal growth requires a lot of aspects to be addressed. The contention in this arena would include patient satisfaction as a major factor.

**Aim and Objectives:** The aims of this study were to determine patients' satisfaction regarding the quality of dental care provided by the Faculty of Dentistry, UiTM and to identify specific aspects in the service for improvement

**Methodology:** A cross sectional study was conducted between June and December 2018 in the faculty's clinics using A validated bilingual Short-Form-Patient-Satisfaction Questionnaire (PSQ-18) scale.

**Results:** A total of 384 subjects which comprised of 57.9% females and 41.8% males were recruited for this study. 92.2% of the respondent was Malay. There were 51% of the respondent were very satisfied with the service provided in general. More specific, 60.8% and 55.8% of respondents were very satisfied with the technical quality and interpersonal manner of the clinician respectively. Another subscale of the questionnaires was looking at communication between clinicians and patients where 56.6% were very satisfied. Remarkably only 50.8% of respondents were satisfied with financial aspects even though majority of patients were paying at no cost when treated by students. In terms of time spent with doctor and accessibility with the clinician, 54.0% and 55.5% of respondents were satisfied respectively.

**Conclusion:** Generally, patients were satisfied with the dental services provided in Faculty of Dentistry UiTM however some aspects of service need to be improved.

## A10

### THE EFFECT OF AROMATHERAPY ON ANXIETY IN DENTAL PATIENTS

#### Presenting authors :

1. Siti Nursyuhada Binti Ja'afar (Final Year Dental Student, Faculty Of Dentistry, Universiti Sains Islam Malaysia)
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4. Azlan Bin Jaafar (Clinical Lecturer (Community Oral Health), Faculty Of Dentistry, Universiti Sains Islam Malaysia)

**Background:** Dental anxiety is a common trait among dental patients, even in the twentieth century. Some papers suggest that aromatherapy has an alleviating effect towards dental anxiety as these essential oils can communicate signals to the olfactory system and stimulate the brain to exert neurotransmitters thereby further regulate mood.

**Aim and Objectives:** Objective of this study is to investigate the effect of aromatherapy of orange and rose on anxiety in dental patients based on time effect, treatment effect and time-treatment effect.

**Methodology:** Sixty subjects between age 18 to 65 years old were assigned to three independent groups-orange (n 20), rose (n 20) and control (n 20). The fragrance group was exposed to orange or rose fragrance where no odor was used for control group. Systolic and diastolic blood pressure, heart rate and respiratory rate were measured at significant times (baseline, 10th and 15th minutes).

**Results:** Data was analyzed using SPSS and significant was accepted at p 0.05. Statistical analysis showed aromatherapy had a significant effect on dental anxiety specifically on respiratory rate (p 0.001).

**Conclusion:** There is an effect of rose aromatherapy on patient anxiety specifically on respiratory rate. However, orange fragrance has more effect in reducing patient anxiety level compared to rose fragrance (p 0.021).



## A11

### ORAL HEALTH KNOWLEDGE AMONG HEALTHCARE WORKERS AND CHALLENGES IN DEALING WITH PATIENTS' ORAL HEALTH PROBLEM

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**Background:** Although the prevalence of dental caries and periodontal disease in Malaysia is very high, only 27.4% of adult population visit dental clinic within a year. Hence, the role of non-dental health care workers (HCWs) in promoting oral health is well-accepted yet efforts in training them to achieve this mean have yet to be substantiated.

**Aim and Objectives:** To assess the HCWs' oral health knowledge, and explore possible challenges faced by HCWs in managing oral health problems among their patients in a public primary health clinic.

**Methodology:** A one hour focus group discussion was conducted among a group of government primary health care personnel. The moderator probed for participants' input on oral health knowledge, issues and challenges faced when dealing with patients with oral health problems. The recorded audio from this session was transcribed and data were grouped according to research objectives.

**Results:** Participants appeared to have a good knowledge on general and oral health. However, only two participants were aware on the relationship between oral health problems with systemic conditions. Challenges faced by HCWs when dealing with patients with oral health problems were medication-related problems, their limited knowledge on oral health problems and difficulty in changing the mindset of patients regarding oral health issues during seeking dental treatment.

**Conclusion:** HCWs involved in this study have good knowledge on oral health and general health. It is also recognised that there are many challenges faced by HCWs when dealing with patients especially on their awareness on oral health facts and medication-related problems.

## A12

### PREVALENCE OF CROWDING AND SPACING AMONG MALAYSIAN ADOLESCENTS

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**Background:** Crowding and spacing were considered to be significant factors that compromise aesthetic and function also the most common reasons for patients to seek orthodontics treatment. This study was conducted in order to identify the prevalence of crowding and spacing among Malaysian adolescents and to compare the crowding and spacing of maxilla and mandible between genders.

**Methodology:** 150 students from Sekolah Menengah Kebangsaan Kelana Jaya (SMK KJ) aged between 13 to 15 years old participated in this study. Crowding and spacing was clinically examined using Boley calipers and divided into mild (1-3mm), moderate (4-6mm) and severe (>7mm). The data was collected from each participant, and was analyzed using SPSS version 25.

**Results:** Total of 150 participants was involved. Male and female were 78 and 72 participants accordingly. Crowding occur more in mandible compared to maxilla, 80% and 72% respectively. Meanwhile, spacing occur more in maxilla compared to mandible, 14% and 10.7% respectively. Moderate and severe crowding found in mandible was 26.7%, on the other hand, moderate and severe crowding in maxilla was 27.3%. Moderate and severe spacing can be seen in both maxilla and mandibular, 8% and 1.4% respectively. There was no significant difference reported between crowding and spacing according to genders.

**Conclusion:** The prevalence of crowding was more in mandibular while spacing was more in maxilla and there was no significant different between genders.

## B1

### EVALUATION OF ORAL STEREOGNOSIS IN COMPLETELY EDENTULOUS PATIENTS WITH PALATAL TORI: AN-IN VIVO STUDY

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**Background:** Osteognosis (OS) is one predictor for edentulous patients' ability to adapt to new prostheses. Despite the high prevalence of palatal tori among Malaysians (12-60%), the influence of palatal tori on OS has not been assessed.

**Aim & Objectives:** To assess the oral stereognostic ability (OSA) of edentulous patients with palatal tori against patients with no tori.

**Methodology:** Thirty-four edentulous patients aged 50-89 were grouped into Group 1 (without palatal tori) and Group 2 (with tori). The OSA was assessed using six intraoral test shapes (circle/oval/square/rectangle/triangle/plus) fabricated to standard dimensions. Each was placed in the patient's mouth and they had to identify the shape by matching it on a chart. Each correct identification was scored 1, the maximum being 6. The time taken to identify the shape was recorded. Data analysis used SPSS V22.0 chi square and independent sample t-test; with  $p < 0.05$  considered significant.

**Results:** The mean score of 3 for Group 2 was significantly lower than the mean score 4 for Group 1 ( $p = 0.030$ ). In Group 1, 50% scored  $\geq 5$  compared with Group 2 (25%).

**Conclusion:** The OSA was significantly impaired in edentulous patients with palatal tori compared with those without, indicating lesser difficulty in adapting to new prosthesis. There should be further research on patients with palatal tori after rehabilitation with complete dentures.

## B2

### MULTILEVEL ANALYSIS OF ASSOCIATED FACTORS WITH PERI-IMPLANT BLEEDING ON PROBING: A CROSS SECTIONAL STUDY

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**Introduction:** Bleeding on probing (BOP) around implants is thought to be a predictor for peri-implant diseases and clinicians aim to reduce the factors that may cause bleeding on probing to minimize patients' risk of developing peri-implant diseases. The most often overlooked parameter is the peri-implant gingival biotype which has a significant impact on the outcome of implant therapy possibly due to the difference in tissue response to trauma. Hence in clinical practice identification of the gingival biotype is significant.

**Objective:** To evaluate the association between peri-implant bleeding on probing in peri-implant diseases and its association with multilevel factors (site specific factors, implant level factors and patient level factors)

**Methodology:** Consecutive adult patients with  $\geq 1$  dental implant were eligible. Two calibrated operators examined the patients. BoP was the outcome variable. The effects of patient, implant and site factors on BoP were assessed using a three-level logistic regression model.

**Results:** 80 patients for a total of 119 implants and 714 sites were included in the study. Bleeding on probing was observed in 42 implants (35.29 %) with a significant higher risk observed in presence of gingival recession, thin peri-implant gingival biotype, duration of implant placement, smokers and male patients.

**Conclusion:** Peri- implant bleeding on probing was associated with site specific factors and implant level factors and patient level factors.



## B 3

### COMPARISON OF THE BOND STRENGTH OF DIFFERENT ENDODONTIC SEALERS TO DENTINE WALLS: AN IN-VITRO STUDY

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**Introduction:** Endodontic obturation aims to fill the root canal space completely by using gutta percha in combination with an appropriate sealer.

**Objectives:** To compare the push out bond strength and adhesive pattern of different endodontic sealers to root dentine walls.

**Methods:** Seventy-two recently extracted human mature permanent lower premolars were prepared with standard S5 Sendoline rotary files until size 30 taper 0.06. Teeth were then randomly divided into four groups (n=18) and obturated with single cone technique as follows: Group 1, gutta percha only (control); Group 2, gutta percha with EndoRez; Group 3, gutta percha with Sealapex and Group 4, gutta percha with EndoSeal MTA. All groups were placed in incubator at 37°C, 100% humidity for 72 hours. Six teeth from each group were randomly selected and subjected to thermocycling for 100 cycles, 1000 cycles and 10000 cycles. One-mm slice of the mid root region was prepared for push-out test using a Universal Testing Machine. Adhesive patterns were examined under Leica Microscope. Data analysis was carried out using two-ways ANOVA test complemented by Tukey HSD test.

**Results:** A significant difference in bond strength was observed ( $p < 0.05$ ) with EndoSeal MTA ( $26.87 \pm 0.89$  MPa) demonstrating highest bond strength followed by Sealapex ( $5.67 \pm 0.41$  MPa), EndoRez ( $3.13 \pm 0.43$  MPa) and control group ( $2.51 \pm 0.35$  MPa). Besides, EndoSeal MTA also exhibited significantly ( $p < 0.05$ ) higher incidences of Types 3 and 4 adhesive pattern when thermos-cycles increased, compared to the other groups.

**Conclusions:** Bioceramic based sealer demonstrated higher bond strength and better adhesive pattern after aging compared to resin and calcium hydroxide based sealer.

## B 4

### EVALUATION OF THE RESIN PENETRATION DEPTH, NANOLEAKAGE AND DEGREE OF CONVERSION OF THREE DIFFERENT DENTINE BONDING SYSTEMS

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**Background:** Longevity of composite-resin restorations rely on the quality of the hybrid layer formed at the resin-dentine interface.

**Objective:** Study aims to compare resin-penetration depth, nanoleakage and degree-of-conversion between total-etch (TE), self-etch (SE) and universal dentine adhesives in class V cavities.

**Materials and methods:** Class V cavities were prepared on buccal and lingual surfaces of nine premolars. TE, SE and universal adhesives were applied as per manufacturer's instructions and restored with composite-resin. Teeth were sectioned to create resin-dentine specimens of 1 mm thickness. Resin penetration depth analysis was performed using micro-Raman spectroscopy across resin-dentine interface. CH<sub>2</sub> alkyl group at 605cm<sup>-1</sup> was selected as a measure of adhesive penetration. For Nano leakage analysis, specimens were stored in ammoniacal silver nitrate. After storage, specimens were examined using scanning electron microscope. Degree-of-conversion of adhesives were measured using Raman, (C=C before and after curing) and data were analyzed using ANOVA and Tukey's test ( $p < 0.05$ ).

**Results:** TE group had deepest resin-penetration of 14µm and was significantly different from other groups ( $p < 0.05$ ). TE group demonstrated least amount of silver particles deposition along resin-dentine interface ( $p < 0.05$ ). TE adhesive demonstrated the highest DC (82.57%) and was significantly different from the SE and Universal groups while universal adhesive has the lowest DC. Principal bands of Amide III and Amide I at 1246 cm<sup>-1</sup> and 1667 cm<sup>-1</sup> respectively showed higher intensity amongst TE specimens.

**Conclusions:** Within the limitations of this study, total-etch adhesive is the preferred choice when restoring Class V cavities with composite resin.

## B 5

### COMPARATIVE EVALUATION OF FLUORIDE RELEASING ABILITY OF FOUR TOOTH COLORED RESTORATIVE MATERIALS

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**Background:** Secondary/recurrent caries has been determined to be one of the most common cause of restoration failures especially in extensive cavities. Incorporating fluorides into the composition of the restorative materials is one of the effective strategies adopted for preventing secondary decay in restorations. Hence, numerous companies have developed dental restorative materials that are able to release high amount of fluoride in order to ward off secondary caries.

**Aim and Objectives:** To study the fluoride release of a new material (Cention N), an alkasite comparing with a resin modified glass ionomer cement, a fluoride containing composite resin and a composite when stored in deionizing solution.

**Methodology:** Four tooth-colored dental restorative materials were used: A (EQUIA) a resin-modified GIC, B (Beautifil II) a fluoride releasing composite, C (Cention N) an alkasite and D (Estelite Quick) a composite. A total of 20 samples (disc of 10.0 mm in diameter, 1.0 mm in thickness) were prepared using a teflon mold. The specimens were immersed in a deionizing solution for 24 hour. The fluoride ions were measured over 28 days using Ion Chromatography. The readings were taken after day 1, day 7 and day 28.

**Results:** Resin Modified GIC (EQUIA) gave the highest amount of Fluoride release followed by Alkasite (Cention N), Giomer (Beautifil II) and Composite (Estelite Quick).

**Conclusion:** Cention N have shown promising results owing to its very high fluoride release. However, resin modified glass ionomer material still tops off in its ability to release the most amount of fluoride.

## B 6

### MECHANICAL AND THERMAL CHARACTERIZATION OF ORTHODONTIC ELASTOMERIC CHAIN IN DIFFERENT IN VITRO CONDITIONS.

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**Background:** There is an increase in the awareness among the general public regarding the side effects caused by various types of orthodontic materials following the orthodontic treatment. The effects of fluoridated mouthwash and cyclic cold and heat environment to orthodontic elastomeric chains are less well known compared to orthodontic metallic components.

**Aim and Objectives:** To investigate the mechanical and thermal properties of the orthodontic elastomeric chains in different test conditions using Differential Scanning Calorimetry (DSC), Thermogravimetric analysis (TGA) and Dynamic Mechanical Analysis (DMA).

**Methodology:** Sixty-three sets of orthodontic elastomeric chains (American Orthodontics, USA) were divided into 3 test conditions (n=21): as-received condition; immersed in 10ml of 0.04% Sodium Fluoride mouth-rinse (Colgate, New York, USA) in incubator of 37°C for 1 hour; subjected to thermocycling process with water bath of 5°C and 55°C, 500 cycles/day with 20s dwell time using automated thermocycler (Zetron, Malaysia). Specimens from each test condition (n=7) were tested using DSC, TGA and DMA for various parameters including glass transition temperature and damping effect. The data was analyzed using independent t-test (p<0.05) (SPSS V12.0.1, IBM, USA).

**Results:** The effect of fluoridated mouth-rinse and thermocycling process on the mechanical and thermal properties of the orthodontic elastomeric chains showed statistically significant difference where both significantly increased the glass transition temperature and reduced the damping effect of orthodontic elastomeric chains.

**Conclusion:** Fluoridated mouth-rinse and thermocycling process have an effect on the mechanical and thermal properties of



## B7

### THE EFFECT OF INCORPORATION OF CELLULOSE KENAF FIBER IN COMPOSITE RESIN ON MECHANICAL PROPERTIES

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**Background:** Fiber-reinforced composite characterised by high, specific strength and improved stiffness. Currently, natural-based fibre products such as kenaf are gaining more interest and widely used in engineering and industrial applications.

**Aim and Objectives:** To evaluate the mechanical properties of composite resin after incorporation of cellulose Kenaf fibres.

**Methodology:** Kenaf reinforced composite resin (Tetric + 2% kenaf) was fabricated manually after undergone alkaline treatment and wetted with coupling agent. Specimens for kenaf reinforced composite resin and control groups, Tetric (Ivoclar Vivadent, Liechtenstein) were prepared using stainless steel mould with dimension of 6mm x 4mm and 25mm x 2mm x 2mm for compressive and flexural strength test respectively and later tested using Instron Universal Testing Machine (Shimadzu, Japan). Raw kenaf fibre, treated kenaf fibre and fractured sample from flexural strength were analysed using Scanning Electron Microscopy (SEM) (FEI Quanta FEG 450, USA) for their surface topography. Data were analyzed using independent sample T-test and Mann-Whitney U Test.  $p < 0.05$  was considered as significant.

**Results:** Kenaf reinforced composite resin have a lower flexural strength, compressive strength and compressive modulus but higher elastic modulus of flexural strength than Tetric. SEM analysis revealed that the fibres have average length of 1.24 mm with diameter ranging from 6.56 $\mu$ m to 12.9 $\mu$ m. The fibres dispersed in composite as single strand or a bundle with a minimal gap between fibres and composite.

**Conclusion:** Improved adaptation between kenaf fibres and composite noted after alkaline treatment and coupling agent coating, however flexural and compressive strength did not improve. Therefore, additional treatments of kenaf are required for favourable result.

## B8

### EVALUATION OF NANOHYDROXYAPATITE DENTIFRICE IN DENTINE TUBULE OCCLUSION

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**Background:** Dentin hypersensitivity is most common clinical condition affecting 60-98% of the periodontitis patients. Oflate, nanohydroxyapatite (nHAP), a novel biocompatible material has gained wide acceptance in the field of dentistry. However, the effective percentage and the mode of application that gives best results with nHAP were still inconclusive.

**Aim and Objectives:** The objectives of this study were

1. To evaluate the efficacy of nanohydroxyapatite in dentin tubule occlusion as compared to proarginine and fluoride dentifrices.
2. To investigate the obliteration of exposed root dentinal tubules by nanohydroxyapatite toothpastes using home care, in-office or combined approach.

**Methodology:** Total of ninety root dentin fragments were obtained (3x5mm) by decrowning and sectioning sound human premolars and third molars. The samples were prepared exposing 3x5 mm of root dentin and were divided into 6 groups of 15 each; Group A, 10% nHAP (In-office); Group B, 1% nHAP (Homecare) ; Group C, 10% nHAP In-office + 1% nHAP Homecare ; Group D, 8% proarginine CaCO<sub>3</sub>; Group E, 320ppm sodium monofluorophosphate ; Group F, distilled water. Dye penetration was tested with 2% methylene blue using stereomicroscope (40 x) by measuring the length of the dye penetrating along the tubules. Two samples from each group were selected to observe under scanning electron microscopy (SEM).

**Results:** Intragroup comparisons were done using Kruskal-Wallis test and inter group comparisons were done using Mann-Whitney's test. Percentage of penetration of the dye was highest in control group > nHAP in-office followed by fluoride > pro arginine > nHAP home care and was least for nHAP combined approach. With nHAP, combined approach showed more effectiveness followed by homecare and in-office groups, although the concentration of nHAP was higher compared to homecare group.

**Conclusion:** All the toothpastes tested have shown dentinal tubule obliteration. nHAP is superior to other toothpastes applied either home care or combined approach.



## B9

### THE RELATIONSHIP OF NON-IMPACTED THIRD MOLARS AND THE PERIODONTAL STATUS OF ADJACENT TEETH - A CROSS SECTIONAL STUDY

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**Background:** Deep periodontal defects distal to second molars (M2) with erupted asymptomatic third molars (M3) are commonly reported. Some studies concluded better periodontal status of M2 after M3 removal. This affects clinical decisions on management of asymptomatic M3.

**Objectives:** To compare the periodontal status of M2 in patients with non-impacted third molars (N-M3) and those with missing/extracted M3.

**Methodology:** Thirty patients with N-M3 and 30 with missing/extracted M3 were selected. Non-impacted third molars were included when fully erupted with  $<10^\circ$  angulation to the vertical. A questionnaire was used to collect demographic data. Calibrated examiners recorded periodontal measurements of M2 at 6 points using Plaque Index (PI), Gingival Index (GI), Probing Pocket Depth (PPD), Clinical Attachment Level (CAL), Bleeding on Probing (BOP) and Gingival Recession (GR). The mean values of each index measurements were compared between both groups using SPSS V22.0 Student t-test;  $p < 0.05$  was considered significant.

**Result:** No significant differences were found for the periodontal parameters (PI, GI, PPD, CAL, BOP, GR) between the two groups ( $p$ -values ranged from 0.470 to 0.800). There was no difference in the mean periodontal parameter between maxilla and mandible ( $p=0.723$ ).

**Conclusion:** N-M3s do not seem to be a potential risk factor for periodontitis in M2s. Therefore, N-M3 extractions may not be required at all times. However, more studies are required on larger sample size and specific age groups.

## B10

### THE RELATIONSHIP OF FACIAL MEASUREMENTS WITH THE MESIODISTAL WIDTH OF THE MAXILLARY ANTERIOR TEETH

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**Background:** The size of the anterior maxillary teeth is imperative for optimized dental and facial aesthetics as maxillary anterior teeth are the most visible in unstrained facial activity.

**Objectives:** The aim of this study was to determine the most reliable facial measurements which correlate well with the mesiodistal width of the maxillary anterior teeth (MDW) that could be used as guidance for anterior teeth selection in complete denture construction. The facial dimensions measured were interpupillary distance (IPD), intercanthal distance (ICD) and interalar distance (IAD).

**Methodology:** The facial and dental measurements were obtained directly from 170 Malay subjects (85 male, 85 female) aged between 19 and 35, with morphologically normal and complete permanent maxillary anterior teeth. Facial dimensions were measured using a digital vernier caliper while the MDW were measured using a flexible ruler. The three facial dimensions were correlated with the MDW for each group.

**Results:** The means of IPD and IAD were significantly larger in male (IPD: $p=0.000$ , IAD: $p=0.000$ ) but the means of ICD and MDW were not significantly different between male and female (ICD: $p=0.523$ , MDW:  $p=0.074$ ). No correlation was found between any of the facial dimensions and MDW for both groups (IPD; Male: $r=0.182$ ,  $p=0.108$ ; Female: $r=0.039$ ,  $p=0.721$ ), (ICD; Male: $r=0.156$ ,  $p=0.171$ ; Female: $r=-0.116$ ,  $p=0.291$ ), (IAD; Male: $r=0.063$ ,  $p=0.583$ ; Female: $r=-0.134$ ,  $p=0.222$ ).

**Conclusion:** IPD, ICD and IAD do not have any correlation with MDW and therefore these facial dimensions may not be used as reliable guidance in selecting the size of maxillary anterior teeth in complete denture construction for the studied population.

## **B11** ARTICULATORY DISTORTION WHEN USING DIFFERENT TYPES OF MOUTHGUARD

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**Background/ Aim:** To compare the articulatory distortions of plosive sounds when using different types of mouthguards.

**Methodology:** A controlled trial was conducted. Thirty one female national rugby players aged 18 and above were recruited. They were all native speakers of Malay with no history of mouthguard use, speech or hearing impairment. 'Boil and bite' mouthguard and custom-fitted mouthguard were provided for each participant. The articulation of phonemes with plosive sounds (/p/, /b/, /t/, and /d/) were recorded in a quiet room for the following conditions: (i) not using mouthguard (control); (ii) using a 'boil and bite' mouthguard; and (iii) using a custom-fitted mouthguard. A washout interval of one hour was implemented between interventions. The recorded speech waveforms were digitized and transcribed into PRAAT software version 5.3.56 for spectrographic analysis. Mean voice onset time for all phonemes were measured in millisecond. Friedman's test was used as the omnibus test with statistical level of significance set at  $\alpha = .05$ , while Wilcoxon signed-rank test with Bonferroni correction ( $\alpha = .017$ ) was used for pairwise comparisons.

**Results:** A total of 25 participants had complete follow-up. There was a statistically significant difference in the articulation of all plosive sounds between control, 'boil and bite' mouthguard and custom-fitted mouthguard ( $P < .001$ ). All pairwise comparisons were statistically significant ( $P < .001$ ). Distortion was most prominent for 'boil and bite' mouthguard, followed by custom-fitted mouthguard.

**Conclusion:** Articulation of plosive sounds is distorted with the use of mouthguard, especially when using the 'boil and bite' mouthguard.

## **B12** EFFECTIVENESS OF ORAL HEALTH EDUCATIONAL INTERVENTION ON ORAL HYGIENE STATUS AND PRACTICE OF SPECIAL HEALTH CARE NEEDS INDIVIDUALS IN SELECTED CENTRES IN MELAKA - A FACTORIAL RANDOMIZED CONTROLLED TRIAL

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**Introduction:** Special health care needs (SHCN) are at high risk for health problems. Oral health is no exception and dental care needs tend to be more prevalent in SHCN individuals compared to general population.

**Objectives:** To evaluate the impact of H.O.P.E (Holistic Oral health Programmed Education) intervention on oral hygiene status and practice of individuals with special health care needs.

**Methodology:** A factorial randomized controlled trial was done including 64 SHCN individuals and their parents. In Phase 1, SHCN individuals were randomized and divided into control and intervention groups. Phase 2 was carried out by dividing the parents of the SHCN individuals into control and intervention groups. Intervention groups were given H.O.P.E intervention using pedagogical methods suggested for Autism and Down Syndrome individuals (visual pedagogy, puppetry, pretend play, music therapy and picture exchange communication system).

**Results:** Intra group and intergroup comparisons showed significant improvement of brushing technique score (BTS) at 1 week post intervention. There was significant difference in simplified debris index (SDI) and BTS in between parent's intervention and parent's control group at 1 week and 3 months post parents education. The mean SDI was significantly lower in parent intervention group than parent control group.

**Conclusion:** Providing oral health education intervention to SHCN individuals with parents' supervision will have positive impact on their oral hygiene status and practice.



## C1

### IDENTIFICATION OF MICROBIAL POPULATION ISOLATED FROM UITM DENTAL STUDENTS' MOBILE PHONES

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**Background:** Mobile phones are now used for clinical communication and it is proven that there is improvement in terms of communication. Whilst mobile phone usage has been made a routine for many individuals, its hygiene has become a huge negligence issue.

**Objectives:** The aim of this study was to assess the awareness level in mobile phones hygiene practice and to identify different types of microbial population isolated from UiTM dental students' mobile phones.

**Methodology:** 80 students; 40 each from preclinical and clinical year were randomly selected. A questionnaire assessing their awareness and mobile phone hygiene practice was distributed. Swab were taken from the students' mobile phones using sterile cotton swab, cultured on nutrient agar and incubated for 48 hours. Bacterial colonies were subsequently viewed under light microscope. Data were analysed using chi-square and t-test based on SPSS-25.

**Results:** No significance difference in all parameters in the questionnaire between the clinical and preclinical students. 83.75% (n=67) was gram positive bacteria while 16.25% (n=13) was of gram negative. The load of gram-negative bacteria was statistically higher on the mobile phones of clinical students compared to preclinical students ( $p < 0.05$ ). The most common bacterial isolated was cocci (61.25%), staphylococcus (23.75%), rod (6.25%), streptococcus (5%), diplococci (2.5%), and spiral (1.25%).

**Conclusion:** A high level of awareness but poor attitude towards mobile phones hygiene practice was observed between preclinical and clinical students. The laboratory findings suggested that the dental faculty houses gram-positive bacteria while gram-negative bacteria were mainly harbored in the dental clinics and simulation laboratory.

## C2

### EFFECT OF FLAP DESIGN, DEEPITHELIALIZATION AND NUMBER OF SUTURES ON THE WOUND DEHISCENCE AFTER SURGICAL REMOVAL OF IMPACTED MANDIBULAR THIRD MOLARS

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**Background:** Wound dehiscence distal to the second mandibular molar tooth is one of the common problems after surgical removal of impacted third molars. It causes entrapment of food and debris, creates bad odor and might give rise to long-standing postoperative pain. Modifications in flap technique have shown to affect the intensity and frequency of post-operative complications in third molar surgery. In a study done by Amin Rahpeyma et al. in 2015, they have concluded that the triangular flap may prevent postoperative wound dehiscence more effectively than the envelope flap. Sandhu, A et al. in their study concluded that the bayonet flap was superior to the envelope flap in regards to postoperative pain and wound dehiscence.

**Aim:** To evaluate the effects of flap design, deepithelialization and number of sutures on the wound dehiscence after surgical removal of impacted mandibular third molars

**Objectives:**

- To compare the effects of two types of flaps on the wound dehiscence
- To assess the effect of deepithelialization on wound dehiscence
- To evaluate effect of number of sutures on wound dehiscence

**Methodology:** Total sample size comprised of 34 patients – 17 patients surgically operated through triangular flap (T 1), 17 patients done through trapezoidal flap (T 2). Deepithelialization of the lingual flap was carried out in 17 patients selected randomly irrespective of the type of flap used. The study was randomized by assigning computer generated random number to the patients in terms of flap design and deepithelialization. The number of sutures placed distal to the second molar tooth was decided by the operating surgeon.

**Results:** Spearman's correlation coefficient value (-.493) showed moderate correlation between the number of sutures and the wound dehiscence score. Mann-Whitney test showed that the association between the type of flap and the wound dehiscence was not significant (p value- 0.882). Mann-Whitney test showed that the association between the deepithelialization of the lingual flap and the wound dehiscence was highly significant (p value- 0.000).

**Conclusion:** De-epithelization of the lingual flap margin reduces the incidence of postoperative wound dehiscence after the surgical removal of impacted mandibular third molars. More number of sutures placed can minimize the incidence of wound dehiscence. The type of flap does not have significant effect on the incidence of wound dehiscence.

## C3

### TOPICAL FLAXSEED EFFECT ON WOUND HEALING (AN EXPERIMENTAL STUDY)

#### Authors :

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**Introduction:** Flaxseed is plant of the family Linaceae, has been shown to demonstrate antibacterial, antifungal and anticancer properties. The objective of this study is to determine the effects of flaxseed gel on wound healing process.

**Materials and Methods:** It is an in vivo study using 18 male New Zealand white rabbits. Divided into 3 groups negative control, positive control using Fucidin and treatment group using topical flaxseed gel. An open full-thickness linear incision wound of 0.4 cm depth by 1.5 cm length was made on the interscapular region of rabbits for all groups. The wounds were observed macroscopically and microscopically. Tissue samples were taken on day 3, 5, and 10. The statistical analysis was done by using IBM SPSS Data Editor Version 23.

**Results:** Type of treatment has significantly affected the elasticity with p-value of 0.0003 ( $p < 0.001$ ). Flaxseed group shows the higher mean force to lift the skin, indicating greater skin firmness and reduced in elasticity as compared to negative and positive control groups. Significant differences observed in between groups on Day 3, 5 and 10. By day 10, flaxseed group showed reduced inflammation and neutrophil/macrophage ratio, and significant re-epithelization percentage, with p-value of 0.012 and 0.032 respectively ( $p < 0.05$ ).

**Conclusion:** This study concludes that flaxseed extract has a positive effect on wound healing process both morphologically and histopathologically. The implication of this result will be useful in commercializing the use of flaxseed as a natural based product for faster wound healing.

**Keyword:** Topical flaxseed, wound healing, experimental study

**Running title:** Effects of Topical Flaxseed on Wound Healing

## C4

### A 3-DIMENSIONAL MORPHOMETRIC ANALYSIS OF MANDIBULAR BASAL SYMPHYSIS TO ASSESS THE AGE AND GENDER AMONG MALAYSIAN POPULATION

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**Background:** Human identification by determination of age, sex, stature, ethnicity, etc. is a challenging task in forensic sciences. Mandibular basal symphysis is one of the anatomical structures that may be used as a landmark in forensic anthropology.

**Aim and Objectives:** We aim to evaluate the mandibular basal symphyseal morphometry in assessing the age and gender among Malaysian population.

**Methodology:** Randomly selected 168 CBCT images of the mandible were analyzed for the mandibular basal symphyseal parameters such as the height, width and depth. They were assessed for sexual dimorphism and correlated with chronological age of the individuals. The variations with regards to ethnicity were also tested. Following correlation, a population specific equation was derived for age estimation using linear regression. The equation was further validated on test sample of 30 CBCT images.

**Results:** When assessed for sexual dimorphism, the height of the mandibular basal symphysis showed a statistically significant difference between the two genders ( $p = 0.02$ ). The Pearson Correlation Coefficients (R value) between the three symphyseal parameters (height, width and depth) and chronological age were 0.171, 0.050 and 0.004 respectively. Among the three parameters, only the height showed a statistically significant, but a weak positive correlation ( $p = 0.027$ ) in relation to age. The linear regression equation was validated on a test sample of 30 CBCT images. Different ethnical groups showed no variations in the symphyseal morphometry.

**Conclusion:** Based on our observations, we hypothesize that mandibular basal symphysis height may be a useful parameter in forensic age and gender determination among Malaysian adults.



## TRAUMATIC INJURIES TO POSTERIOR TEETH FOLLOWING MAXILLOFACIAL SKELETAL TRAUMA

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**Background:** Dental injuries in association with facial bone fractures are common in maxillofacial trauma but comprehensive studies on posterior teeth involvement are lacking. This study aimed to investigate the prevalence and type of posterior teeth injuries, identify their locations, and classify the pattern of posterior crown fractures.

**Aim and Objectives:** To investigate the prevalence and characteristics of posterior teeth injuries in associations to maxillofacial injuries, classify the patterns of posterior crown fractures and postulate its mechanisms of injuries.

**Methodology:** This is a retrospective cross-sectional study that reviewed the files of 559 trauma patients, The patients sociodemographic data and the records on teeth involved in injury, types of trauma sustained and patterns of posterior teeth injuries were extracted for analysis

**Results:** There were 160 patients who suffered injuries to 510 posterior teeth , giving a tooth-per patient ratio of 3.2:1. The most common dental injury was crown fracture (39.41%) followed by concussion (26.86%), tooth loss (20.00%), and dentoalveolar involvement (13.73%). The upper teeth were more often traumatized in cases with or without maxillofacial injuries, and in many types of facial fractures affecting tooth bearing and non-tooth bearing region. Vertical crown fracture most often involved the shearing-off of a buccal or lingual/palatal wall of posterior cusps irrespective of the types of maxillofacial injuries.

**Conclusion:** Mild posterior dental injuries often occurred with different types of maxillofacial trauma. Crown fracture was more frequently occur in mandibular fracture than other types of injury. There are 2 types of impact that inflicted posterior teeth injuries; direct trauma from the anterior region, and indirect impact from blows to the jaw especially in the mandible. Indirect trauma results in fractures to the mandible and/or the shearing-off type of crown cusps fracture.

## SPECTROSCOPY CHARACTERIZATION OF HUMAN DENTINE SIALOPHOSPHOPROTEIN (DSPP) IN ORTHODONTIC PATIENT

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**Background:** Orthodontic-induced inflammatory root resorption (OIIRR) is an undesirable effect of orthodontic treatment. Dentine sialophosphoprotein (DSPP) is one of the promising biomarkers in monitoring OIIRR.

**Aim and Objectives:** Aim was to investigate the absorbance spectrum of human DSPP by using absorption spectroscopy in the ultraviolet (UV)-visible wavelength regime. The objectives were to determine the wavelength of DSPP and identify its absorbance spectrum peak in gingival crevicular fluid (GCF) at different stages of orthodontic treatment.

**Methodology:** A total of 10 subjects were recruited consisting of 3 non-orthodontic patients (T0) as control and 7 orthodontic patients which were further categorized into: three-months into treatment (T3) n=2, six-months into treatment (T6) n=2, and twelve-months into treatment (T12) n=3. The DSPP in GCF was collected using paper strips and placed into 1.5mL microcentrifuge tube containing 300 µL protease inhibitor. After centrifugal filtration at 400xg for 10 minutes at 4°C, the samples were characterized using the deuterium light source (Ocean Optic, Germany). A reconstructed graph of absorbance spectrum was made.

**Results:** The range of the DSPP wavelength from both non-orthodontic and orthodontic groups showed absorbance spectrum between 244.11 to 259.86 nm with different levels of absorbance spectrum. The DSPP mean values were proportional to orthodontic treatment time and the highest was T12 group.

**Conclusion:** This study demonstrated the potential of spectroscopy as an analytical method in DSPP detection. DSPP absorbance spectrum from orthodontic treated patients were higher compared to non-orthodontic patients, suggesting higher levels of DSPP released in GCF as treatment frames increased due to OIIRR.



## MANDIBULAR MEASUREMENTS AMONG THE DIFFERENT ETHNICITIES IN MALAYSIA: A COMPARATIVE STUDY

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**Background:** The mandible is durable and retains its morphology and can assist to assess age and gender in forensics.

**Objectives:** To compare the mandibular measurements from digital Orthophantomographs (OPGs) between three ethnic groups in the Malaysian population.

**Methods:** A total of 180 digital OPGs were randomly selected, totaling 60 each for Indians, Malays and Chinese. Examiners measured the ramus of the mandible for the mental index, height of coronoid, maximum and minimum ramus breadth of both sides using VixWin™ Platinum 3.0. Data was analyzed by gender and 10-year age groups using ANOVA and student's *t* test in SPSS V22.  $P < 0.05$  was considered significant.

**Results:** Gender breakdown was 40% males and 60% females. The mean maximum ramus breadth was found to be significantly lower in Chinese compared with Malays and Indians ( $p = 0.008$ ). The mean height of the coronoid was found to be significantly higher in males ( $56.90 \pm 5.71$ ) compared with females ( $51.46 \pm 7.93$ ) across all groups ( $p < 0.01$ ). Mean maximum ramus breadth was also found to be significantly higher in males ( $39.52 \pm 3.65$ ) compared with females ( $37.66 \pm 4.01$ ) with  $p = 0.008$ . The mean minimum ramus breadth was found to be significantly higher in the younger 21-30 age group compared with older age groups across all groups ( $p = 0.021$ ).

**Conclusion:** This study shows that the coronoid height and ramus breadth of mandible can be used as an aid in predicting ethnicity, age and gender among ethnic groups in Malaysia for forensic purposes.

## GENE EXPRESSION OF SELECTED APOPTOTIC MARKERS IN HUMAN ORAL SQUAMOUS CARCINOMA (HSC-3) CELL LINES TREATED WITH MYRMECODIA PENDANS PLANT EXTRACT

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**Introduction:** *Myrmecodia pendans* (*M. pendans*), also known as Sarang Semut is an epiphyte with potential as a new therapeutic agent. Recently, we reported that *M. pendans* induced apoptotic activity in human oral squamous carcinoma (HSC-3) cell line. This study aimed to study how *M. pendans* extract affected apoptotic markers BAX/BCL-2 expression.

**Materials and methods:** *M. pendans* was purchased from West Papua, Indonesia. The hypocotyl was allowed to dry thoroughly, then extracted aequously. The extract was kept at  $-80^{\circ}\text{C}$  before freeze drying. The crude extract was used in the experiments. HSC-3 cells were cultured in Dulbecco's Modified Essential Medium, then exposed to *M. pendans* at 2.5, 5.0 and 7.5 mg/ml for 24 and 48 h. Doxorubicin (0.005 mg/ml) was used as positive control. BAX and BCL-2 expression was analysed by Quantitative Real Time Polymerase Chain Reaction.

**Results:** BAX and BCL-2 expression in HSC-3 cells was affected by *M. pendans*. At 24 h, highest levels of BAX and BCL-2 were observed with *M. pendans* at 2.5 mg/ml, while downregulation was observed at 5 mg/ml. However, after 48 h, BAX and BCL-2 were downregulated at all concentrations. The ratio of BAX/BCL-2 in HSC-3 cells at 24 h showed significant upregulation at all treatment concentrations, but was downregulated after 48 h.

**Conclusion:** *M. pendans* extract induced apoptotic activity in HSC-3 cells. This study suggests that induction of apoptosis in HSC-3 cell line is regulated via the pro-apoptotic (BAX) and anti-apoptotic (BCL-2) pathways.

**Keywords:** *M. pendans*, HSC-3, apoptotic, BAX, BCL-2

**Running title:** Gene Expression of Selected Apoptotic Markers in Human Oral Squamous Carcinoma HSC-3 Cell Line Treated with *Myrmecodia pendans* Plant Extract

## C9

### THE RELATIONSHIP BETWEEN BODY MASS INDEX (BMI), DENTAL DEVELOPMENT AND CHRONOLOGICAL AGE IN 10-16-YEAR-OLD MALAYSIAN MALAY AND CHINESE PATIENTS

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**Background:** Childhood obesity is one of the most severe public health challenges in Malaysia. It may affect dental development of growing children.

**Aim:** To determine the association between BMI, dental development (DA) and chronological age (CA) in 10-16-year-old Malay and Chinese patients.

#### Objectives:

- 1) To determine the difference in BMI, DA and CA between males and females;
- 2) To determine the relationship between DA and CA;
- 3) To determine the difference between DA and CA by BMI;
- 4) To determine the relationship between BMI, DA and CA in males and females.

**Methodology:** BMI of 49 patients was calculated then classified using 2007 WHO BMI classification. CA was calculated by subtracting date of birth from date of dental panoramic tomography taken. DA was determined using Demirjian's model for Malay and Chaillet & Demirjian's model for Chinese with Bunyarit modified score.

**Results:** Independent-samples t-test showed no significant difference in BMI, DA and CA between males and females ( $p=0.963$ ,  $p=0.756$ ,  $p=0.952$  respectively). The correlation between DA and CA was positive and strong ( $r=0.882$ ). Mean CA of underweight and normal weight patients was 0.436year higher than mean DA ( $p<0.001$ ), mean CA of overweight and obese patients was 0.432year lower than mean DA ( $p=0.007$ ). BMI and CA were found to be significant in determining DA in males ( $p=0.007$  for BMI,  $p<0.001$  for CA), females ( $p=0.001$  for BMI,  $p<0.001$  for CA). The formulae derived were  $DA=0.808(CA)+0.159(BMI)$  for male,  $DA=0.730(CA)+0.101(BMI)$  for female.

**Conclusion:** Overweight and obese children had advanced dental development among 10-16-year-old Malay and Chinese patients.

## C10

### A COMPARISON BETWEEN CEPHALOMETRIC ANALYSIS RESULTS OF CONVENTIONAL AND DIGITAL MOBILE APP METHOD A RETROSPECTIVE RECORD REVIEW

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#### Supervisors:

1. Asst. Prof. Dr. Sunny Gupta
2. Prof. Dr. Htoo Htoo Kyaw Soe

**Introduction:** Cephalometric analysis has two methods which are the conventional tracing and digitalized method. Mobile apps regarding cephalometric analysis have also been developed. Our study aims to compare the cephalometric analysis results obtained between the conventional tracing and digital mobile app method with the apps CephNinjaPro® and OneCeph®.

**Objectives:** To evaluate the reliability of the results acquired for cephalometric analysis by using digital mobile app method in comparison to conventional tracing method.

**Methodology:** 34 pre-existing lateral cephalogram in FOD, MMMC, that fulfilled the inclusion criteria was traced using conventional method, CephNinjaPro® and OneCeph® mobile app. Landmarks were marked and 22 measurements were performed respectively. The statistical analysis test done was Pearson's Coefficient Correlation and Bland Altman graph.

**Results:** In CephNinjaPro® app, 16 out of 22 variables were significant based on the Pearson's correlation coefficient. In OneCeph® app, 17 out of 22 variables were significant based on the Pearson's correlation coefficient. 21/22 parameters within range of 95% of  $\pm 2$  SD of mean difference for both CephNinjaPro® and OneCeph® respectively.

**Conclusion:** According to the correlation seen in the results by comparing conventional and CephNinjaPro® and OneCeph® respectively, both mobile apps show high correlation in majority and is acceptable to be used clinically.



# POSTER PRESENTATIONS

## A1

### ORAL HEALTH KNOWLEDGE, PRACTICES OF MOTHERS OF YOUNG CHILDREN AND PERCEIVED BARRIERS TO DENTAL CARE

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**Aim:** To assess knowledge, oral-health-related practices of mothers of pre-school children and determine possible barriers to dental care for young children from mothers' perspective.

**Methods:** This cross-sectional study involved mothers of pre-school children in Kelana Jaya area kindergartens, using a self-administered questionnaire which was validated and pre-tested prior to distribution. Data obtained from 151 respondents (75.5% response rate) were processed and analysed using SPSS statistical programme (version 25).

**Results:** Oral-health-related knowledge varied widely among respondents. Slightly more than half (55.8%) of respondents gave correct answers regarding the first primary and permanent tooth eruption time, and when to start tooth brushing in young children. More than half (68.9%) were not aware of the recommended child's first dental visit at 1-year of age! Although 62.2% associated dental caries with sugary food and drinks, 37.8% related it to tooth brushing with 2.0% saying caries is due to using insufficient toothpaste! 'Fruit-cheese-nuts' are not snacks of choice to almost all (94.7%) mothers. Interestingly, the majority claimed to have no problem bringing their children to the dentist. However, almost half of the respondents admitted to 'children's fear of going to the dentist'.

**Conclusion:** Mothers appeared to have limited knowledge on dental/oral health of their young children, with lack of awareness of safe snacks. There appears a need for effective dental health education re-early childhood caries. Although the majority of mothers claimed 'no problem bringing young children to the dentist', children's 'dental fear' is a point of concern and a possible barrier that must be addressed.

## A2

### ASSESSMENT OF KNOWLEDGE AND ATTITUDE AMONG DENTAL STUDENTS IN ISLAMIC SCIENCE UNIVERSITY OF MALAYSIA (USIM) TOWARDS HIV PATIENTS.

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**Background:** As dentists could be the primary practitioners to diagnose HIV/AIDS and cross-contamination can occur, more efforts should be taken to enhance knowledge and attitude of dental students towards HIV/AIDS patients.

**Aim and Objectives:** The aim of this study is to assess and compare knowledge and attitude among USIM dental students, to compare the knowledge relative to gender and to determine correlation between knowledge and attitude.

**Methodology:** A total of 136 students from Year 2 to Year 5 of academic year 2017/2018 had been invited to participate in this study, students were consented and brief about the purpose of the study prior to answering self-administered questionnaires.

**Results:** The total mean knowledge and attitude were 69.65 percent (good) and 68.54 percent (passive), respectively. Both clinical and pre-clinical students have passive attitude towards HIV patients and showed good level of knowledge with 70.81 percent and 66.39 percent respectively. There were significant differences between different year of study in terms of knowledge  $p < 0.05$ , third year students showed significantly higher proportion with 41.9 percent of having excellent knowledge while in terms of gender, both male and female have good level of knowledge with mean of 67.39 percent and 70.41 percent respectively. There is also a statistically positive weak correlation between knowledge and attitude ( $r = 0.186$ ).

**Conclusion:** Overall USIM dental students have good knowledge and passive attitude towards HIV/AIDS patients with poor correlation between knowledge and attitude.

## A3

### EFFECTIVENESS OF AUDIOVISUAL DISTRACTION IN THE REDUCTION OF DENTAL ANXIETY DURING LA INJECTION.

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**Background:** Dental anxiety is a relatively common problem associated with undesirable distresses, such as postponement/cancellation of dental treatment thereby affecting the overall quality of life of patients. Dental anxiety is a common phenomenon in patients undergoing dental injections.

**Aim and Objectives:** To evaluate the effectiveness of audio-visual distraction technique in the reduction of dental anxiety during LA injection.

**Methodology:** A total of 176 patients requiring endodontic therapy or tooth extraction were recruited for this study. Hamilton Anxiety Rating Scale was used to measure the patient's anxiety level. Additionally, a feedback questionnaire was devised to evaluate the patients' perception on the effectiveness of audio-visual distraction. Paired 't' test was used to compare the anxiety levels before & after the intervention. Descriptive statistics were applied for evaluating the patient feedback.

**Results:** There was a significant difference in the anxiety level between pre-test and post-test with  $t=13.804$ ,  $p < 0.05$ . On average, the pre-test scores were 1.932 points higher than post-test scores (95% CI [1.656, 2.208]). Based on the feedback, 62.1% of the participants felt that use of audio-visual technique helped in reducing their anxiety during the local anesthesia (LA) procedure.

**Conclusion:** An approach which is trendy and hassle free can now be implemented in dental practice, which is shown to alleviate fear and stress of patients, thereby improving the quality of treatment rendered by dental health care professionals. On evaluation of patient feedback, higher levels of compliance were observed. Audio - Visual distraction, though simple, can prove to be a valuable asset for dental surgeons in reducing anxiety.

## A4

### KNOWLEDGE AND ATTITUDE OF FIRST AID AMONG HEALTH SCIENCE STUDENTS IN AIMST UNIVERSITY

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**Background:** First Aid is regarded as a basic set of skill vital in order to save a life in an urgent situation. The level of first aid skills in health science students is pertinent to determine if first aid training is being sufficiently provided.

**Aim and Objectives:** This study aims at assessing and comparing the knowledge and attitude regarding first aid among undergraduate final year medical, dental and pharmacy students.

**Methodology:** A cross-sectional study was conducted on a sample of 223 students using a validated optional questionnaire. Data was entered in Microsoft Excel Sheet. Analysis was done using Statistical Package for Social Sciences version 21. Data was analysed using percentages and One-way ANOVA test.

**Results:** In terms of knowledge, overall the medical students manage to record the most correctly answered questions in comparison to dental and pharmacy students. The p-value calculated was 0.000 hence noting that there is a significant difference in terms of knowledge. However the p-value for the attitude score was 0.459 citing no significant difference in attitude amongst the students from the 3 faculties.

**Conclusion:** From the results we can conclude that the First Aid Knowledge amongst health science students in AIMST was lacking in a few key areas. The study also showed that the students have a positive attitude towards learning first aid. There is thus a need for more workshops regarding first aid training to be introduced in the curriculum.



## A5

### FIRST CONSULTATION OF THE NEWBORN WITH CLEFT LIP AND/OR PALATE: IS IT OF GOOD QUALITY AND WHAT INFORMATION DO PARENTS CRITICALLY NEED?

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**Background:** During the vulnerable period of the birth of a baby with cleft lip and/or palate (CLP), the quality of the first consultation and the information delivered at the early days of life is paramount for parental adaptability.

**Aim and Objectives:** To assess the quality of the first consultation received by the parents specifically the timing, sources, content, and the delivery; to determine critical information required on their child's early days (1- 3 days) of life; and to investigate the associated factors.

**Methodology:** A survey using a validated self-administered questionnaire was conducted among forty parents of CL/P children aged five-year-old and below attending the Combined Cleft Clinic, University of Malaya between March to August 2018. Descriptive statistics and Chi-square tests with the level of significance of 0.05 were employed.

**Results:** The median time of the first consultation was two days after birth, believed as the right time by most parents (77%), mainly delivered by the CLAPAM and healthcare professionals. Almost half of the parents did not receive advice on diet, feeding, speech and parents' association. Nevertheless, a majority (>85%) were satisfied with the delivery and how their concerns were being addressed. Feeding, feeding difficulties, treatment plan and prognosis are the most critical information required. Parents' gender, child's birth order and cleft's severity were the significant associated factors.

**Conclusion:** Quality of the first consultations of CL/P new-born ranged from moderate to very good. Home management, treatment plan and prognosis are the most critical information needed by the parents at that time.

## A6

### CURRENT EVIDENCE ON THE UNLICENSED DENTAL PRACTICE

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**Background:** Unlicensed dental practitioner is a person who does not have a license to practice dentistry. According to the Malaysian Health director-general, 18 cases out of 46 complaints about illegal dental practitioner were brought to court since 2015 until 2017, despite all the warnings and actions taken by the government.

**Aim and Objectives:** The aim of this study was to gather holistic evidence on unlicensed dental practice by collating news coverage, scientific research publications, and information on social media activities of the illegal dental practitioners.

**Methodology:** Information on news coverage was collated via Google, Yahoo and Bing while for research publication, information was obtained through three databases, Scopus, Pubmed and Google Scholar. Data from Facebook and Instagram were extracted to gain information on active illegal dental services provider.

**Results:** Out of 195 news reported regarding unlicensed dental practitioner, only 110 cases received legal actions with 81 cases were handed financial punishments, and the rest was handed jail terms or probation. Only 13 related research publications were found and majority were case reports. Despite the law that stated an unlicensed dentist will be punished, more than 170 Facebook and Instagram users with thousands of followers found offering illegal dental services to the public.

**Conclusion:** Not much attention was paid by the scientific committee on illegal dental practice even though it was covered quite thoroughly in the news and services are still actively offered through social media. This descriptive report helps give a holistic perspective on the illegal dental service providers issue, especially in Malaysia.

## A7

### HAND HYGIENE COMPLIANCE: EVALUATING THE IMPACT OF EDUCATIONAL INTERVENTION ON BEHAVIOUR MODIFICATION

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**Background:** Hand hygiene (HH) is a simple and effective practice for prevention of healthcare associated infections (HCAI). However, a lack of compliance continues to be a problem throughout the world, reflecting the difficulty to modify human behavior. An intervention was hence introduced to bring in change.

**Aim and Objectives:** To evaluate HH awareness, perception and compliance of Year 5 dental students through clinical audit, and to evaluate the effectiveness of educational intervention on behavior modification.

**Methodology:** This study was a student-led initiative where final year peers (n=44) were divided into two groups and assessed using the WHO-HH knowledge questionnaire. Audit and feedback were used to measure compliance, followed by educational intervention in the form of lectures and video. The study group (n=22) were shown the same video repeatedly for 21 days before commencement of daily clinical session to bring in behavior change. Perception was recorded and awareness was reassessed.

**Result:** Improvement in the awareness and positive perception of importance of HH was observed. Ninety percent of participants perceived that HCAs have high impact on patient's clinical outcome and 88% perceived HH is effective in preventing HCAs. Although there was no significant difference in compliance rates between the control and intervention group, 50% compliance rate was observed in re-audit phase ( $p<0.05$ ).

**Conclusion:** Our approach to HH compliance may have been tedious with only marginal improvement in compliance and behavior, yet results of our study support evidence in literature and serve as an example for continuous quality improvement.

## A8

### KNOWLEDGE, ATTITUDE AND PRACTICE ABOUT THE MANAGEMENT OF DENTURE STOMATITIS IN COMPLETE AND PARTIAL DENTURE PATIENTS AMONG CLINICAL DENTAL STUDENTS IN MALAYSIA

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**Background:** Denture stomatitis is the inflammatory changes in the oral mucosa of denture-bearing tissues.

**Aim:** This study aimed to assess the level of knowledge, attitude, and practice about the management of denture stomatitis in complete and partial denture patients among clinical dental students in Malaysia.

**Materials and methods:** 256 clinical year dental students from public and private dental faculties participated in a structured online questionnaire via Google Form. The questionnaire consisted of three sections regarding knowledge, attitude and practice in management of denture stomatitis. Sum score of each outcome were analysed based on original Bloom's cut-off point. Kruskal-Wallis and Mann Whitney test were used to determine the relationship between knowledge, attitude and practice to gender, year of study and institution.

**Results:** The mean and standard deviation of knowledge, attitude, and practice scores of the students were 72.5% and 1.48, 86.69% and 1.16, and 90.16% and 1.08, respectively. Majority of the students (50.8%) had fair level of knowledge, 70.3% had a positive attitude, and 80.5% had a good practice in management of denture stomatitis. Year of study had a significant association with the level of knowledge ( $P=0.000$ ). 5th year students had higher level of knowledge than 3rd and 4th year students. Gender also had a significant ( $P=0.032$ ) association with the level of practice. There was no significant association observed between attitude with other variables.

**Conclusion:** Clinical year dental students in Malaysia had fair level of knowledge, positive attitude, and good practice in management of denture stomatitis in complete and partial denture patients.



## A9

### ARE SMARTPHONES PLACING OUR CAREER AT RISK? – A STUDY ON MOBILE PHONE OVER-USAGE AND MANUAL DEXTRITY IN DENTAL STUDENTS.

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**Background:** Smartphones over-usage is a serious issue nowadays and this addiction can cause pain and weakened hand functions. This is becoming a concern to future dentists as well since they need fine motor skills when providing treatment.

**Aim and Objectives:** This study is aimed at assessing the relation between mobile-phone over-usage and manual dexterity of dental students. The study also focuses on determining the degree of mobile-phone over-usage; to evaluate the handgrip and finger strength and to correlate them.

**Methodology:** Questionnaires were distributed to the clinical dental students to assess their mobile phone usage. Then, they were subjected to trigger point palpation in muscles of upper extremity and pain scores were recorded. All the participants were subjected to pegboard test to assess their finger and hand dexterity, and handgrip and finger strength tests. Data were collected and analysed.

**Results:** 65% of students were found to use mobile phones for more than 3 hours per day and 33% have pain in wrist while using mobile phones. Clinical examination reveals that supinator has the highest average pain score (right: 3.89/10, left: 3.96/10), followed by brachioradialis (right: 3.1/10, left: 3.05/10). All average scores for pegboard test are lower than normal. The average handgrip and finger strengths are within the normal range.

**Conclusion:** Majority of students are addicted to smartphone. Supinator and brachioradialis are the most affected hand muscles due to smartphone addiction. Though handgrip and finger strength are within normal range, manual dexterity of the students are significantly affected due to mobile over-usage.

## A10

### ASSOCIATION BETWEEN PERCEIVED RISK FACTORS AND PREVALENCE OF MUSCULOSKELETAL DISORDERS AMONG DENTAL STUDENTS IN MELAKA MANIPAL MEDICAL COLLEGE – A CROSS-SECTIONAL STUDY.

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**Introduction:** Musculoskeletal disorders (MSD) symptoms is one of the major health problems encountered by dental personnel worldwide due to their nature of work. There is increasing evidence that these problems commence during undergraduate training.

**Objectives:** To investigate the association between perceived risk factors and prevalence of musculoskeletal disorders (MSD) symptoms among dental students in Faculty of Dentistry (FOD), Melaka-Manipal Medical College (MMMC).

**Methodology:** A cross-sectional survey of 183 clinical year volunteered dental students in the 2017-18 academic session was conducted at the FOD, MMMC. The Standardized Nordic Questionnaire for Musculoskeletal Symptom (NMQ) and Job Factor Questionnaire were used to determine the perceived risk factors and prevalence of MSD among the dental students.

**Results:** Majority of the respondents indicated the presence of neck pain (70.49%). Higher prevalence of MSD was found in female gender ( $P=0.011$ ), Malay ethnicity ( $P=0.028$ ) and year 4 ( $P=0.015$ ) students. In relation to the instrument work factor, working in the same position for long periods ( $P<0.001$ ) and work day (duration of work and overtime) ( $P=0.026$ ) showed the highest perceived risk factor contributing to MSD. However the association between painful symptoms and perception of risk factors contributing to MSD was not significant ( $P=0.061$ ).

**Conclusion:** There is higher prevalence of MSD in female, Malay ethnicity, year 4 students. Perform the same task repeatedly, working in the same position for a long period of time and working overtime are common perceived risk factors of MSD. However, no association was found between painful symptoms and perception of risk factors.

## B1

### CURCUMIN LOZENGES AS ADJUNCT TO SCALING IN TREATMENT OF GINGIVITIS – A SINGLE BLINDED RANDOMIZED CONTROLLED TRIAL

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**Background:** Curcumin is known for its anti-inflammatory properties. Curcumin mouth rinses have been shown to be comparable with chlorhexidine as an adjunct to mechanical periodontal therapy. However, there are few studies which have evaluated curcumin lozenges in treating gingivitis.

**Objectives:** This study assessed the efficacy of curcumin lozenges on plaque formation and gingival inflammation.

**Methodology:** Forty patients with mild-moderate gingivitis (Gingival Index score 1-2) were randomly allocated equally into two groups. The Gingival Index (GI), Papillary Bleeding Index (PBI) and Plaque Index (PI) were recorded. All underwent scaling and were taught the Modified Bass technique to brush 2x/day. Group 1 was instructed to slowly consume (5 minutes) one curcumin lozenge 30 minutes after brushing 1x/daily in the morning for 14 days. Group 2 followed routine oral hygiene measures only. The GI, PBI and PI were recorded at day 7, 14, 21 and 28. Mean plaque and gingival scores were analyzed by group using SPSS V22.0 Independent Sample t-test.  $P < 0.05$  was considered significant

**Result:** The clinical parameters at baseline and day 7, 14, 21, 28 showed no significant differences between the two groups ( $p=0.455$ ). Plaque and gingival scores were comparable between the two groups both of which had minimum plaque and no gingivitis.

**Conclusion:** This study indicates no additive effect of curcumin in the treatment of gingivitis. More studies are required to evaluate the efficacy of curcumin lozenges as an adjunct to mechanical periodontal therapy.

## B2

### AN IN VITRO ASSESSMENT OF APICAL MICROLEAKAGE IN ROOT CANALS OBTURATED WITH ORTHOMTA GRAFTING SYSTEM, SINGLE CONE BIOCERAMIC IROOT SP, AND LATERAL COMPACTION TECHNIQUE: A STEREOMICROSCOPIC STUDY

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**Introduction :** Obturation in endodontics is required to prevent the ingress of bacteria into the radicular space and it ranges from different materials and techniques. However, to date there has been no study which compared lateral compaction technique with single cone obturation with bioceramic sealer (iRoot SP) and OrthoMTA. Thus, this study was carried out.

**Aim and Objectives:** To evaluate and compare the apical microleakage of Ortho MTA grafting system, single cone bioceramic iRoot SP, and lateral compaction technique using a dye penetration method.

**Methodology:** Thirty single rooted premolars with single canal were shaped using Ni-Ti hand files till size #F3 and irrigated using standard protocol. Teeth were randomly divided into three groups ( $n=10$ ): Group 1, lateral compaction technique using gutta percha and AH plus sealer; Group 2, Single cone with iRoot SP bioceramic sealer; Group 3, OrthoMTA. Samples were incubated and were then soaked in blue dye. Samples were viewed under stereomicroscope after clearing. Statistical significance was set at  $\alpha \leq 0.05$ .

**Results:** Group 1 had the lowest level of apical microleakage, followed by group 3 and group 2. One-way ANOVA shows difference in means. Tukey's post hoc test shows that the difference in mean between group 1 and group 2 and between group 1 and group 3 are significant but between group 2 and group 3 is not significant.

**Conclusion:** Lateral compaction technique with AH plus sealer resulted in significantly lower apical microleakage when compared with single cone gutta percha with iRoot SP obturation technique and OrthoMTA grafting system.



## B 3

### EFFECT OF GINGIVAL DISPLAY ON SMILE ATTRACTIVENESS AS PERCEIVED BY DENTAL AND NON-DENTAL STUDENTS

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**Background:** Although orthodontic treatment was based primarily on occlusal relationship, greater attention towards enhancement of dentofacial esthetics has become the main concern among patients. The excessive gingival display or “gummy smile” has been considered as least attractive to clinicians as well as laypersons. But according to recent studies, there had been a significant difference in perception between orthodontists, general dental practitioners and laypersons to detect specific dental aesthetic discrepancies at varying degree of deviations.

**Aim and Objectives:** The purpose of this research was to assess the effect of gingival display on smile attractiveness as perceived by dental students and non-dental students. This study also evaluated the most acceptable amount of gingival exposure during smiling.

**Methodology:** An image processing software was used to merge an almost ideally well aligned teeth and esthetically smiling lips from two different individuals to create six frontal intraoral smile photographs with varying levels of gingival display (-2mm, +2mm, -4mm, +4mm, 0mm, +6mm). The images were evaluated by two groups of raters, dental student and non-dental students, each consisting of 100 persons.

**Results:** The results revealed that the dental students scored 0mm gingival display as the most attractive whereas non-dental students scored +2mm gingival display as most attractive. Both dental and non-dental participants agreed that +6mm gingival display was the least aesthetic.

**Conclusion:** This research concluded that clinicians and laypersons have significant difference in perception and clinicians should not have rigid boundaries concerning smile esthetics. This study helps clinicians achieve better esthetic results with patient satisfaction.

## B 4

### GUTTAFLOW BIOSEAL VERSUS MONOCONE OBTURATION TECHNIQUE. A SCANNING ELECTRON MICROSCOPY STUDY

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**Introduction:** The adaptation of GuttaFlow Bioseal in root canal system is poorly understood due to the limited evidence and further investigation may provide better insights. This study compared sealing ability, extrusion of root filling materials beyond apical foramen and duration of time required for obturation between GuttaFlow Bioseal and moncone obturation techniques.

**Materials and methods:** The root canals of twenty single-rooted mandibular premolars were prepared using Hyflex CM rotary files (Coltène/Whaledent). Then, the samples were equally divided into two groups; GuttaFlow Bioseal and moncone. The roots were sectioned at perpendicular direction to obtain 3 root segments; coronal 1/3, middle 1/3 and apical 1/3. All resected roots were mounted on brass stubs, sputter-coated with thin gold coating and observed under scanning electron microscope (Zeiss EVO50, Germany) at 20x magnification. All images were transferred to the SketchAndCalc Area Calculator software and the root canals sealed with root filling materials were evaluated. The data was analysed with SPSS version 23.0.

**Results:** The mean score of root canals sealed with root filling materials ranged from 81.90 to 89.31 with no statistically significant difference at any level of evaluation. The mean proportion of extrusion of root filling materials between GuttaFlow Bioseal and moncone were 0.4 and 0.5 respectively, with no statistically significant difference. Meanwhile, the mean proportion of duration of obturation between GuttaFlow Bioseal and moncone were 134.3 and 143.9 respectively with no statistically significant difference.

**Conclusion:** The sealing ability, the extrusion and the duration of obturation between Guttaflow Bioseal and moncone were comparable.

## B 5

### EVALUATION OF DEGREE OF CONVERSION AND HARDNESS OF FLOWABLE RESIN COMPOSITES FROM RICE HUSK

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**Background:** It is important to evaluate the mechanical properties of the newly experimental flowable composites namely degree of conversion and hardness to ensure the performance of the new formulations.

**Aim and Objectives:** To evaluate the degree of conversion and hardness of experimental flowable resin composites derived from rice husk in comparison to commercialized counterpart.

**Methodology:** One commercial flowable composite (Filtek Z350 XT, 3M ESPE) and three experimental flowable composites (EFCs) with different loading of Bis-GMA at 40% (EFC40B), 45% (EFC45B) and 50% (EFC50B) were tested. Six specimens were prepared from each material. Specimens were cured from the top surface for 40 seconds. Degree of conversion (DC) was determined using Fourier transform infrared spectroscopy (FTIR). A microhardness tester was used to measure the Vickers hardness number (VHN) on top and bottom surfaces of each specimen. Data for DC and VHN were analyzed by ANOVA followed by post hoc test.

**Results:** Filtek Z350 XT recorded the highest DC, however it was not significantly different ( $p > 0.05$ ) from experimental groups. The VHN mean values for Filtek Z350 XT was significantly higher ( $p < 0.05$ ) from experimental groups. Among the experimental groups, there was a pattern of increased VHN with decreased Bis-GMA loading for top surface.

**Conclusion:** The DC of all experimental flowable composites was comparable to commercialised counterpart whilst VHN of experimental flowable composites was lower than that of commercialised counterpart.

## B 6

### EVALUATION OF CORROSION RESISTANCE AND ION RELEASE FROM VARIOUS ORTHODONTIC APPLIANCES IN DIFFERENT MOUTHWASHES: AN IN VITRO STUDY

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**Background:** Orthodontic appliances placed in the oral cavity are prone to corrosion. It affects long term effectiveness and mechanical efficacy of metal wires, and causes allergic reaction in patient with metal hypersensitivity. While most dentists recommend the use of mouthwashes for orthodontic patients with higher caries risk, it causes higher risk of metal corrosion.

**Aim and Objectives:** The aim of this study is to assess the corrosion behavior of different orthodontic wires with brackets following exposure to a fluoride mouthwash. The objectives are to evaluate the corrosion rate and assess the concentration of metal ions released after immersion in 3 different mouthwashes.

**Methodology:** Mandibular central incisor 0.022" Roth brackets were coupled with 2cm Ormco orthodontic archwires (0.016\*0.022) from three different types: NiTi, Stainless Steel & TMA. They were separated into 9 groups, each with 13 brackets. They were immersed in different mouthwashes: Oral B, Oradex and Colgate Phos-flur® for 45 days. Corrosion rate was calculated based on the weight loss of the appliances after immersion. Inductively coupled plasma mass spectrometry (ICP-MS) was used to determine the amount of metal ions release.

**Results:** Most metal appliances exhibited corrosion in fluoridated mouthwashes in acidic (pH 4) environments. NiTi wire presented the highest corrosion rate in fluoridated mouthwash and released highest amount of Nickel ion. There were no significant differences among samples.

**Conclusion:** It is recommended that mouthwashes with lower pH level and higher fluoride content should be used with caution in orthodontic patients especially those with nickel sensitivity and should be prescribed according to orthodontic materials used.



## B7

### DENTOALVEOLAR AND SOFT TISSUE COMPENSATION IN CLASS III PATIENT ATTENDING POLYCLINIC USIM

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**Background:** Compensatory is a mechanisms that preserve a proportional and harmonious facial pattern in patients with Class III skeletal pattern. There are two treatments in Class III skeletal pattern which are orthodontic surgery and fixed orthodontic. Both require pre-operative radiographs for treatment planning.

**Aim and Objectives:** To assess dentoalveolar and soft tissue compensation in Class III skeletal pattern in relation to normal occlusion.

**Methodology:** Pre-operative lateral cephalogram of 30 patients of Class I and Class III skeletal pattern (January 2011 until November 2018) were taken. The cephalometric parametric such as sagittal jaw relationship, occlusal plane angulation, chin thickness, distance of lips toward esthetic line, maxillary and mandibular incisor inclination were used. Independent t-test and Mann Whitney U test were used to compare the dentoalveolar and soft tissue compensation on Class I and Class III skeletal pattern.

**Results:** There is significant difference in DL' ( $p=0.019$ ), ANB ( $p=0.000$ ), SN-AB ( $p=0.004$ ), SN-L1 ( $p=0.001$ ), SNB ( $p=0.037$ ), LIA ( $p=0.000$ ) and DU' ( $p=0.001$ ). There are no significant differences in other sagittal jaw relationship, upper incisor proclination, distance of upper lip to esthetic line and thickness of chin.

**Conclusion:** The dentoalveolar compensation in Class III skeletal pattern case is by retroclination of the lower incisors meanwhile the soft tissue compensation is achieved by the change of the distance of the upper and lower lips towards the esthetic line, in response to the inclination of the incisors.

## B8

### EVALUATION OF AMERICAN ASSOCIATION OF ENDODONTISTS (AAE) CASE DIFFICULTY ASSESSMENT AND DENTAL PRACTICALITY INDEX (DPI): PRELIMINARY FINDINGS

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**Background:** American Association of Endodontists (AAE) Endodontic Case Difficulty Assessment (CDA) and Dental Practicality Index (DPI) provides guidelines, to assist with referral decision making for endodontic treatment. Both indices differ in certain aspects but overlap substantially.

**Aim and Objectives:** To evaluate AAE CDA and DPI, specifically the reliability, validity, and the association of the referral decisions based on the assessment done with each index.

**Methodology:** A prospective cohort study was carried out. Patients were referred to endodontic postgraduate students and an endodontist to assess the tooth restorability and establish a treatment plan using AAE CDA and DPI. The decisions were dichotomised as 'need referral' or 'no need referral'. Decisions of the postgraduate students using both dichotomised indices were checked against the decisions done by the endodontist. Kappa statistic was used to assess inter-examiner reliability. Sensitivity and specificity were also calculated. The association of the recommendations based on the assessment done with each index was tested using McNemar's test.

**Results:** Inter-examiner agreement for DPI ranged from kappa value of 0.59 to 0.89, while the inter-examiner agreement for AAE CDA ranged from 0.48 to 0.85. For DPI, the sensitivity ranged from 0.88 to 1.00, while specificity was 0.63 to 1.00. For AAE CDA, sensitivity ranged from 0.63 to 1.00, while specificity was 0.73 to 1.00. Differences in the referral decisions made using both indices were not statistically significant ( $P = 0.453$ ).

**Conclusion:** Both DPI and AAE CDA are reliable and valid indices. Both indices came to the same decisions as to refer or not to refer the cases.

## B9

### ASSOCIATION OF SALIVARY INSULIN WITH FAMILY HISTORY OF TYPE 2 DIABETES MELLITUS AND PERIODONTAL STATUS IN A SAMPLE OF NORMOGLYCEMIC MALAYSIAN POPULATION.

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**Background :** Plasma insulin is a surrogate marker for insulin resistance. Research shows significant correlation between plasma and salivary insulin (sINS) levels. Current evidence indicates the potential use of salivary biomarkers for diagnosis of Type 2 Diabetes Mellitus (T2DM). Family history (FHx) of T2DM and hyperinsulinemia is a predicting factor of T2DM. Periodontitis is an early sign of DM and is a valuable risk indicator.

**Aims and Objectives:** We aim to investigate the association of sINS with FHx of T2DM and periodontal status in a sample of normoglycemic Malaysian population.

**Methodology:** 54 subjects with mean age of 35.8 years old having HbA1c levels <5.6%, Random blood glucose level <5.6mmol/L, BMI <27.5kg/m<sup>2</sup> and devoid of systemic diseases are recruited. Information on FHx of T2DM and 4ml whole saliva samples was collected from subjects. Periodontal status assessment done using Community Periodontal Index of Treatment Needs (CPITN). Total concentration of sINS was measured by enzyme-linked immunosorbent assay (ELISA). Data was analysed using Mann Whitney U test and Kruskal Wallis test.

**Results:** 32 subjects had FHx of T2DM and 22 subjects did not have FHx (p=0.25). The median sINS concentration was significantly higher in subjects with FHx of T2DM (n= 22.63µIU/ml) compared to those without FHx (n=13.93µIU/ml) (p=0.01). Periodontal status is not significantly correlated with sINS concentration (p=0.33) and FHx of T2DM (p=0.42)

**Conclusion :** sINs was associated with FHx of T2DM but not periodontal disease. Thus sINS can be further investigated as a non-invasive marker for T2DM risk, that is independent of periodontal status.

## B10

### EFFECTIVENESS OF PROFESSIONAL DESENSITIZATION VERSUS SELF-APPLIED DESENSITIZING PASTE IN RELIEVING DENTINAL HYPERSENSITIVITY:

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**Background:** Dentine hypersensitivity (DH) is characterized by short, sharp pain of teeth arising from the exposed dentine in response to stimuli. DH increases with age and is attributed to general increase in exposure of root surfaces of teeth.

**Objective:** To comparatively evaluate the effectiveness in relieving dentinal hypersensitivity between professionally-applied and self-applied desensitizing arginine agents.

**Methodology:** Thirty subjects who fulfilled the inclusion criteria were enrolled randomly into two groups of 15. Group A underwent professional application of arginine-containing desensitizing tooth paste one time followed by regular oral hygiene practice; Group B daily application of self-applied arginine toothpaste at home with regular oral hygiene practice. Schiff Cold Air Sensitivity score and Visual Analog Scale (VAS) was used to measure the pre-treatment sensitivity. Post-treatment sensitivity was measured during recall visit after 14 days. The pre- and post-treatment scores were analysed using SPSS V22.0 Paired T-test, Independent Sample T-test and Mann-Whitney test. p<0.05 was considered significant.

**Results:** The mean VAS scores improved from 5.47±1.95 to 2.00±1.81 post-treatment in Group A and from 4.53±2.77 to 1.93±1.83 in Group B after 2 weeks (p<0.01). However, Independent samples T-test comparing the post-treatment VAS scores between Groups A and B found no significant differences (p=0.921). Similarly, there were no significant differences when compared using Schiff Cold air sensitivity scores.



## **B11** COMPARISON OF BIMAXILLARY PROTRUSION OCCLUSION MORPHOLOGY: A GEOMETRIC MORPHOMETRIC ANALYSIS

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**Background:** Bimaxillary protrusion is a condition characterised by an increased procumbency of the lips, and proclined and protrusive maxillary and mandibular incisors.

**Aim and Objectives:** To compare the craniofacial shape and size in bimaxillary protrusion morphology according to its severity by application of geometric morphometric technique

**Methodology:** Lateral cephalometric radiographs of 92 bimaxillary protrusion patients (24 males, 68 female) aged between  $21 \pm 2$  years old were classified into mild, moderate and severe. Eleven landmarks were incorporated by geometric morphometric shape analysis using TPSUtil© software which then underwent Procrustes superimposition and subjected to canonical variate analysis (CVA), discriminant function analysis (DFA) and Procrustes ANOVA assessments under MorphoJ© software. Principal components analysis in shape and form spaces was used for evaluating shape patterns.

**Results:** The CVA illustrated that the clusters of each group as slightly overlapping indicating a marked separation between these groups. The Procrustes ANOVA showed that the dental aspect has significant differences ( $p < 0.05$ ) suggesting that these groups have distinct variation, which can be categorized appropriately. Skeletally, there was no significant difference ( $p > 0.05$ ), which signifies similarities of bimaxillary protrusive skeletal structures across all groups. The DFA showed a percentage of  $70 \pm 10\%$  within the classification of bimaxillary occlusions upon cross validation which demonstrates the accuracy in classifying these groups.

**Conclusion:** Craniofacial shape and size of bimaxillary protrusion occlusion and its diversities are identifiable particularly in the dento-alveolar regions. Geometric morphometric analysis can be used as an alternative tool to classify bimaxillary protrusion patients according to its severity.

## **B12** ASSOCIATION OF PALATAL TORI WITH MALOCCLUSION IN PATIENTS ATTENDING FACULTY OF DENTISTRY, MELAKA-MANIPAL MEDICAL COLLEGE.

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**Introduction:** Palatal tori is a bony exostosis that may be seen in the midline of hard palate in certain population. Malocclusion is a deviation from normal occlusion, appearing as results of the interaction of numerous etiological factors that contribute to their development. Previous study has shown a positive association between palatal tori and tongue thrust. Undoubtly, tongue thrusting habit is one of the main etiological factors for malocclusion. Hence, our study is to determine the association of palatal tori with malocclusion.

**Objective:** To study the association of palatal tori with malocclusion in patients visiting Faculty of Dentistry, Melaka-Manipal Medical College.

**Methodology:** A comparative cross-sectional study of 75 subjects with palatal tori and 75 subjects without palatal tori was done. Subjects were assessed for malocclusion (openbite, crossbite, deepbite, crowding, spacing). Chi-square test was used for statistical analysis.

**Results:** Palatal tori was significantly associated with openbite and crossbite ( $P = 0.006$  and  $P = 0.034$  respectively). Palatal tori did not have significant association with the other parameters in this study.

**Conclusion:** Palatal tori is associated with malocclusion (openbite and crossbite). Therefore, palatal tori could act as a potential marker to detect malocclusion at an early stage, for planning and implementation of preventive and/or interceptive measures.

## SERUM AND TISSUE APOLIPOPROTEIN A1 (APOA1) PROTEIN EXPRESSION IN ORAL SQUAMOUS CELL CARCINOMA

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**Background:** Oral squamous cell carcinoma (OSCC) is a common malignancy with approximately 354,864 new cases diagnosed and 177,384 deaths worldwide in 2018. The risk factors include tobacco smoking, alcohol drinking, and betel quid chewing. Oral potentially malignant disorder (OPMD) is also a risk factor of oral cancer. Apolipoprotein A1 (APOA1) is the major protein component of high-density lipoprotein (HDL) responsible for cholesterol and lipid transportation. Previous proteomics studies indicated that APOA1 is up-regulated in OSCC but did not include OPMD.

**Aim and Objectives:** This study aims to determine the differences in expression level of serum and tissue APOA1 in control, OPMD and OSCC, and to understand the association between APOA1 and the socio-demographic and clinico-pathological characteristics of OSCC.

**Methodology:** Serum APOA1 levels were compared among 35 controls, 12 OPMD, and 73 OSCC (n=120) using ELISA method whereas immunohistochemistry was used on tissue samples (10 controls, 11 OPMD and 49 OSCC; n=70).

**Results:** APOA1 in serum was significantly higher in OPMD and OSCC samples than controls (p=0.002). However, there was no significant difference between OPMD and OSCC samples. The expression of APOA1 was highest in OSCC samples, followed by OPMD and control samples. As for tissue samples, there was no significant difference in APOA1 expression in OPMD and OSCC when compared to control. Finally, there was also no significant association between APOA1 expression and socio-demographic and clinico-pathological characteristics of OSCC.

**Conclusion:** The utility of APOA1 as a serological biomarker for early detection of OSCC and cancer progression warrants further investigation.

**Keywords:** Oral squamous cell carcinoma, oral potentially malignant disorder, serum Apolipoprotein A1, tissue Apolipoprotein A1, ELISA and immunohistochemistry

## EVALUATION OF ANTIMICROBIAL EFFECT OF MALAYSIAN PROPOLIS WITH ALOE VERA AGAINST ENTEROCOCCUS FAECALIS TO BE USED AS INTRACANAL MEDICAMENT IN ENDODONTICS

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**Background:** In dentistry, *Enterococcus faecalis* is a hard-to-eradicate pathogen and mostly found in root canal endodontically treated teeth. Studies have found that, calcium hydroxide (Ca(OH)<sub>2</sub>) can no longer eliminate this microorganism. Research demonstrated that Malaysian propolis (MP) possessed promising antibacterial effect, as well as Aloe vera (AV). There were no studies done to investigate MP+AV antimicrobial effect against *E. faecalis* as intracanal medicament

**Aim and Objectives:** To determine the antimicrobial activity of MP, AV and MP+AV in comparison with Ca(OH)<sub>2</sub> against *E. faecalis* as intracanal medicament.

**Methodology:** Antimicrobial activity of ethanolic extract of Malaysian propolis, AV, MP+AV, Ca(OH)<sub>2</sub> and sterile distilled water were tested against *E. faecalis* by using antimicrobial susceptibility testing (AST), MIC and MBC. The results were analyzed by Kruskal Wallis test with Mann-Whitney post-hoc test and repeated measures ANOVA with Bonferroni post hoc test (p < 0.05).

**Results:** For agar-well diffusion method, MP+AV gave a maximum zone inhibition with diameter median (IQR) of 8.12 (0) mm followed by MP with 6.22 (0) mm, Ca(OH)<sub>2</sub> with 5.51 (0) mm, and AV with 5.06 (0) mm, (p value < 0.05). MICs of MP+AV is at concentration (mean) of 2mg/ml (0.212), followed by MP with 8mg/ml (0.256), Ca(OH)<sub>2</sub> with 8mg/ml (0.098) and AV with 16 mg/ml (0.078). MBCs of MP+AV is at concentration of 4mg/ml followed by MP with 16mg/ml, Ca(OH)<sub>2</sub> with 16mg/ml and AV with 32 mg/ml.

**Conclusion:** MP+AV consistently showed better antimicrobial activity compared to MP, AV, Ca(OH)<sub>2</sub> against *E. faecalis* as intracanal medicament.



## C3

### HOST RESPONSES AS PREDICTIVE AND PROGNOSTIC INDICATORS FOR ORAL CANCER

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**Background:** Oral squamous cell carcinoma (OSCC) represents the most frequent oral malignancies. The tumour infiltrative lymphocytes (TIL) and lymphocytes host response (LHR) has been shown to be of prognostic value in many cancers. Thus, there is a need to further study on LHR and TIL to further validate its use as a prognostic indicator and the LHR as a predictive marker for malignant progression.

**Aim and Objectives:** The aim of this study is to determine the prevalence of TIL in OSCC and LHR level in oral potentially malignant disorders (OPMD) and OSCC. It is also to evaluate the relationship of LHR levels between OPMD and OSCC and the prognostic value of LHR and TIL.

**Methodology:** This is a cross-sectional study comprising of formalin-fixed paraffin embedded (FFPE) tissues samples of 40 OSCC and 19 OPMD. Haematoxylin and eosin stained sections were scanned for scoring TIL and LHR. The socio-demographic, clinical, pathological and survival data were obtained from the Malaysian Oral Cancer Database and Tumour Bank System (MOCDBS), University of Malaya. Fisher's exact test and Kaplan-Meier (KM) analysis was done using SPSS version 21.

**Results:** Majority of OPMD showed weak LHR (47.4%) whereas majority of OSCC showed moderate LHR (60.0%). Majority of OSCC showed high TIL (47.5%) followed by moderate scores (42.5%). However, the relationship of LHR between OPMD and OSCC were not significant. The KM analysis showed that strong LHR and high TIL have better prognosis for OSCC.

**Conclusion:** Both LHR and TIL can be prognostic indicator for OSCC.

## C4

### PREVALENCE OF INTRAORAL NORMAL ANATOMIC VARIATION IN PATIENTS VISITING LUC DENTAL CLINIC

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**Background:** The presences of intraoral normal anatomic variations are relatively the common reasons that patients visit dental clinics. It is important for general dental practitioners to identify, recognized and familiarized with these types and their prevalence.

**Aim:** The aim of this study is to determine the prevalence of intraoral normal anatomic variations based on gender and age in patients visiting LUC dental clinics aged between 21 to 60.

**Methodology:** This is a retrospective study involving intraoral normal anatomic variations were obtained from dental records of patient who were treated at Faculty of Dentistry, (LUC). The total number of 227 Malay Malaysian adult age group of 21-60 comprising of 116 male and 111 female participated in this study. The dental records used for this project were dated from January 2016 to December 2017.

**Result:** A total of 227 patient's records were analyzed. The most common site of intraoral normal anatomic variation was torus palatinus (72.2%). It was more common in female (37.9%) than in male (34.4%) with highest prevalence in 21-30 years (51.1%), followed by 51-60 years (6.2%) age groups. The least common site of these variations was Labial mucosa, which has prevalence of 1.7% and highest (1.7%) in 21-30 years age group.

**Conclusion:** Torus palatinus were the most common site of intraoral normal anatomic variations followed by Linea alba and Labial mucosa. It was more common in female than in male and highest prevalence in 21-30 years followed by 51-60 years age groups.

## THE EFFECTIVE DURATION OF FLUSHING DENTAL UNIT WATERLINES FOR MICROBIAL REMOVAL AT USIM LEVEL 17 DENTAL CLINICS

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**Background:** Microorganisms from the biofilms inside dental unit waterline (DUWLs) contaminate the water that is used in dental treatment. Recommendation by Centers for Disease Control and Prevention (CDC) which water used in dental treatment should contain aerobic heterotrophic plate count (HPC) less than 500 CFU/mL. Flushing of DUWLs for 1 minute also recommended by Malaysia Dental Council before starting any treatment.

**Aim and Objectives:** The aim of this study is to evaluate the effective duration of flushing DUWLs in Universiti Sains Islam Malaysia (USIM) dental polyclinics for the removal of heterotrophic bacteria.

**Methodology:** Water samples were obtained from three triple air syringes located in oral surgery clinic, outpatient clinic and polyclinic 17 at Faculty of Dentistry, USIM. 50mL of baseline water samples were collected prior to the start of continuous flushing. Another 50mL samples were collected after 30 seconds, 1 minute, 2 minutes and 3 minutes of flushing intervals from the baseline. The levels of HPC in DUWLs were determined by quantification of colony forming units (CFUs).

**Results:** The flushing process reduced the level of HPC at all intervals compared to baseline with highest HPC reducing level after 1 minute flushing. Kruskal-wallis test has proven a statistically not significant reduction ( $p > 0.05$ ) in CFUs at all intervals compared to baseline.

**Conclusion:** The flushing process at all interval reduced the level of HPC compared to baseline. However, HPC level at USIM dental clinics is still exceeding the CDC recommendation which should be less than 500 CFU/ML. Thus, Flushing method alone is not reliable to reduce the number of microorganisms in the DUWLs.

## VALIDITY AND RELIABILITY OF AGE ESTIMATION BY DRUSINI'S METHOD AMONG MALAY, CHINESE, AND INDIAN ETHNIC GROUPS IN MALAYSIA.

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**Introduction:** Human dentition has unique features which help to identify the tooth morphologies that can be used to correlate with the age of a person. Drusini's method is one of the methods that can be used to estimate the age in which it can be helpful in forensic dentistry.

### Objectives:

1. To test the validity of Drusini's method among Malay, Chinese and Indian ethnic groups in Malaysia.
2. To estimate the age using Drusini's method among Malay, Chinese and Indian ethnic groups of both gender in Malaysia.

**Methods:** 218 panoramic radiographs were used in this study taken from a sample size consisting of 74 Malay, 72 Chinese and 72 Indian populations of both genders. Coronal Pulp Cavity Height (CPCH) and Coronal Height (CH) of mandibular molars and premolars were measured. Drusini's formula ( $CPCH * 100 / CH$ ) was applied to determine the Tooth Coronal Index (TCI) which aids in estimating age of a population. Pearson's Correlation Coefficients (PCCs) between TCI and the chronological age were found out. After data collection, regression analysis was performed using SPSS 12 to build regression equations. The estimated age acts as the dependent variable whereas TCI values were used as the independent variable. The estimated age was then compared to the chronological age of the subjects when the radiograph was taken by using Student's t-test.

**Results:** Statistical analysis showed that there was negative correlation between TCI and chronological age and there were significant difference between TCI and type of the tooth, ethnicity. PCCs for premolar Malay and Chinese have the lowest correlation compared to all. Molar for Indian ethnicity shows the highest coefficient of determination  $R^2$  (0.199) in which 19.9% out of 72 subjects can be predicted accurately by the regression equation in estimating the age. The standard error of estimations (SEEs) roughly shows around  $15 \pm$  years of age differences. The cumulative percentage of the estimated age was found and only around 40% of the sample size is within the  $\pm 10$  years acceptable forensic age prediction.

**Conclusion:** TCI shows a moderate correlation with age. Drusini's method is valid in estimating the age, however the regression equation is not reliable in estimating the age of Malay, Chinese and Indian population in Malaysia. This study is non-conclusive for the whole Malaysian population due to limited sample size.



## C7

### EXPRESSION OF INFLAMMATORY CYTOKINES, INTERLEUKIN-4 AND INTERLEUKIN-12 IN PERIODONTITIS INDUCED RATS USING A MULTIPLEX PCR

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**Background:** Periodontitis is defined as inflammation of the supporting tissues of teeth with progressive attachment loss and bone destruction. There are positive correlation between both Interleukin-4 and Interleukin-12 in periodontal disease. Previous study showed the level of Interleukin-12 was significantly high in periodontitis cases compare to healthy periodontium. Interleukin-4 may only appear during late phase of periodontal disease, which is 30 days post infection.

**Aim and Objectives:** To determine the expression of Interleukin-4 and Interleukin-12 in blood sample of periodontitis induced rats at different time interval using Multiplex Polymerase Chain Reaction.

**Methodology:** Two groups of rats which consists of six rats each were used in this study. One group of rats were induced with periodontitis via ligature on the lower right first molar. The other group was kept as negative control. Blood samples were collected via tail vein from week-0 to week-8 at two weeks interval. All samples were subjected for RNA extraction, purification and cDNA synthesis. Master mix was carried out in a 25uL reaction, and the desired genes were amplified using Multiplex PCR.

**Results:** Both Interleukin-4 and Interleukin-12 were detected as early as week-6 of ligated periodontitis induced rats group. None of the samples from negative control group showed positive band result.

**Conclusion:** Multiplex PCR can be used as detection method of Interleukin-4 and Interleukin-12 as early as week-6 post induction.

## C8

### CBCT EVALUATION AND ANALYSIS OF BONE REGENERATION ON HARD PALATE AFTER CLEFT PALATE REPAIR

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**Background:** Retrognathic maxilla is often observed in repaired cleft lip and palate (CLP) patients. Transverse and mid palatine sutures are sites of palatal bone growth that contributes to maxillary growth. Therefore, bone regeneration across cleft palate (CP) is a potentially important outcome to achieve following palatoplasty.

#### Aim and Objectives:

- (1) To determine radiological evidence of bone regeneration across repaired CP
- (2) To identify the association between bone regeneration and dentofacial dimensions.

**Methodology:** Cone Beam Computed Tomography (CBCT) records of CLP patients taken for alveolar bone graft assessment were reviewed. Images were assessed for presence and location of bone across CP, transverse maxillary arch and anteroposterior skeletal dimensions.

**Results:** CBCT records of 31 patients aged 12 years and above were evaluated. Bone regeneration was evident in 51.6%, irrespective of cleft types, commonly seen at the posterior third of the hard palate (81.3%) while none was seen at the anterior third region. Palatoplasty at 18 months and below has 48.4% incidence of bone regeneration compared to 3.2% in the late age group. Normal anteroposterior maxilla dimension was observed in 66.7% of bilateral CLP patients with evidence of bone regeneration while those without had retrognathic maxilla (80%). There were no significant relations between bone bridge and transverse maxillary dimension.

**Conclusion:** Bone regeneration across the hard palate after palatoplasty was evident in half of the study cases. Presence of bone bridge potentially plays an important role in the anteroposterior dimension in bilateral CLP patients. It may be an additional good outcome indicator following palatoplasty.

## ANTIBACTERIAL EFFECT OF ZIZIPHUS MAURITUANA LEAVES EXTRACTS ON STREPTOCOCCUS MUTANS

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**Background:** The application of natural products has been discovered widely as an alternative to synthetic antimicrobial agent due to their lower side effect, safe, effective and economical. In the current study *Ziziphus mauritana* Lam. leaves belongs to the family Rhamnaceae has been selected as it has been used widely for thousands of years in the prevention and treatment of various diseases.

**Objectives:** Thus, the aim of this study is to determine the antibacterial effect of ethanolic *Z. mauritana* leaves extract against *S. mutans*, which is known as an etiological agent in the development of dental caries.

**Methodology:** The plants extracts were prepared using maceration method in 100% ethanol for 72 hours. The ethanol filtrate was separated and concentrated using a rotary evaporator. Then, the extract was lyophilized using freeze dryer for three days. The antibacterial assay of the leaves extracts was conducted on *S. mutans* (ATCC 25175) by disc diffusion method, minimum inhibitory concentration (MIC) and minimum bactericidal concentration (MBC).

**Results:** The results of disc diffusion method are determined by the diameter of zone of inhibition. For 200mg/ml and 500mg/ml of the ethanolic extract of *Ziziphus mauritana* leaves extract the zone of inhibition are 11.67mm and 13.9mm respectively. The MIC and MBC value is 3.125mg/ml.

**Conclusion:** The findings reported in this study suggest that ethanol extracts of *Ziziphus mauritana* leaves have a potential to be developed as a therapeutic agent in preventing development of dental caries.

## RETROSPECTIVE EVALUATION OF ANATOMICAL AND MORPHOLOGICAL VARIATIONS IN THE MAXILLARY INCISIVE CANAL AMONG MALAYSIAN POPULATION USING CONE BEAM COMPUTED TOMOGRAPHY

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**Background:** Implant surgical procedure in the maxillary anterior region may be limited by the size and shape of the Incisive canal. Thorough knowledge of the anatomic variations of the Incisive canal is crucial to avoid complications before the placement of Implants.

**Aim and Objectives:** This study is aimed to analyze general anatomic and morphological variations in the maxillary incisive canal among Malaysian population using CBCT scan images and to determine the variability of incisive canal in relation to gender and age.

**Methodology:** CBCT scan images of 132 patients were included and analyzed for incisive canal length, shape, branching in sagittal and coronal sections. Linear measurements in sagittal sections were recorded to assess the incisive canal length, width and labial bone thickness anterior to the canal. The shape of the canal was also analyzed. The morphologic variations like type of branching pattern of the canal were examined in coronal sections. All the variations were then statistically analyzed with respect to age and gender using Student's t-test, Chi-square test and Pearson's correlation co-efficient. A p-value of < 0.05 was considered statistically significant.

**Results:** The study comprised of 70 males (53%) and 62 females (47%) with a mean age of  $37.79 \pm 14.28$  yrs. The mean length of Incisive canal for male and female were  $10.740 \pm 2.776$  mm and  $8.569 \pm 2.131$  mm respectively, showing a statistically significant difference. Other dimensions of Incisive canal and labial bone thickness were significantly higher in males ( $8.540 \pm 1.749$  vs  $7.165 \pm 1.848$ ). Most of the patients exhibited cylindrical canal shape (48.5%) with no statistically significant difference between the genders. 50.8% showed Type A branching pattern (single canal), 40.9 % showed Type C pattern (Y-shaped) and 9.1% showed Type B pattern (two separate canals). The age had no significant effect on shape and branching pattern whereas, labial bone thickness at the incisive foramen showed significant negative correlation ( $r = -0.171$ ).

**Conclusion:** This study found significant differences in canal anatomy and morphology among patients. Greater canal length and thicker labial bone at the incisive foramen was seen among males. In addition, increasing age had significant effect toward



# POSTER PRESENTATIONS (NON - COMPETING)

**D1**

## ORAL CANCER AWARENESS OF UNDERGRADUATE MEDICAL AND DENTAL STUDENT IN AIMST UNIVERSITY

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**Background:** Oral cancer is a malignant neoplasia which arises on the lip or oral cavity. It is the 6th most common cancer in the world. A thorough examination of the oral cavity is able to provide information on the overall general health of an individual but it often receives the least attention in routine practice. It is important for healthcare providers to be aware of the risk factors for oral cancer and early signs of oral cancer. Lack of general medical and dental practitioner (GDP) knowledge has also been shown to contribute to delays in referral and treatment.

**Aim:** To investigate the oral cancer awareness of future general medical and dental practitioners by assessing undergraduate medical and dental students' knowledge of prevention and early detection of oral cancer

**Objectives:** To study and compare the awareness and knowledge on oral cancer of undergraduate medical and dental students

**Methodology:** A descriptive cross-sectional study which 264 validated questionnaires with consent forms were distributed randomly to medical and dental students (year 4 and 5) in AIMST University.

**Results:** 264 of medical and dental students have participated in this research. The results have shown that dental students have better awareness and knowledge concerning oral cancer.

**Conclusion:** The results show that medical and dental undergraduates of AIMST University have insufficient awareness regarding oral cancer. It highlights the need to improve the awareness and knowledge on early detection and prevention of oral cancer among the medical and dental students of AIMST University.

**D2**

## ANTIMICROBIAL EFFICACY OF GOLD NANOPARTICLES AND CHLORHEXIDINE AS VEHICLE FOR CALCIUM HYDROXIDE AGAINST *ENTEROCOCCUS FAECALIS*.

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**Background:** Anatomical complexity of root canal system complicates complete debridement of root canal, leading to endodontic failures. *Enterococcus faecalis* is predominantly found in failed root canal therapy and persistent infection.

**Aim and Objectives:** To evaluate the antimicrobial efficacy of gold nanoparticles and chlorhexidine as vehicle for calcium hydroxide against *Enterococcus faecalis* at two different depths (200 µm and 400 µm).

**Methodology:** Thirty extracted single rooted human teeth were infected for 15 days with *Enterococcus faecalis*. Teeth samples were divided into six groups. Group 1 (Saline) as negative control, Group 2 (2 % Chlorhexidine), Group 3 (Calcium hydroxide + Saline), Group 4 (Gold Nanoparticles), Group 5 (Calcium Hydroxide + Chlorhexidine), Group 6 (Calcium Hydroxide + Gold Nanoparticles). At the end of 5 days, dentine chips were harvested at two depths (200 µm and 400µm), and total numbers of colony forming units were counted. The values were analyzed statistically with one-way analysis of variance followed by Tukey multiple comparison test. The paired t test was used to check the differences in bacteria growth at two depths.

**Results:** Both vehicles (chlorhexidine and gold nanoparticles solution) for calcium hydroxide as intracanal medicament showed 100 % bacterial growth inhibition at two depths. There was statistical significant between different groups at depths of 200 µm and 400 µm.

**Conclusion:** Gold nanoparticles work more effectively in synergism. They can be effectively used as carriers to enhance antibacterial property and reduce toxicity towards normal cells. Hence, they have potential to be used as vehicle for calcium hydroxide as intracanal medicament.

**D3**

## PARENTS' KNOWLEDGE AND CHILDREN'S FEEDING PATTERNS IN RELATION TO CARIES EXPERIENCES

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**Background:** The impact of dental caries not only extends to various clinical implications but may affect an individual's general health, quality of life and wellbeing.

**Objectives:** The objective of this study was to assess the association of parent's knowledge, children's feeding pattern and other contributing factors with caries experience of a child.

**Methodology:** Phase 1 involved the validation of a questionnaire with three experts in the field. Phase 2 involved data collection of 145 children aged 2-8 years old from Dental Faculty, UITM and a kindergarten at Klang Valley. Parents/guardians of pediatric patients were given the set of validated questionnaires to assess the sociodemographic background, parent's knowledge, and children's feeding pattern. Dental caries status was traced from the patient's record in the Integrated-Dental-Records-Management System and clinical examination was done for those who did not have the dental record. Charting was recorded using dentition status and treatment need as per WHO criteria (1997).

**Results:** Study participants were 75 (52%) boys and 70 (48%) girls. The mean dmft score of the participants was 3.31 (4.36). Caries experience was statistically significant with age of the children ( $p<0.01$ ), the reason for first dental visit ( $p<0.01$ ), the age of the children discontinues milk and sweet beverages from bottle feeding ( $p<0.01$ ), habits of leaving bottle while sleeping ( $p=0.01$ ), and knowledge of parents on the effect of leaving bottle while sleeping ( $p=0.04$ ). Household income and parent's education level was not associated with dental caries.

**Conclusion:** Knowledge of the risk factors and progression of dental caries among parents are important predictors of caries experience among children aged 2-8 years old.

## D4 A SURVEY ON AWARENESS AND EVALUATION OF TEXT NECK SYMPTOMS IN UNDERGRADUATE DENTAL AND MEDICAL STUDENTS OF AIMST UNIVERSITY

### Presenting authors :

1. Goh Jun Jie, Faculty of Dentistry, AIMST University, Kedah.
2. Goh Pei Yee, Faculty of Dentistry, AIMST University, Kedah.

### Co-authors :

3. Gary Saw Jun Tiek, Faculty of Dentistry, AIMST University, Kedah.

**Background:** Mobile phones or smartphones usage in general population has been increasing rapidly over the years. In a study evaluating the relationship between smartphone use and subjective musculoskeletal symptoms and university students, highest subjective musculoskeletal symptom is neck pain felt in their neck which is 55.8%. A study in Iran revealed that dentists have high prevalence of musculoskeletal pain. These studies motivated us to assess whether dental students are at a higher risk of developing text neck.

**Aim and Objectives:** This survey is conducted to assess the level of awareness of text neck in medical and dental students of AIMST University, and to evaluate whether dental students are at a higher risk of developing symptoms of text neck compared to medical students.

**Methodology:** 150 medical and 150 dental students were selected by simple random sampling, participants were asked to answer a structured questionnaire comprising 5 sections as following: awareness about text neck, use of wireless devices, profession related questions, questions about neck pain and questions about shoulder pain.

**Results:** From the results, majority of the aspects of answered questionnaires showed no significant difference between the two groups, but there is a need of increasing awareness about text neck among the students. Shortcomings of the study are as following, young age of participants selected, unsuitable sampling method and lack of assessment scale.

**Conclusion:** In conclusion, we plan to carry out future studies to address the shortcomings and to provide better material to help prevent development of musculoskeletal disorders in dental students, fresh dental graduates and dentists.

## D5 INTRAORAL RADIOGRAPH'S REJECTION RATE AMONG UNIVERSITI KEBANGSAAN MALAYSIA (UKM) DENTAL UNDERGRADUATES

### Authors :

1. Wong Li Li (Faculty of Dentistry, Universiti Kebangsaan Malaysia)
2. Charisza Ng Tze Xin (Faculty of Dentistry, Universiti Kebangsaan Malaysia)
3. Ho Sin Yin (Faculty of Dentistry, Universiti Kebangsaan Malaysia)

**Introduction:** Dental radiographs are indispensable in dentistry. Reject rate is the percentage of images of non diagnostic value. According to the Malaysian Dental Council Guidelines on Radiation Safety, corrective action should be taken if the reject rate is more than 10%.

**Aim and Objective:** The objectives of this study was to evaluate the reject rate of periapical and bitewing radiographs among UKM dental undergraduate students, identify the type of radiographic errors which are frequently encountered, compare reject rates between Year 3, 4 and 5 dental undergraduates.

**Materials and Methods:** Rejected radiographs are collected every week and classified according to type of radiographic projection, clinical experience (Year 3 / 4 / 5) and type of radiographic error.

### Result:

Table 1. Reject rates of periapical and bitewing radiograph for duration March - Dec 2018				
	Overall	Year 3	Year 4	Year 5
Periapical	5.1%	4%	11%	4%
Bitewing	9.8%	9.7%	6.1%	10%

Table 2. Frequency of type of radiographic errors	
Type of radiographic error	Frequency
Apex cut off	62
High density film	21
Black film	12
Low density film	12
Cone cut	9
Pt not biting on bite block	6
Foreshortening	6
Blank image	5
Elongation	3
Developer cut off	2
Wrong tooth	2
Lost emission	2
Horizontal overlap	1
Double exposure	1

**Conclusion:** Evaluation of radiographic reject rate among dental undergraduates require detailed analysis in the aspects of year of study, type of radiographic projection and type of radiographic error.

## D6 THE BEAUTY OF ROSA DAMASCENA IN ORAL HEALTH

### Presenting authors :

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5. Vivi Noryati Ahmad (Centre of Preclinical Science Studies, Faculty of Dentistry, Universiti Teknologi MARA)

**Background:** Denture-induced stomatitis (DIS) is an infectious condition affecting denture wearers. It is an inflammatory process underlies removable dentures and can affects from 15% up to 70% denture wearers.

**Objectives:** The aims of this study are to investigate antibacterial and antibiofilm activity of Rosa Damascena flower extract against Staphylococcus aureus (S. aureus).

**Methodology:** The antibacterial activity was assessed with minimum inhibitory concentration (MIC) and minimum bactericidal concentration (MBC). The potential of Rosa Damascena flower extract as antibiofilm agent was evaluated using biofilm inhibition assay and biofilm eradication assay. Chlorhexidine 0.12% was used as positive control. The experiment was performed in triplicate and repeated four times independently. All the data obtained were analysed using SPSS version 23. A Kruskal-Wallis test followed by post-hoc Mann-Whitney U test was applied and level of significance was set at  $P < 0.05$ .

**Results:** From this study, Rosa Damascena showed antibacterial activity with MIC 50 mg/ml and MBC 100 mg/ml. Treatment with 0.5x MIC of extract inhibited 43.2% of biofilm formation. The biofilm eradication assay showed that 60.9% ( $p < 0.05$ ) of biofilm was eradicated by the extract upon 5 minutes treatment and 50.65% by 0.12% CHX.

**Conclusion:** The results of this in-vitro study suggest a possible utilization of Rosa Damascena flower extract in treating S.aureus biofilm-associated infection in oral environment.



## TABLE CLINIC

NO	INSTITUTION	PARTICIPANTS	NO	INSTITUTION	PARTICIPANTS
1.	USIM	<ul style="list-style-type: none"> <li>NURUL AIMA BINTI ABU JAMAL</li> <li>HANISAH BINTI YUSOF</li> <li>ARIEFAH HANEEM BITI ABDUL HALIM</li> <li>NURNABILAH BINTI AZMAN</li> </ul>	5.	UITM	<ul style="list-style-type: none"> <li>NURUL HUSNA ABDUL MAJID</li> <li>SHAHIRAH AHMAD TAZILAN</li> <li>SITI NUR SYAHIRAH MAT SOKRI</li> <li>NURUL SHAFINI YAACOB</li> </ul>
2.	UM	<ul style="list-style-type: none"> <li>NAZRIN HAKIM BIN NAZARUDDIN</li> <li>LILIANATASHAH BINTI MD NOH</li> <li>AMINAH BINTI MOHD SHARIFF</li> <li>NURUL ASHIKIN MASTURA BT MUHAMMED REZUAN</li> </ul>	6.	MAHSA	<ul style="list-style-type: none"> <li>TEOH MAY YEE</li> <li>SHAMIR FEROZ BIN IMRAN BALJINDER</li> <li>TAN JUN WEI</li> <li>RACHEL TAN YAN YI</li> <li>NURUL AINA BINTI IDRIS</li> <li>LAI KAI SHIN</li> </ul>
3.	AIMST	<ul style="list-style-type: none"> <li>YAW WAI JOON</li> <li>YOON THIM SENG</li> <li>TOH JIECY</li> <li>LEE YUN LEI</li> <li>CHEONG AI JING</li> <li>TAN HAU EE</li> </ul>	7.	UKM	<ul style="list-style-type: none"> <li>PETER TAN SHERN WEI</li> <li>LEONG JIA ZHENG</li> <li>MANUSHANTINI PILLAI A/P MURALITHARAN PILLAI</li> <li>LWI YEE CHIN</li> <li>NAZATUL NADHIRAH BINTI ZULIDDIE</li> <li>NUR FATIN MOHAMMED</li> </ul>
4.	PIDC	<ul style="list-style-type: none"> <li>NEO TSE MIN</li> <li>KOH EMY</li> <li>LIM KAINI</li> <li>TAN HAN YANG</li> <li>YOUNG LI YIEN</li> <li>LING J-LYN</li> </ul>	8.	MMMC	<ul style="list-style-type: none"> <li>NG JING TEAN</li> <li>BOK RU YUAN</li> <li>NICHOLAS TAN YUAN SHENG</li> <li>KHILDA FARHANAH WALI MOHAMAD</li> <li>LEE CHIN SHENG</li> <li>MABEL MANGGANG UNCHAT</li> </ul>

## QUIZ

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4.	USIM	Nur Alyani bt Che Zahari Amir Harriz bin Azmi Izzah Syahirah bt Ahmad Azam Muhammad Fikhry bin Mohd Salehuddin	Muhammad Zakwan bin Mohd Zamridin Siti Aisyah bt Mohd Khairun Anuar Noor Farahain bt Matdiris Affaf bt Mohamad Naem
5.	UM	Lim Jun Git Lee Jian Sheng Loh Min Qii Phua Jia Hong	
6.	AIMST	Gary Saw Jun Tiek Cher Chia Yee Cheah Kah Kei Jasmyn Tiong Syn Ern	Theng Ai-ly Ng Seeh Yuen Lee Carine Lim Chee Chuen
7.	PIDC	Haziqah bt Hashim Shambavee a/p Vevahananthan Maryam Solehah Nurul Nabila bt Muhammad	Neo Tse Min Tan Han Yang Manasvini Menon Gan Ye Qian
8.	UITM	Ahmad Yusri Abdul Kuddus Masyitah Mohd Zairi Intan Syakirah Ramli A'isyah Nabila Uzaimi	Nusra Zakaria Syarena Mohd Shaari Nabilah Abdullah Sani Daslianah Daslam
9.	MAHSA	Adeline Wong Be Wern Lau Yu Hong Lynette Wong Mun Xuan Goh Yin Ruo	Apphia Ooi Tan Yao Mei Ng Khai Ling Sia Yin Xuan

## ONLINE PHOTOGRAPHY COMPETITION PARTICIPANTS

Total Universities : 6  
Total Participants : 29

Theme : Dental Teamwork

NO	INSTITUTION	TOTAL SUBMISSIONS	PARTICIPANTS
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2	MAHSA	6	<ul style="list-style-type: none"> <li>• APPHIA OOI WEI SHUEN</li> <li>• AW PEI SHI</li> <li>• LAU XI LYNG</li> <li>• LAU YU HONG</li> <li>• YASMINE LEE KAI WEN</li> </ul>
3	AIMST	5	<ul style="list-style-type: none"> <li>• CHEONG AI JING</li> <li>• TOH JIECY</li> </ul>
4	USIM	2	<ul style="list-style-type: none"> <li>• AHMAD DHAMIRI BIN RAMAINOR</li> </ul>
5	SEGi	1	<ul style="list-style-type: none"> <li>• RACHEL CHUA HUI SHIEN</li> </ul>
6	UM	7	<ul style="list-style-type: none"> <li>• HOW QI YAN</li> <li>• WENDY HUP WAN YEE</li> <li>• AINNATUL ATHIRAH BINTI MOHD YUSOF</li> </ul>

## ONLINE VIDEOGRAPHY COMPETITION PARTICIPANTS

Total Universities : 6  
Total Participants : 7

Theme : Humour in Dentistry

NO	INSTITUTION	TOTAL SUBMISSIONS	PARTICIPANTS
1	UKM	1	<ul style="list-style-type: none"> <li>• PETER TAN SHERN WEI &amp; NUR FATIN BINTI MOHAMMED</li> </ul>
2	PIDC	1	<ul style="list-style-type: none"> <li>• LIM HUANG XU &amp; BRYAN BRUYNS</li> </ul>
3	AIMST	1	<ul style="list-style-type: none"> <li>• TOH JIECY</li> </ul>
4	USIM	1	<ul style="list-style-type: none"> <li>• MOHAMMAD NAIM BIN ROZAINI</li> </ul>
5	UM	1	<ul style="list-style-type: none"> <li>• AINNATUL ATHIRAH BINTI MOHD YUSOF</li> </ul>
6	MAHSA	2	<ul style="list-style-type: none"> <li>• MUNIRA NATASHYA &amp; SHAHIRAH ZAINOL &amp; ADELINE WONG</li> <li>• AW PEI SHI</li> </ul>

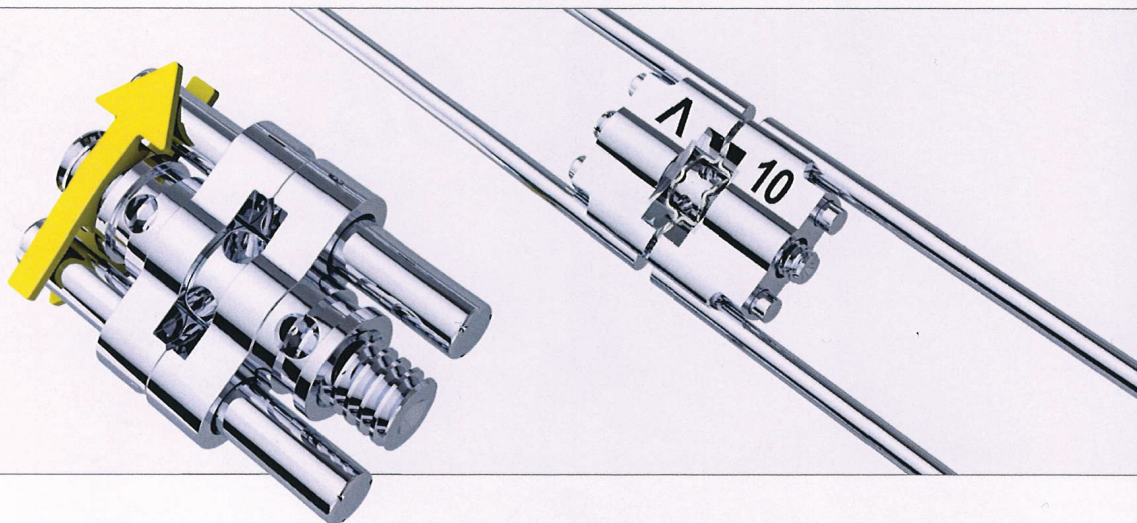




## GALA DINNER TALENT SHOW PARTICIPANTS

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2	MAHSA University	1 Shalynn Subromaniam 2 Ahmad Irfan bin Khoiri 3 Sheryl Teo Jing Ning	
3	AIMST	1 Goh Pei Yee 2 Cheong Ai Jing 3 Yew Chang En	4 Addy Goeh Chuan Xin 5 Jessica Wong Huey Ling
4	USIM	1 Muhammad Hafizhat Ikhrum bin Mazlan 2 Muhamad Nasim Ilmi bin Mohd Noor 3 Ahmad Uraidzi bin Sukri 4 Muhammad Abdillah bin Md Umar 5 Raid Hamizan B. Mohd Zulkifle 6 Ahmad Ashraaf Bin Ahmad Badri 7 Abdulmuiz Mun'im bin Lokman 8 Muhammad Iqbal Mustaqim b Abd Razak	
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6	PIDC	1 Lee Jia Wen 2 Koh Hui Zhi 3 Tan Ying Xin 4 Tew Vi Vian	5 Hanis Rahimah 6 Hazell Lovenney 7 Guye Jia Qi 8 See Li Sin
7	MMMC	1 Ng Jing Tean 2 Bok Ru Yuan 3 Nicholas Tan Yuan Sheng	4 Shargunan Selvanthan Gunasekaran 5 Tan Yu Zhang, Eugene 6 Khilda Farhanah Wali Mohamad 7 Al-Insyirah Iman binti Sahari 8 Thinishwaran A/L Sundaramuethy

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