

# & 18<sup>th</sup> Annual Scientific Meeting

## & 20<sup>th</sup> Annual General Meeting of IADR Malaysian Section



ORGANISED BY:

**SATURDAY**  
**30<sup>th</sup> March 2019**



MALAYSIAN SECTION  
INTERNATIONAL ASSOCIATION FOR DENTAL RESEARCH (IADR)

Enhancing Collaborative Research: The Move Forward

**Theme**

**PROGRAMME  
&  
ABSTRACT**

**VENUE**

Geno Hotel, Jalan Subang Mas, 47620 Subang Jaya, Selangor, Malaysia

**Colgate**

YOUR PARTNER IN ORAL HEALTH

**LISTERINE**

**LION**



**ULTRADENT**  
PRODUCTS, INC.  
Improving Oral Health Globally

CONTENTS	PAGE
Message from the President	3
Organising committee	4
Programme schedule	5
Speakers's abstract & biography	6 - 14
List of poster presentations	15 - 23
List of oral presentations	24 - 28
Poster presentation abstracts	29 - 113
Oral presentation abstracts	114 - 156

MESSAGE FROM THE  
President

Assalamualaikum and a warm welcome to all our esteemed speakers, participants and guests to our 18th Annual Scientific Meeting and 20th Annual General Meeting of IADR Malaysian Section. It is indeed a great honour to have all of you colleagues from afar and near to be with us today.

This conference marks once again the efforts of our organization to highlight the research happenings in Malaysia and globally. At the same time, to cross-link with our colleagues in Malaysia and elsewhere. We have also made every effort this year to bring in more undergraduates to be exposed to research organizations like this and hope they will benefit from this experience.

The theme for this year's conference is *"Enhancing Collaborative Research: The Move Forward"*. We want to look more positively how collaborative research work can produce robust and meaningful outputs. This meeting would not have been successful without the support of our guest speakers from The University of Hong Kong, University of Malaya, MAHSA University, Lincoln University College, Ministry of Health, International Medical University, and Universiti Sains Malaysia.

At this opportunity, I would like to thank our Dental Faculty Deans of All Malaysian Universities once again for the tremendous support in sending in their students and staffs to this occasion. To our main collaborators, the Malaysian Research Universities, many thanks once again for spearheading this effort to date. Never forgetting too our researchers from Malaysian Universities who will also share their current research efforts. We wish to also thank all researchers for the oral and poster presentations.

Our appreciation goes to our Industry Partners for their tremendous support in this year's research awards namely; Johnson & Johnson (Jospheh Lister Travel Awards for Undergraduates Research Preventive Dentistry), Prize Awards for All Research Areas (Colgate and Palmolive (Msia-Spore)), Southern Lion (Community and Dental Public Health Research), ACFF (Caries Research). Also thanks to Ultradent (M) Sdn Bhd for the samples and gifts to participants.

Lastly, my deep appreciation to all my team members for the special contributions in time, energy and ideas to organize this event despite a heavy and hectic working schedule. Our strength lies in a team effort for IADR Mal Sec believes as a TEAM, *"Together Everyone Will Achieve More"*. Thank you.

ASSOC PROF DR RAJA AZMAN RAJA AWANG

## **ORGANISING COMMITTEE**

### **ADVISOR**

Prof Dr Rahimah Abdul Kadir

### **CHAIRPERSON**

Assoc Prof Dr Raja Azman Raja Awang

### **SECRETARIAT**

Dr Norsila Abdul Wahab

Dr Johari Yap

Dr Zamirah Zainal Abidin

Nur Amirah Azizan

Muhamad Nur Adzmi Muhamad Ayub

Safwanah Sahul Hameed

Yong Tze Jieh

### **AWARDS & JUDGES**

Prof Dr Rahimah Abdul Kadir

Dr Mohd Hafiz Arzmi

### **TREASURER & SPONSORSHIP**

Dr Zamirah Zainal Abidin

### **SCIENTIFIC COMMITTEE & PUBLICATION**

Assoc Prof Dr Raja Azman Raja Awang

Dr Sohaib Arshad

Dr Noor Huda Ismail

Assoc Prof Dr Erry Mochamad Arief

### **LOGISTIC, HOSPITALITY, FOOD & BEVERAGES**

Assoc Prof Dr Siti Mariam Ab Ghani

Dr Ilham Wan Mokhtar

Izyan Hazwani Baharuddin

### **FLOOR MANAGER**

Dr Zuliani Mahmood

Assoc Prof Dr Siti Mariam Ab Ghani

### **TECHNICAL**

Dr Mohd Hafiz Arzmi

Dr Nurul Shaqinah Nasruddin



**PROGRAMME SCHEDULE**

**08<sup>00</sup> – 08<sup>30</sup> am**

Registration

**08<sup>30</sup> – 08<sup>45</sup> am**

Welcome remarks

by Assoc Prof Dr Raja Azman Raja Awang, President, IADR MalSec

**08<sup>45</sup> – 09<sup>30</sup> am**

Keynote I: Building partnership in community-based participatory research

by Prof Dr Chu Chun Hung, University of Hong Kong

**09<sup>30</sup> – 10<sup>30</sup> am**

Symposium I: Multidiscipline collaborative research: Sharing experiences

Nicotine addiction research collaborative group, UMCAS

by Assoc Prof Dr Amer Siddiq Amer Nordin, University of Malaya

The impact of collaborative efforts in accelerating oral cancer research

by Prof Dr Rosnah Mohd Zain, MAHSA University

Trips and traps on orang asli research: The journey

by Prof Dr Rahimah Abdul Kadir, Lincoln University College

**10<sup>30</sup> – 10<sup>45</sup> am**

Coffee break and poster viewing

**10<sup>45</sup> – 11<sup>30</sup> am**

Keynote II: The role of medical anthropology in health research

by Dr Low Lee Lan, Ministry of Health Malaysia

**11<sup>30</sup> – 12<sup>30</sup> pm**

Symposium II: Multidiscipline collaborative research: Sharing experiences

Behavioural science research in dentistry by Prof Dr Allan Pau Kah Heng, International Medical University

Oral health strategy for individuals with special care needs: USM experiences by Assoc Prof Dr Normastura Abd Rahman Universiti Sains Malaysia

Amalgamation of behavioural science into oral health care by Dr Duangporn Duangthip, University of Hong Kong

**12<sup>00</sup> – 13<sup>00</sup> pm**

Oral & Poster presentation (Session I)

**12<sup>30</sup> – 14<sup>30</sup> pm**

Lunch &

**IADR MalSec AGM (members only)**

**14<sup>30</sup> – 16<sup>30</sup> pm**

Oral & Poster presentation (Session II)

**16<sup>30</sup> – 17<sup>00</sup> pm**

Announcement of winners and closing remarks 5

## ***KEYNOTE SPEAKER I***

### **PROF DR CHU CHUN HUNG**

Associate Dean (External Relations),  
Faculty of Dentistry,  
The University of Hong Kong.



### ***“Building Partnership in Community Based Participatory Research”***

**Abstract:** Community based participatory research in dentistry enables community members, representatives, and academic researchers to build partnership in all aspects of the research process to promote oral health of the community. This research strategy not only enhances integration of cultural knowledge into interventions, it also supports researchers to effectively partner with communities to address health disparities. This lecture will introduce the concept of community based participatory research and an example of community based participatory research in Hong Kong will be used to illustrate the research impact to the community.

**Biography:** Professor Chu is a Clinical Professor and Associate Dean (External Relations) in the Faculty of Dentistry of The University of Hong Kong. He is the President (2018-2020) of South East Asian Association of Dental Education. He is a dental examiner of the Royal College of Surgeons of Edinburgh. He is a member in the specialty board of the Royal Australasian College of Dental Surgeons. Professor Chu is an intentional lecturer and has delivered his lectures in universities or international meetings in Australia, Cambodia, China, Fiji, Indonesia, Japan, Korea, Malaysia, Taiwan, Thailand, UK, USA and Vietnam. He was an external examiner of the University of Malaya, the national University of Malaysia, the MAHSA University, Malaysia and the National University of Singapore. Professor Chu is also a guest professor of Anhui Medical University, China. Professor Chu published about 150 peer reviewed journal articles and 200 abstracts in international conferences. He is an associate editor of *BMC Oral Health* and a member of editorial board of *Oral Health & Preventive Dentistry*. Professor Chu's research interests include caries prevention and management, clinical uses of fluorides and community dental care. As the principal investigator, he was awarded various external competitive grants with a total amount of more than HK\$ 6 million. He also received the Hong Kong University Foundation Funds with a total more than HK\$ 2 million for his research and community service. Professor Chu was conferred Bachelor of Dental Surgery, Master of Dental Surgery and Doctor of Philosophy by The University of Hong Kong. He is a diplomate of the American Board of General Dentistry. By examination, he became a Fellow of the Royal Australasian College of Dental Surgeons in both General Stream and Dental Public Health, Fellow in Dental Surgery of the Royal College of Surgeons of Edinburgh and Fellow of the College of Dental Surgeons of Hong Kong.

**ASSOC PROF DR AMER SIDDIQ AMER NORDIN**

Department of Psychological Medicine,  
Faculty of Medicine,  
University of Malaya.



***“Nicotine Addiction Research Collaborative Group, UMCAS”***

**Abstract:** Tobacco smoking is the main contributor to risk factors for non-communicable diseases which is estimated to kill 10 million lives globally annually. The World Health Organization (WHO) in response has developed the MPOWER strategies in keeping with the treaty, the Framework Convention for Tobacco Control (FCTC), aimed at reducing smoking prevalence's in member countries (184 to date). These strategies look at eradicating tobacco use by preventing new smokers and assisting current ones to quit. The MPOWER also include economic and marketing aspects of tobacco control, requiring a multi-disciplinary approach to research and advocacy. UMCAS in developing its nicotine addiction research group have from the beginning included a multiple stakeholder approach from its inception through a common platform. In the initial stages, the different disciplines have worked together in smoking cessation training and lately have evolved to smoke-free spaces advocacy. In view of this close collaboration in dentistry particularly, the Ministry of Health of Malaysia has recognized these efforts by entrusting the dentists within the Ministry to execute the Smoke-free Generation Project, *Kesihatan Oral Tanpa Asap Rokok* (KOTAK). Moreover, the collaborative approach has provided technology transfer across disciplines thus allowing the dentist profession to be the first in Malaysia to standardized teaching of tobacco control in the dental curriculum of all dental schools as recommended by the WHO. This presentation will share with participants the highlights and advantages of multi-disciplinary collaboration and will also include pitfalls and limitations to reduce future errors for others.

**Biography:** Dr Amer Siddiq Amer Nordin is an Associate Professor, consultant psychiatrist and smoking cessation specialist from University Malaya. He is the coordinator of the Nicotine Addiction Research Group of UMCAS and is the primary investigator for the Grand Challenge Grant (GC004-15HTM) investigating gaps in upscaling existing smoking cessation services in Malaysia. The SCOPE training that his team developed, is one of three pathways to be a certified smoking cessation provider. He is a technical and expert advisor to the Ministry of Health for policy documents including the Tobacco Control National Strategic Plan 2015-2020 document and mQuit Services project which is involved in strengthening the "O" of MPOWER. As part of his interest, he is involved with both local and international organization in tobacco control and cessation and is active in communicating his ideas on tobacco control in social, mass and scientific media in Malaysia and abroad. He tweets at @MyNarcc and can be found at <http://www.narcc.um.edu.my>.

**PROFESSOR DR ROSNAH MOHD ZAIN**

Dean,  
Faculty of Dentistry,  
MAHSA University.



***“The Impact of Collaborative Efforts in Accelerating Oral Cancer Research”***

**Abstract:** Increasing efforts have been made worldwide to study the underlying mechanisms of cancer and its association with genetic, environmental and lifestyle factors. Significant advancements in oral cancer research have been made in the last two decades including the sequencing of genomes and the establishment of oral cancer models enabling the emergence of new therapeutic options. However, limitations due to specimen resources hinder successful translation of research outcomes into clinical practice. Therefore, in an effort to overcome the dearth of specimens leading to research being conducted using tissue and data collected in an ad-hoc and unstandardized basis, the Malaysian Oral Cancer Database and Tissue Bank System (MOCDTBS) was established in 2005. This system was set up to provide a standardized approach on data and specimen collection, with a systematic method of processing, storing and disseminating biological specimens and associated data. The MOCDTBS symbolizes the outcome of partnership and collaborative efforts nurtured between academic institutions, government and non-government organizations. Arising from this successful collaborative partnership, the MOCDTBS have been shown to accelerate oral cancer research over the past 12 years. With these approaches, the Malaysian team in collaboration with the international collaborators are now ready to further embark on sharing our experiences with some of the LMIC countries in applying the principles of team approach to solve some of the issue in these countries. There is also a global impact of these projects in the development of biomarkers and therapeutic targets where many of the research results may directly or indirectly benefit the patients and the community.

**Biography:** Rosnah Zain is currently a Professor of Oral Pathology & Oral Medicine and Dean, Faculty of Dentistry, MAHSA University, Malaysia. She is currently an Honorary Professor at the University of Malaya and an Honorary Consultant for the NGO, Cancer Research Malaysia. She has served as an academician for more than 30 years at the University of Malaya in the capacity of the Head of Department, the Deputy Dean and Dean. In the research setting, she has developed an Oral Cancer Biobank termed the Malaysian Oral Cancer Database and Tumour Bank System since 2005. She strongly believes in collective efforts so as to gather a wider scope of ideas yet benefiting the others as well. Through this believe she had embarked on numerous projects with numerous co-researchers within the country and from countries of the region. Her main area of interest is in the ‘Early Detection of Oral Cancer’ where she is very much involved in the training of health professionals in oral lesions detection using a structured program ‘Oral DETECT’ or its modification developed by her team in Oral Cancer Research and Coordinating Centre at the University of Malaya where she is currently an Advisor. This training program has been widely used in Malaysia, Cambodia, and Indonesia. Her current interest is to assist countries in the Southeast Asian region in their effort to control oral cancer through awareness, early diagnosis and risk behavior interventions in particular betel quid chewing.



**PROFESSOR DR RAHIMAH ABDUL KADIR**

Dean,  
Faculty of Dentistry,  
Lincoln University College Malaysia.



***“Trips and Traps on Orang Asli Research: The Journey”***

**Abstract:** The journey into Orang Asli research first began by chance and more out of curiosity in 1987 during a Sunday evening drive up the hills of Bukit Lanjan, Selangor. As a recently returning lecturer from studying overseas I had to scout for an adopted school to implement the University Malaya (UM) Department of Community Dentistry's program. Beginning with a simple oral health survey on primary Orang Asli school children of Bukit Lanjan, the journey expanded to all eight Orang Asli communities in Selangor coopting colleagues of like-mind along the way. A breakthrough came when I was appointed by UM to lead the collaborative project between UM (assigned by Economic Planning Unit (EPU), National Australian University and Museum Negara. Interestingly, the project was about “finding the Origins of the Malaysian Orang Asli” via dental models to see how they can be related to the Australian aborigines and elsewhere in this region. This first international collaborative project was to see the beginning of an Interdisciplinary Orang Asli at the Faculty of Dentistry formed to obtain information on the oral health (OH), oral health practices, oral health related quality of life (QoL), occlusal traits and also genomic makeup of the Malaysian aborigines. Early available information suggests that they still retain the original makeup of the oral tissue's development. However, over past decades environment influences had eroded their physical make-up and create problems including pain and discomfort which will not only affect their QoL but also their overall occlusal traits and patterns. The work continues when it was realized that several groups in UM itself were conducting research targeting the Orang Asli. The UM Orang Asli research Cluster then named, includes research on OA languages (Faculty of Linguistics), Human rights issues (Faculty of Law), Social perspectives (Faculty of Arts) etc. Collecting them together, the Centre for Indigenous Research was initiated at UM in 2004 working with the then government Department of Orang Asli Affairs and other government agencies, and several civil societies. The extensive knowledge gained cannot be possible without solid collaborations from many diverse sectors. An important aspect in any program to continue is about sustainability. This probably is the most important link to ensure continuity of research efforts.

**Biography:** Professor Dr Rahimah Abdul Kadir graduated from Padjadjaran University, Bandung (1976) and the two “boiler houses” of fluorides in the United States, the Oral Health Research Centre of Indiana University at Indianapolis (1980) and School of Public Health, University of Michigan at Ann Arbor (1984, 1992). Former Dean of University Malaya, she was also founding President of the Malaysian Association of Dental Public Health Specialists, elected member of the Malaysian Dental Council and Panel member of the Malaysian Qualification Agency and a former member of the National Specialist Registry Subcommittee (Dental Public Health). She was also the former President of the International Association for Dental Research- Malaysian Section (2016-17), 9th President of the Asian Academy of Preventive Dentistry (2008-2010), President of the SEA Association for Dental

**SPEAKERS' ABSTRACT & BIOGRAPHY**  
**18<sup>th</sup> Annual Scientific Meeting & 20<sup>th</sup> Annual General Meeting of IADR Malaysian Section**  
**Geno Hotel, Jalan Subang Mas, 47620 Subang Jaya, Selangor, Malaysia**  
**30<sup>th</sup> March 2019**

---

Education (2006-2008) and member of the UK based Global Child Dental Health Senior Dental Leader since 2010. Prof Dr Rahimah is also currently the regional executive member for the Geneva-based Oral Health Working Group of the World Federation of Public Health Associations and, Malaysia Chapter Chairman of the Global Alliance for Cavity Free Future. Founding Dean of the youngest private dental institution in Malaysia - Lincoln University College. Her involvement in Orang Asli goes as far back as 1987. An ardent advocate of oral prevention, fluorides and nicotine addiction research, she has more than 100 publications in journals, books and abstracts to her credit.

## ***KEYNOTE SPEAKER II***

**DR LOW LEE LAN**

Institute for Health Systems Research,  
Ministry of Health.



### ***“The Role of Medical Anthropology in Health Research”***

**Abstract:** Medical anthropology is a sub-discipline of Anthropology. The role of medical anthropologist that commonly recognized as “cultural brokers”, acts as mediators and to facilitate the understanding of behavioral and interactions between society and healthcare delivery systems. Illness management typically places emphasis on medications, devices and healthcare facilities; inadvertently overlooking the importance of the interaction with healthcare systems. Many might be aware of behavioral and cultural health determinants however the significance of those factors in disease management is still lacking. In this presentation, I reflect on my journey and growth in medical anthropology, a discipline that rather ‘new’ to some within Ministry of Health. Working amongst the multidiscipline health professionals within the ministry, I have sensitized myself to the Malaysian healthcare system and to gain insight of why and how patients’ interaction with the system and their treatment seeking practice. My theoretical lens shaped my approach in research and its impact towards improving healthcare delivery system. My experiences proved that applied medical anthropology is not something impossible in Malaysia.

**Biography:** Low Lee Lan is researcher at the Institute for Health Systems Research, Ministry of Health Malaysia. She had over a decade of experience as a medical anthropologist working in the field of health systems research, equipping her with the familiarity on the Malaysia healthcare system. Her research focuses on health seeking behaviour and doctor - patients’ relationship. Most of her research works adopt qualitative approach for in-depth understanding of people interacting with health systems. She has a special interest in the area of knowledge translation. Both her theoretical perspective and research experience certainly shaped the research process and continue with dissemination of evidence among stakeholders and policy makers. She has published many scientific papers in Indexed journals as well as presented in various national and International conferences.

**PROF DR ALLAN PAU KAH HENG**

Dean,  
Faculty of Dentistry,  
International Medical University.



***“Behavioural Science Research in Dentistry”***

**Abstract:** Behavioural Science research in Dentistry focuses on exploring and understanding patients' behaviour in relation to experiences of health and illness, and students' and dentists' experiences in the context of oral healthcare provision. In this presentation, I will share a number of quantitative and qualitative research projects that had been conducted to investigate patients', students' and dentists' behavior's in relation to Dentistry. The quantitative projects include children's and adolescents' experience of dental pain, and its impact on OHRQoL and care-seeking behaviour, dental students' prescribing patterns for dental infections in children, and dentists' experience of emotional intelligence and its association with career choices. The qualitative projects include dental patients' experience and expression of toothache, experience of emotional intelligence and its association with their coping behaviour, and dentist's behaviour in relation to patient safety.

**Biography:** Allan Pau is Professor in Dental Public Health and Dean of the School of Dentistry at The International Medical University (IMU) in Kuala Lumpur, Malaysia. He graduated from King's College London with BDS and completed his MSc and PhD in Dental Public Health at Queen Mary University of London. He was elected to The Royal College of Surgeons of Edinburgh (RCSEd) as a Fellow in Dental Surgery (FDS) after successful completion of his specialist training and was entered into the UK's General Dental Council List of Dental Public Health Specialists. He is also on the Malaysian National Specialists Register. In addition to his commitments at IMU, Prof Allan is also serving as a member of the Malaysian Dental Council, the Steering Committee for the National Oral Health Survey of Preschool Children, and the National Oral Health Research Initiatives Committee. He is also on the Dental Public Health Specialty Sub-Committee, as well as the Dental Public Health Training Standards Committee.



**ASSOC PROF DR NORMASTURA ABD RAHMAN**

School of Dental Sciences,  
Health Campus,  
Universiti Sains Malaysia.



***“Oral Health Strategies for Individuals with Special Health Care Needs:  
Sharing USM Experiences”***

**Abstract:** Individuals with special health care needs (SHCN) are those who require special attention and specific health necessities. Due to their condition, their oral health care is compromised that leads to greater level of oral disease and unmet need for oral health care. Improving their oral health require a consorted effort through a community based multidisciplinary program and healthcare system. To minimise oral disease, education of patients and caregivers with regard to prevention and treatment as well as their relationship with general health problems must be planned from an early stage. Apart from that, oral healthcare workers need to be trained so that SHCN patients can be managed effectively. This presentation is intended to share various collaborative oral health strategies done on SHCN individuals in USM. Key informants' method was utilised in identifying the patients and various disciplines involved such as Social and Welfare Department, NGO and community leaders. The activities are customised towards the different types of disability related to Down syndrome, cerebral palsy, hearing impairment and cleft lip and palate. Understanding challenges faced by different types of disabilities enables us to develop a special program and modules to fulfil their oral health needs.

**Biography:** Associate Prof Dr Normastura Abd Rahman is currently a lecturer and oral health consultant at the School of Dental Sciences, Universiti Sains Malaysia (USM). She had obtained her Bachelor of Dental Surgery in 1994 from University of Malaya and Master in Community Medicine (Oral Health), USM in 2004. She had broadened her experience by doing sub-specialization training in children with disability at University of Colorado and The Children Hospital in Denver, Colorado, United States of America in 2006. Currently, she is actively involved in many researches and oral health consultations related to oral health care for the disabled individual for example cerebral palsy, hearing impairment, Down's syndrome, autism as well as cleft lip and palate. She had published her works in local, international and impact factor journals as well as actively involved in collaborative community program with Social and Welfare Department, and lead the dental team for multidiscipline collaborative 'Cerebral Palsy Research Cluster' program, USM. She had produced oral health modules as an aid and guidelines for use of the parents, teachers and caretakers of disabled children by introducing an innovative and appropriate way in managing the oral health care of this disadvantage group of children.



**DR DUANGPORN DUANGTHIP**

Faculty of Dentistry,  
The University of Hong Kong.

***“Amalgamation of Behavioural Science into Oral Health Care”***

**Abstract:** Oral health is crucially dependent on behaviours such as dietary behaviour, daily oral self-care, dental attendance, dental anxiety. Behavioural and social factors are significantly impact oral health. It is important for dental practitioners, educators and researchers to understand how these factors can be modified as well as how to develop high quality interventions to handle psychological and social challenges. Behavioural interventions are those that instruct individuals about good oral health and disease management practices. This lecture will discuss about the updated conceptual and methodological tools and the potent psychosocial oral health interventions such as motivational interviewing to various communities and populations. Behavioral oral health interventions in children will be more focused.

**Biography:** Dr. Duangthip Duangporn is an Honorary Assistant Professor and Postdoctoral Fellow, The University of Hong Kong. She was the former Associate Dean, Clinical Assistant Professor (Pediatric Dentistry), and Director of Dental Department, Faculty of Dentistry, Thammasat University, Thailand. Dr. Duangthip was conferred Doctor of Philosophy (PhD) in Dental Public Health from the University of Hong Kong, Doktorin der Zahnmedizin (Dr. med. dent.) from University of Bern, Switzerland, and Doctor of Dental Surgery (DDS) from Chulalongkorn University, Thailand. She was an invited speaker delivering lectures in several major international conferences such as World Congress on Preventive Dentistry. She has presented her research at many international conferences and published 25 peer-reviewed journals including first author in *Journal of Dental Research* and *Journal of Dentistry*, etc. Dr. Duangthip's research interests focus on the community dental care, caries management and silver diamine fluoride. She also serves as an Associate Editor in *BMC Oral Health* (Impact factor 1.60) and a Guest Editor of special Issue 'Dental Care' in *Healthcare* (PubMed Index). Besides teaching and research duties, she is actively engaged in oral health care for preschool children in over 100 kindergartens. As a team member, she was a recipient of Faculty Knowledge Exchange Award in 2016-2018, the University of Hong Kong. She has been awarded to be a fellow of International College of Dentists (FICD) in 2018.

**LIST OF POSTER PRESENTATIONS**  
**18<sup>th</sup> Annual Scientific Meeting & 20<sup>th</sup> Annual General Meeting of Malaysian Section IADR**  
**Geno Hotel, Jalan Subang Mas, 47620 Subang Jaya, Selangor, Malaysia**  
**30<sup>th</sup> March 2019**

ID	TITLE	AUTHORS
P-01	Assessing the Micro-hardness of Bulk-fill Composite Resin in Tunnel Restoration Technique	Hassan NS, Ahmad Tamrin A, Lim TW, Ismail MH, Abu Hassan MI, Ab Ghani SM
P-02	Analysis of Malocclusion from Lateral Cephalogram in Malaysian Population: A Geometric Morphometrics Approach	Muhamad Nasim Ilmi MN, Aspalilah A, Nurul Aiman AJ, Syiral Mastura A, Nurjehan MI, Choy Kw, Noraina Hafizan N
P-03	Ni Ion Release from NiTi Wire Soaked in Artificial Saliva and Mangosteen Extract	Mirna Febriani, Maria Valensia
P-04	Cleidocranial Dysplasia: A Non-Invasive Approach	Ayub NAF, Hamzah SH, Hussein AS, Rajali A
P-05	The Comparison of Adsorption in Stainless Steel Wire Immersed in Artificial Saliva and Green Tea Leaf Extract as A Corrosion Inhibitor Using FTIR	Gadis Pranitania, Mirna Febriani
P-06	The Accomplishment Rate of Anterior Crowding Orthodontic Treatment with Rotation by Using the Combination of Simple Removable Tools	Belly Yordan
P-07	Comparison Effects of Using Orthodontic Toothpaste and Betel Leaf Toothpaste to Plaque Index Decrease in Fixed Orthodontic Patients	Galuh Puteri Puspita, Nety Trisnawaty
P-08	The Comparison between Using Herbal Toothpaste and Non-Herbal Toothpaste to Decrease Plaque Index in Fixed Orthodontic Dental Student Patients	Nety Trisnawaty, Nabila Putri Safira
P-09	Perception of Pain during Activation of Fixed Orthodontic Appliance on Dental Students of Prof. DR. Moestopo (B) University, Indonesia	Hermawan MRA, Suryaprawira A
P-10	Integrated Approach of Saving a Guarded Prognosis Molar: A Case Report	Hashim NA, Ramlan NA, Zainal Ariffin MH
P-11	The Comparison of Adsorption in Stainless Steel Wire Immersed in Artificial Saliva and Watermelon Extract as a Corrosion Inhibitor Using FTIR	Amalia Fitri Putri, Mirna Febriani

**LIST OF POSTER PRESENTATIONS**  
**18<sup>th</sup> Annual Scientific Meeting & 20<sup>th</sup> Annual General Meeting of Malaysian Section IADR**  
**Geno Hotel, Jalan Subang Mas, 47620 Subang Jaya, Selangor, Malaysia**  
**30<sup>th</sup> March 2019**

P-12	A Radiographic Superimposition in Orthognathic Surgical Treatment of Skeletal Class III Malocclusion	Suryaprawira A
P-13	A Review of Antimicrobial Peptides in Dentistry	John Y Niu, May L Mei, CH Chu
P-14	Anterior Loop Length of Inferior Alveolar Nerve to Estimate Safe-Zone for Implant-planning in Malaysian-Chinese Population	Shameni Vellappan Konasilan, Toh Kai Ying, Pravinkumar G Patil
P-15	The Efficacy of <i>Salvadora persica</i> Extract in the Elimination of the Intracanal Smear Layer: SEM Study	Amirul Hafizi B, Mohamad Hakimi B, Sam'an MM
P-16	The Applications of Silver Nanoparticles in Dental Materials	Iris X Yin, Jane J Zhang, May L Mei, CH Chu
P-17	Knowledge, Awareness and Attitude on Fluoride Use for Oral Health among Malaysian Adolescents	Kelvinder S, Addini F, Rahimah AK
P-18	Prevalence of Tori among Patients Attending Dental Clinic in Lincoln University College: A Retrospective Study	Imanina Z, Fazelah A, Narendra PR
P-19	Awareness and Knowledge of Cracked Tooth Syndrome among LUC Health Science Student	Adibah NS, Safwanah S, Hussin ZA
P-20	Eurycoma Longifolia Jack (Tongkat Ali) Extract Reduces the Growth of Salivary Isolated <i>Streptococcus mutans</i> and <i>Lactobacillus</i>	Muhamad Iyad Ramzi, Muhammad Hazzim Kosnin, Ghasak Ghazi Faisal, Hafiz Arzmi, Anisa Kusumawardani
P-21	Effectiveness of Cure of Bulk-fill Restorative and Flowable PRG Composites	Lee JW, Chan BH, Eweis AH, Yap AU, Yahya NA
P-22	The Correlation between Caries Severity Index and Salivary pH of Mentally Disabled People in Harapan Ibu Social Institution Kalumbuak, Padang West Sumatera	Yuhelmina Khamisli, Dewi Elianora, Intan Batura Endo Mahata



**LIST OF POSTER PRESENTATIONS**  
**18<sup>th</sup> Annual Scientific Meeting & 20<sup>th</sup> Annual General Meeting of Malaysian Section IADR**  
**Geno Hotel, Jalan Subang Mas, 47620 Subang Jaya, Selangor, Malaysia**  
**30<sup>th</sup> March 2019**

P-23	The Effect of Temperature and Exposure Time on the pH of Beverages: A Pilot Study	Nur Nabila Abdul Wahab, Nur Afiqah Rosman, Annapurny Venkiteswaran, Norashikin Abu Bakar
P-24	Effect of Using Sticker Media Learning for Autism Approach to Oral Hygiene Status at SLB West Sumatera	Iffa Rahma Sari, Dewi Elianora, Valendriyani Ningrum
P-25	Talon Cusp on Maxillary Right Lateral Incisor: A Case Report	Rashid I, Hussein AS, Hamzah SH
P-26	Accessory Cusps on Maxillary Deciduous Second Molars and its Management: An Unusual Occurrence	Hazni NM, Khairuddin NKA, Hamzah SH, Hussein AS
P-27	An Accessory Cusp and Three-Rooted in Primary Mandibular Left First Molar: A Rare Entity	Andytan NII, Ikhwan NFI, Hamzah SH, Hussein AS
P-28	The Description of Malocclusion Children with Mental Retardation at Budi Karya Special Education School, Nagari VIII Koto, West Sumatra	Hilmi Khairi, Dewi Elianora, Busman
P-29	Phytochemical Analysis, Antibiofilm and Anti-Adherence Activities of <i>Spilanthes acmella</i> Leaves Extracts (SALE)-n-hexane & SALE-Methanol (MeOH) against <i>Streptococcus mutans</i>	Luqman Atif Elias, Siti Sarah Azhar, Rohazila Mohamad Hanafiah, Siti Aisyah Abd Ghafar
P-30	Effectiveness of Guided Tooth Brushing Technique on People with Disabilities	Hazwin H, Nurul ACH, Rahimah AK
P-31	Knowledge and Sexual Behaviour as the Risk Factor of Oral Lesion in Commercial Sex Workers	Erdianto Setya W, Rochman M
P-32	Knowledge, Attitude and Awareness Towards Oral Health among Adults in Kelana Jaya	Nasuha AT, Pang JY, Dasan S

**LIST OF POSTER PRESENTATIONS**  
**18<sup>th</sup> Annual Scientific Meeting & 20<sup>th</sup> Annual General Meeting of Malaysian Section IADR**  
**Geno Hotel, Jalan Subang Mas, 47620 Subang Jaya, Selangor, Malaysia**  
**30<sup>th</sup> March 2019**

P-33	Flexural Strength, Diametral Tensile Strength, Viscosity and SEM/EDS Analyses of Zirconia Reinforced Experimental Nanohybrid Dental Composite (NHDC)	Nor Amirun Asyraf Mohammad, Nur Naimah Mohd Rizali, Ismail NH, Awang RA
P-34	The Incidence Rate of Inferior Alveolar Nerve Block (IANB) Failure from 1999-2019: A Preliminary Report on a Systematic Review	Fazleen Z, Hazmyr AW, Andrean H, Nur Aqilah MZ, Mimi Syafiqah AJ, Tengku Intan Baizura TJ
P-35	Effect of Micro-osteoperforations on Orthodontically Induced Inflammatory Root Resorption: A Randomized Clinical Trial	Azaitun Akma S, Sarah Haniza AG, Noraina Hafizan N
P-36	The pH of Fruit Drinks, Juices, Sports Drinks, Malted Drinks and Carbonated Drinks in Malaysia	Nur Afiqah Rosman, Nur Nabila Wahab, Annapurny Venkiteswaran, Norashikin Abu Bakar
P-37	Evaluation of Degree of Conversion and Hardness of Flowable Resin Composites from Rice Husk	Nur Nadiah Md Isa, Yanti Johari, Nazrul Md Yusoff, Mohd Fadhli Khamis, Zaihan Ariffin, Dasmawati Mohamad
P-38	A Novel Nano-Hydroxyapatite-Silica-Glass Ionomer Cement for Dental Application	Moheet IA, Luddin N, Rahman I, Kannan TP, Nik Abdul Ghani NR
P-39	Retrospective Study of Dental Treatment Needs of Patients Attending Lincoln University College Dental Clinic	Noor AMY, Farhain SR, Noraini NNY
P-40	A Survey of Dental Anxiety and Fear among Future Doctors: Are They Afraid?	Ghazali IA, Mohd Kama MS, Aza A, Izyan Hazwani B
P-41	Comparison of Bimaxillary Protrusion Occlusion Morphology: A Geometric Morphometric Analysis	Che Aziz NFA, Yunos S, Alias A, Yusof MYPM, Norman NH

**LIST OF POSTER PRESENTATIONS**  
**18<sup>th</sup> Annual Scientific Meeting & 20<sup>th</sup> Annual General Meeting of Malaysian Section IADR**  
**Geno Hotel, Jalan Subang Mas, 47620 Subang Jaya, Selangor, Malaysia**  
**30<sup>th</sup> March 2019**

P-42	Prevalence of Malocclusion in Sagittal Relationship Among Malaysian Adolescents	Fatihah N, Adzmi A, Rasheed AS
P-43	Antibacterial Effects of <i>Spilanthes acmella</i> Leaves Extracts (SALE) against <i>Streptococcus mutans</i> .	Siti Sarah Azhar, Luqman Atif Elias, Rohazila Mohamad Hanafiah, Siti Aisyah Abd Ghafar
P-44	The Effect of Incorporation of Cellulose Kenaf Fibre in Composite Resin on Mechanical Properties	Nur Aliya Ibrahim, Mohd Nazrulhuzaimi Md Yusoff, Yanti Johari, Nor Aidaniza Abdul Muttlib, Rabihah Alawi
P-45	Necrotic Immature Premolar with Dens Evaginatus: A Case Report	Rasid LH, Abu Bakar N, Ramlan NA
P-46	The Effect of Educational Programme in Curbing Work-related Musculoskeletal Disorder (WMSD) among UiTM Dental Students	Nursyafinas Arifin Al Idrus, Khairil Anuar Md Isa, Wan Najwa Wan Mohd Zohdi, Noor Aziella Mohd Nayan, Tengku Intan Baizura Tengku Jamaluddin
P-47	The Antibacterial Effects of Aqueous Oil Palm ( <i>Elaeis guineensis</i> ) Leaf Extracts against Periodontopathogen	Nur Fatimah Nordin, Hasnah Begum Said Gulam Khan, Kazi Ahsan Jamil
P-48	Accessory Central Cusp in Bilateral Maxillary First Permanent Molar: A Unique Presentation	Mohd SH, Mohammed Zainuri AQ, Hussein AS, Hamzah SH
P-49	Talon Cusp on Mandibular Right Lateral Incisor: A Rare Occurrence	Azmimurad AM, Zaharudin S, Hamzah SH, Hussein AS, Ramlan NA
P-50	Surface Hardness Deterioration of Expired Glass Ionomer Cement	Muhammad Dian Firdausy

**LIST OF POSTER PRESENTATIONS**  
**18<sup>th</sup> Annual Scientific Meeting & 20<sup>th</sup> Annual General Meeting of Malaysian Section IADR**  
**Geno Hotel, Jalan Subang Mas, 47620 Subang Jaya, Selangor, Malaysia**  
**30<sup>th</sup> March 2019**

P-51	Tooth Size Measurements through Conventional and CAD/CAM Measurements: A Study on the Malay Ethnic	Hashim KC, Kuddus AY, Nasruddin MF, Syed Bakhtiar SBA
P-52	Supporting Preventive Strategy of Smoking Cessation Practice in IMU Oral Healthcare Centre	Lim Li Yin, Lim Xian Jin, Sobia Bilal
P-53	Psychological Well-being and Dental Health Experience of Patients Attending Dental Clinic in Hospital Universiti Sains Malaysia	Cheryl Yip Ying Ling, Zainab Mat Yudin, Normastura Abd Rahman
P-54	Synthesis and Characterization of Zirconia Stabilized by Nano Calcium Oxide Derived from Cockle Shell and Commercial Nano Calcium Oxide	Abbas Ibrahim Hussein, Nur Atikah Ab Ghani, Zuryati Ab-Ghani, Ismail Ab. Rahman, Adam Husein
P-55	The Relationship of Facial Measurements with the Mesiodistal Width of the Maxillary Anterior Teeth	Nur Ilyana Aifa Aziz, Nadia Che Mohd, Izyan Hazwani Baharuddin, Aiemeeza Rajali, Rohana Ahmad
P-56	Comparison of the Bond Strength of Different Endodontic Sealers to Dentine Walls: An In-Vitro Study	Galvin Sim Siang Lin, Nik Rozainah Nik Abdul Ghani, Tahir Yusuf Noorani, Noor Huda Ismail, Noraida Mamat
P-57	Pain Levels Assessment in Orthodontic Patients with Mini-Implants using a Pain Diary: A Pilot Study	Mohd Ali ND, Norman NH, Mohammed Al-Jaf N
P-58	A Pilot Study: The Efficacy of the Maxillofacial Suturing Kit in Assessing Undergraduate Skill Performance	Abdul Bari N, Firdaus MS, Hamuddin S, MD Sabri BA
P-59	Bilateral Accessory Cusp in Deciduous Mandibular First Molars and Bilateral Cusp of Carabelli in Permanent Maxillary First Molars: A Case Report	Mohammad Zainuri NA, Zaim Faisal UN, Hussein AS, Hamzah SH
P-60	Fluoride Content, Cost and Labelling of Commercially Available Toothpastes in Malaysia	Anis JW, Abdul Hamid MH, Mohd Nor NA



**LIST OF POSTER PRESENTATIONS**  
**18<sup>th</sup> Annual Scientific Meeting & 20<sup>th</sup> Annual General Meeting of Malaysian Section IADR**  
**Geno Hotel, Jalan Subang Mas, 47620 Subang Jaya, Selangor, Malaysia**  
**30<sup>th</sup> March 2019**

P-61	Perception of Tooth Carving in Clinical Dental Practice among Undergraduate Dental Students: A Pilot Study	Gun Sheh Tat, Gan Chen Wei, Guee Yuxin, Hanis Masyitah Mohd Said, Anitha Krishnan Pandarathodiyil, Md Nurul Islam
P-62	Comparison of Colour Stability of Two Commercially Available Rapid Heat-Cured Acrylic Resins	Chong ZW, Chee TY, Lim GS, Ahmad SF
P-63	Perceived Stressor among Dental Postgraduate in Klang Valley	Md Amin M, Azmimurad AM, Abdul Halim R, Noor E
P-64	The Effect of Dental Caries in Children on the Colonization of Candida species	Muhammad Hazzim Kosnin, Harina Akila Che Hussin, Nadiah Arshad, Ahmad Faisal Ismail, Zurainie Abllah, Mohd Hafiz Arzmi
P-65	Comparison of Microleakage in Coloured Composite and Giomer: An In-Vitro Study	Nabila Nadia Naharuddin, Muhammad Sanim Satri, Ng Jia Hui, Muhammad Anwar Khalid, Prashant Choudhary
P-66	Identification of Microbial Population Isolated from UiTM Dental Students' Mobile Phones	Anuwa AA, Kharuzhar AM, Harun N, Hassan EH
P-67	Prevalence of Leukoedema and Fordyce's Granules in Patients Attending a University Centre	Fong Chan Yip, Choy Yip Seng, Chung Yi Vien, Goh Song Jia, Anitha Krishnan Pandarathodiyil
P-68	See the C-Shaped Better: A Case Report	Misni MK, Ramlan NA, Kamaruzaman M
P-69	Influence of Ethanol Extract of Tuber Granting Ant ( <i>Hydnophytum formicarum</i> ) against the Density of Collagen Fibers Wound Healing Post Extractions of Teeth Experimental Research on Male Guinea Pigs ( <i>Cavia In Cobaya</i> )	Efa Ismardianita, Andries Pascawinata, Siti Velanita

**LIST OF POSTER PRESENTATIONS**  
**18<sup>th</sup> Annual Scientific Meeting & 20<sup>th</sup> Annual General Meeting of Malaysian Section IADR**  
**Geno Hotel, Jalan Subang Mas, 47620 Subang Jaya, Selangor, Malaysia**  
**30<sup>th</sup> March 2019**

P-70	A Comparison of the Number of Colonies of Bacteria of Saliva and pH on the Toddler Early and Non-Early Childhood Caries after Consuming Infant Formula by Using a Bottle (Dot)	Dewi Elianora, Busman, Febri Mona Ayusa
P-71	Prevalence of Smoking among Dental Students in Universiti Sains Malaysia	Thittikkon Suvanpratum Laer, Mohd Zulkarnain Sinor, Rabihah Alawi, Nor Aidaniza Abdul Muttlib
P-72	Prevalence of Dental Developmental Anomalies among Patients Visiting SEGi Oral Health Centre	Chong Min Yi, Chong Jing Yi, Chen Sze Min, Roojee Beebee Nafeesah Mohseen, Anand S Tegginamani
P-73	Temporomandibular Joint Disorders (TMD) among Workers in Selangor	Fouzi Z, Kamal Phami F, Rokhani F
P-74	Effects of pH of Sports and Energy Drinks on Demineralisation of Dental Hard Tissue	Joshua Lee Tzu Shuan, Jan Ee Ven, Kamaleshwary Gunalan, Katrice Lim Xin Jie, Sulinda Daud
P-75	Comparison and Evaluation of Dental Erosive Potential: Non-Nutritive Sweeteners Vs. Steviol Glycosides in Acidic Beverage	Muhamad Adib AH, Nur Aqilah MZ, Mukarramah Z, Rahayu Z, Aimi Nadia R, Izyan Hazwani B
P-76	Bail Out Using Brains: Teaching & Learning in Dentistry through Games	Priyadarshini HR, Daniel Dicksit, Khairiyah Abd Muttalib, Basuri Faki
P-77	First Consultation of the Cleft Lip and/or Palate Newborn: Is it of Good Quality?	Tan YS, Tan YL, Marhazlinda J
P-78	First Consultation of the Cleft Lip and/or Palate Newborn: What Information do Parents Critically Need?	Tan YL, Tan YS, Marhazlinda J

**LIST OF POSTER PRESENTATIONS**  
**18<sup>th</sup> Annual Scientific Meeting & 20<sup>th</sup> Annual General Meeting of Malaysian Section IADR**  
**Geno Hotel, Jalan Subang Mas, 47620 Subang Jaya, Selangor, Malaysia**  
**30<sup>th</sup> March 2019**

P-79	The Use of Song and Superhero in Oral Health Education Targeting Pre-schoolers	Foong Yeong Jui, Adlina Yosri, Roslan Saub, Norintan Ab-Murat
P-80	Comparative Outcomes of Regenerative Endodontic Therapy for Non-Vital Immature Permanent Teeth: A Case-series	Said HM, Bustami KA, Mani SA, Shoaib LA
P-81	Assessment of Extra Oral Soft Tissue, 3D Airway Volume and Quality of Life (QoL): A Monoblock Therapy Appliance in Obstructive Sleep Apnea (OSA) Study	Hazni MS, Roziana MR, Mohd Yusof ZY, Ibrahim N, Abu Bakar MZ
P-82	Oral Health Care Practise and Knowledge of Parents with Autism Spectrum Disorder (ASD) Children Attending Special Education Program Centre	Nur Amirah Hamid, Nur Fatin Faqhira Jalani, Izyan Hazwani Baharuddin, Ilham Wan Mokhtar
P-83	Influence of Various Sugar Types in Acidic Beverages on Dental Erosion: A Laboratory Investigation	Nur Aqilah MZ, Muhamad Adib AH, Mukarramah Z, Rahayu Z, Aimi Nadia R, Izyan Hazwani B
P-84	Comparing the Resin Penetration Depth and Nanoleakage of Three Different Bonding Systems in Class V Cavities	Vei Xhion Tan, Jun Hong Tan, Hanan Omar, Liang Lin Seow, Umer Daood
P-85	Effect of Silver Incorporation on Physiochemical Properties and Antibacterial Activity of Hydroxyapatite Nanoparticles	Mohd Faiz Mohd Yusoff, Noor Hayaty Abu Kasim, Zamri Radzi

**LIST OF ORAL PRESENTATIONS**  
**18<sup>th</sup> Annual Scientific Meeting & 20<sup>th</sup> Annual General Meeting of Malaysian Section IADR**  
**Geno Hotel, Jalan Subang Mas, 47620 Subang Jaya, Selangor, Malaysia**  
**30<sup>th</sup> March 2019**

ID	TITLE	AUTHORS
O-01	An Intra-Orbital Metallic Foreign Body: A Case Report	Paras Ahmad, Jawaad Ahmed Asif
O-02	Combining Clinical and Molecular Factors to Predict Outcome in Oral Potentially Malignant Disorders	Sathasivam HP, Kist R, Sloan P, Robinson CM
O-03	Comparing the Polymerization Shrinkage Surface Displacement of a Fully and Partially Bonded Bulk-Fill Composite Resin Restorations	Siti Mariam AG, Chew HP, Fok AS, Amir Radzi AG, Abdul Halim A, Mohamed Ibrahim AH
O-04	Surgeries Unfavourably Effect Maxillary Arch of Unilateral Cleft Lip and Palate Children: A 3D Study	Sanjida Haque, Mohd Fadhli Khamis, Mohammad Khursheed Alam, Wan Muhamad Amir Wan Ahmed
O-05	Age Estimation from Dental Imaging in Malaysian Adults on Lower Premolars	Donni S, Aspalilah A, Haslinda R, Phrabhakaran N, Choy KW
O-06	Geometric Morphometrics Analysis: A New Method in Diagnose Malocclusion	Nurul Aiman AJ, Aspalilah A, Muhamad Nasim Ilmi MN, Syiral Mastura A, Nurjehan MI, Choy KW, Noraina Hafizan N
O-07	The Correlation of Salivary pH and Flow Rate to the Dental Caries Status in Yogyakarta 2018	Sri Utami, Intan Kurnia Marka, Sheila Soraya Rachman
O-08	The Difference Plaque in Dental Health Education with Media Lesson Schedule Sogi (Gosok Gigi) among Students in Elementary School Yogyakarta, Indonesia	Novitasari Ratna Astuti, Adike Dica Saleha
O-09	Use of 10,600 nm Carbon Dioxide Lasers in Dentistry	Kenneth Luk, Irene S Zhao, Norbert Gutknecht, CH Chu
O-10	Prevalence and Aetiological Risk Factors of Tooth Wear in Adult Population in Kuala Lumpur, Malaysia	Bilal Zuhair Alani, Wan Zaripah Wan Bakar, Norasmatul Akma Ahmad, Noor Huda Ismail

**LIST OF ORAL PRESENTATIONS**  
**18<sup>th</sup> Annual Scientific Meeting & 20<sup>th</sup> Annual General Meeting of Malaysian Section IADR**  
**Geno Hotel, Jalan Subang Mas, 47620 Subang Jaya, Selangor, Malaysia**  
**30<sup>th</sup> March 2019**

O-11	Medical Model in Caries Management	Madeline Jun Yu Yon, Sherry Shiqian Gao, Edward Chin Man Lo, Chun Hung Chu
O-12	Effect of Metal Artefact from Metallic Fixed Orthodontics Auxiliary Appliances in Craniofacial Anatomical Computed Tomography (CT) Images	Mahmud Mohammed, Norma Ab. Rahman, Ahmad Hadif Zaidin Samsudin
O-13	Perceived Soft Tissue Facial Profile Attractiveness in 3-Dimensional Photographs of Orthognathic Patients and Laypersons	Tan SK, Tang ATH, Leung WK, Zwahlen RA
O-14	Root Canal Morphology of Mandibular Anteriors in Malaysians Using New Classification System: A CBCT Study	MI Karobari, TY Noorani, MS Halim, HMA Ahmed
O-15	Chronic Periodontitis in Obese and Non-Obese Patients	Usman Rashid, Siti Lailatul Akmar Zainuddin, Zurairah Berahim, Ahmad Azlina, Basaruddin Ahmad
O-16	Malay Version of IDAF-4C+: A New Reliable Tools to Measure Dental Anxiety and Fear?	Izyan Hazwani B, Arifin WN, Kueh YC, Normastura AR
O-17	Viability and Attachment of Dental Pulp Stem Cell Seeded on Irrigated Radicular Dentin Treated with Intracanal Medicaments	Samiya Riaz, Ahmad Azlina, Zuliani Mahmood, Aung Thu Htun
O-18	Effects of NSPT on Periodontal Parameters in Pre-Dialysis Chronic Kidney Disease Patients with Chronic Periodontitis.	Ahmed Chaudhry, Siti Lailatul Akmar Zainuddin, Nur Karyatee Kassim, Azreen Syazril Adnan, Hanim Afzan Ibrahim, Basaruddin Ahmad
O-19	Identification of the Predominant Bacteria Causing Pericoronitis and their Virulence Factors	Ainaa Liyana A, Siti Noor Adnaliza A, Ahmad Dzulfikar S, Rohazila MH, Azmiza Syawani J, John Chong KH



**LIST OF ORAL PRESENTATIONS**  
**18<sup>th</sup> Annual Scientific Meeting & 20<sup>th</sup> Annual General Meeting of Malaysian Section IADR**  
**Geno Hotel, Jalan Subang Mas, 47620 Subang Jaya, Selangor, Malaysia**  
**30<sup>th</sup> March 2019**

O-20	Local Anaesthesia Simulator Kit (LASK) as a Training Kit for Inferior Alveolar Nerve Block (IANB)	Syafiq Zulhady Z, Mohd Hanif MR, Tengku Intan Baizura TJ, Hazmyr AW, Andrian H, Shahrul Azam A
O-21	Dental Caries and Vitamin D Deficiency in Children: A Systematic Review and Meta-analysis	Mohd Sapawi N, Rohazak AA, Hussein AS, Mohd Yusof MYP
O-22	Fibroblastic Differentiation of Stem Cells from Human Exfoliated Deciduous Teeth	Nurul Hafizah Mohd Nor, Zurairah Berahim, Ahmad Azlina, Khairani Idah Mokhtar@Makhtar, Thirumulu Ponnuraj Kannan
O-23	Assessment of Periodontal Parameters and Evaluation of Oral Health Impact Profile During Pregnancy	Sarmad Saif, Siti Lailatul Akmar Zainuddin, Fauziah Jummaat, Haslina Taib, Nur Karyatee Kassim, Azlina Ahmad, Basaruddin Ahmad, Nur Nadirah Ilyana
O-24	Antimicrobial Effects of Vitamin D3 on Streptococcus mutans: An In-vitro Study	Nazli SA, Nor Effandy NAE, Hussein AS, Al-Talib H
O-25	The Effect of Different Restorative Techniques on the Fracture Resistance of Endodontically Treated Teeth: An in vitro Study	Mera Christina Michael, Nik Rozainah Nik Ghani, Noor Huda Ismail, Adam Husein
O-26	Effects of Antihypertensive Drugs on Alveolar Bone Loss in Patients with Chronic Periodontitis: Retrospective Study	Khairuddin NAI, William C, Ibrahim OE, Al-Bayatly FH
O-27	Sense of Coherence and Self-Directed Learning Readiness among Dental Students in Malaysia	Siddiqui Fawaz, Nerali Jayashri, Telang Lahari
O-28	Patient Satisfaction Towards Dental Services in Faculty of Dentistry, Universiti Teknologi MARA (UiTM)	Abu Kassim A, Maruan MI, NM Rosdy NMM

**LIST OF ORAL PRESENTATIONS**  
**18<sup>th</sup> Annual Scientific Meeting & 20<sup>th</sup> Annual General Meeting of Malaysian Section IADR**  
**Geno Hotel, Jalan Subang Mas, 47620 Subang Jaya, Selangor, Malaysia**  
**30<sup>th</sup> March 2019**

O-29	The Impact of Fixed Prosthodontic Education Kit to Measure Patient's Awareness and Knowledge in Universiti Teknologi MARA (UiTM)	Rosli NN, Mohd SH, Nik Zulkifeli NR, Nik Mahmood NZ
O-30	Conical-shaped of Permanent Maxillary Lateral Incisor	Abdul Kuddus AY, Abu Bakar N
O-31	Comparison of Bimaxillary Protrusion Occlusion Morphology: A Geometric Morphometric Analysis	Yunos S, Che Aziz NFA, Alias A, Yusof MYPM, Norman NH
O-32	An Urdu language Version of the Child Oral Impacts on Daily Performances Index Assessing Validity and Reliability	Khaliqa-Tul-Zahra, Zamros Yuzadi Mohd Yusof, Marhazlinda Jamaluddin
O-33	A Pilot Study: The Efficacy of the Maxillofacial Suturing Kit in Assessing Undergraduate Skill Performance	Abdul Bari N, Firdaus MS, Hamuddin S, MD Sabri BA
O-34	A 3D Geometric Morphometric Analysis of Lip Morphology in Class II Division 1 Malocclusion	Meyyappan D, Marizan Nor M, Ashar A, Mohamed AM, Pritam HH
O-35	Awareness of Sugar and Nutrition Information on Food Labels	Norashikin Y, Budi Aslinie MS, Nor Hamimah R, Nur Fatimah Y
O-36	From Science to Practice: Does Novel Anisotropic Hydrogel Tissue Expander Induces Inflammation?	Kholoud Mohamed Ali Salim, Siti Mazlipah Ismail, Zamri Radzi, Mohammad Tariqur Rahman
O-37	Polymicrobial Interactions Affect Interleukin-2 and Interleukin-10 Expression of Normal and Oral Cancer Cell Lines.	Mohd Hafiz Arzmi, Stuart Dashper, Nicola Cirillo, Neil O'brien-Simpson, Michael McCullough
O-38	Effect of Curing Light Distance on the Cure of Bulk-Fill Composite Resins	Diab RA, Yahya NA, Gonzalez MAG, Yap AU
O-39	Wounded Football Player: A Journey of an Oral Maxillofacial Surgery and Prosthetic Rehabilitation	Azmeel Mazlee A, Rostam Iffendi I, Tengku Fazrina TMA

**LIST OF ORAL PRESENTATIONS**  
**18<sup>th</sup> Annual Scientific Meeting & 20<sup>th</sup> Annual General Meeting of Malaysian Section IADR**  
**Geno Hotel, Jalan Subang Mas, 47620 Subang Jaya, Selangor, Malaysia**  
**30<sup>th</sup> March 2019**

---

O-40	Evaluation of Water Sorption, Solubility and Surface Characteristics of Flowable Resin Composite from Agricultural Biowaste in Different Immersion Media	Alrawas M, Husein A, Johari Y, Mohamad D
O-41	The Relationship between Body Mass Index (BMI), Dental Development and Chronological Age in 10-16-Year-Old Patients	Tan CG, Lau YT, Roziana MR
O-42	The Distribution of Malaysian Dental Practitioners in Relation to the Population: A Geographic Information System Study	Rizal S, Azahari AA, Md Bohari NF, Ashar A
O-43	Parental Acceptance of Behavior Management Used in Pre-school Children during Dental Treatment	Nur Fatin Faqhira Jalani, Nur Amirah Hamid, Izyan Hazwani Baharuddin, Ilham Wan Mokhtar

## P-01

### Assessing the Micro-hardness of Bulk-fill Composite Resin in Tunnel Restoration Technique

Hassan NS<sup>1</sup>, Ahmad Tamrin A<sup>1</sup>, Lim TW<sup>1</sup>, Ismail MH<sup>2</sup>,  
Abu Hassan MI<sup>1</sup>, Ab Ghani SM<sup>1</sup>

<sup>1</sup>Centre for Restorative Dentistry Studies, Faculty of Dentistry, Universiti Teknologi MARA;

<sup>2</sup>Faculty of Mechanical Engineering, Universiti Teknologi MARA

Email: [nadhassan95@gmail.com](mailto:nadhassan95@gmail.com), [sitimariam783@salam.uitm.edu.my](mailto:sitimariam783@salam.uitm.edu.my)

**Objectives:** Bulk-fill composite resin (BCR) was introduced with the advantage of 4-5mm depth of cured, thus an applicable material for a deep tunnel restoration. The study aimed to assess the polymerization of BCR with different marginal ridge thickness in tunnel restoration technique. **Materials and methods:** Fifteen extracted molar teeth were categorized into; G1=conventional proximal restoration (n:5), G2=tunnel 1.5mm marginal ridge thickness (n:5) and G3=tunnel 3.0mm marginal ridge thickness (n:5). All samples received the designated cavity preparation design and restored with BCR. Samples were then embedded in resin and sectioned into halves. Each sample was tested with Vickers microhardness at the top part (TP), middle part (MP) and bottom part (BP). Data were statistically analysed with 1-way ANOVA to compare means between groups and repeated-measure ANOVA to compare means between the different areas. **Results:** The mean Vickers hardness (HV) value for TP was G1=79.1, G2=77.3 and G3=74.9.; MP was G1=79.0, G2=73.3 and G3=74.9 and BP was G1=71.1, G2=64.4 and G3=62.7. A decrease pattern of HV TP>MP>BP were noted. 1-way ANOVA found no significant difference ( $p>0.05$ ) HV for all groups for TP. For MP, significant difference ( $p<0.05$ ) noted among the 3 groups and for BP, significant differences ( $p<0.05$ ) between G1 to G2 and G3. No significant differences ( $p<0.05$ ) between G2 and G3. **Conclusion:** The thickness of marginal ridge did affect the polymerization of BCR within the recommended depth, however the HV ratio of above 80% in all areas indicate that the material did receive adequate polymerization and clinically acceptable to be used.

## P-02

### Analysis of Malocclusion from Lateral Cephalogram in Malaysian Population: A Geometric Morphometrics Approach

**Muhamad Nasim Ilmi MN<sup>1</sup>, Aspalilah A<sup>2</sup>, Nurul Aiman AJ<sup>1</sup>, Syiral Mastura A<sup>3</sup>,  
Nurjehan MI<sup>3</sup>, Choy Kw<sup>4</sup>, Noraina Hafizan N<sup>5</sup>.**

<sup>1</sup>Faculty of Dentistry Universiti Sains Islam Malaysia (USIM), <sup>2</sup>Department of Basic Sciences and Oral Biology, Faculty of dentistry USIM, <sup>3</sup>Department of Paediatric Dentistry and Orthodontic, Faculty of dentistry USIM, <sup>4</sup>Unit of Anatomy, Faculty of Medicine, MAHSA University, <sup>5</sup>Centre of Excellent Paediatric Dentistry and Orthodontics, Faculty of Dentistry, Universiti Teknologi MARA.

Email: [nasimilmi11@gmail.com](mailto:nasimilmi11@gmail.com), [draspa76@usim.edu.my](mailto:draspa76@usim.edu.my), [nurulaiman.jamal@gmail.com](mailto:nurulaiman.jamal@gmail.com), [syiral\\_7377@yahoo.com.my](mailto:syiral_7377@yahoo.com.my), [nurjehan@usim.edu.my](mailto:nurjehan@usim.edu.my), [celine\\_kerwoon@yahoo.com](mailto:celine_kerwoon@yahoo.com), [noraina@salam.uitm.edu.my](mailto:noraina@salam.uitm.edu.my)

**Introduction:** The geometric morphometric analysis is a method that uses anatomical landmark data to quantify its biological form. It involves an advanced statistical analysis with visualization of shape as its end product. Malocclusion is a malalignment of positioning of teeth when the jaws are closed. An orthodontist may require multiple procedures including intra and extraoral examination, impression taking for dental modelling and lateral skull radiographs to diagnose the patient's problems which can be time and financially consuming.

**Objective:** The aim is to determine the classification of malocclusion in Malaysian population using geometric morphometrics analysis in a shorter duration.

**Materials and method:** In this study, geometric morphometrics analysis of malocclusion was conducted in 381 specimens using lateral cephalograph images. Nine landmarks were recorded by two-dimensional coordinates using TPSUtil software. Generalized procrustes analysis (GPA), procrustes ANOVA, principal component analysis (PCA), canonical variate analysis (CVA), discriminant function analysis (DFA) and procrustes ANOVA were performed using MorphoJ software.

**Results:** Results showed that the first three principal components exhibited 64% variation in malocclusion shapes. Procrustes ANOVA showed significant variation of malocclusion in shape effect ( $p < 0.01$ ). The classification rate from DFA after cross-validation analysis showed that malocclusion was accurately classified between 60% and 80% using geometric morphometric analysis. **Conclusions:** In brief, this study has compiled a Malaysian population database of varying malocclusion using geometric morphometric analyses. This will aid in future software to diagnose malocclusion clinically in a shorter time and cheaper than conventional tracing.

## P-03

### Ni Ion Release from NiTi Wire Soaked in Artificial Saliva and Mangosteen Extract

Mirna Febriani, Maria Valensia

Department of Dental Material, Faculty of Dentistry, University of Prof. Dr. Moestopo (Beragama)

**Email:** [mirnarifky@yahoo.com](mailto:mirnarifky@yahoo.com)

Orthodontic braces that are continuously exposed to saliva in the oral environment may potentially cause corrosion. Corrosion occurs when there is a loss of ions in the metal directly causing loss of the surface layer progressively. The occurrence of corrosion is inevitable; however, corrosion rate can be reduced. One way to reduce corrosion rate is to use organic inhibitors. Organic inhibitors used to reduce the corrosion rate should have antioxidant substances that can be found on the skin of the mangosteen fruit. **Objectives:** This study aims to determine the ratio of Ni-ion release to the Nickel-Titanium metal soaked in artificial saliva and mangosteen bark extract to prevent corrosion. **Materials and Methods:** Eight samples of Nickel-Titanium soaked in artificial saliva and Mangosteen peel extract. All samples were stored in an incubator (37°C) and measured the release of nickel ions after immersion for 1,3,7,14 days. Measurement of nickel ion release was using Atomic Absorption Spectrophotometry (AAS). **Results:** The results showed that there were differences in the release of nickel wire Titanium soaked in artificial saliva with mangosteen peel skin extract after immersion for 1,3,7,14 days. The release of nickel ions soaked in mangosteen peel skin extracts is lower than the release of nickel ions in artificial saliva. **Conclusion:** Mangosteen skin extract can inhibit the corrosive process on Titanium Nickel wire.



## P-04

### Cleidocranial Dysplasia: A Non-Invasive Approach

Ayub NAF<sup>1</sup>, Hamzah SH<sup>1</sup>, Hussein AS<sup>1</sup>, Rajali A<sup>2</sup>

<sup>1</sup>Centre of Paediatric Dentistry and Orthodontics Studies, Faculty of Dentistry, University Teknologi MARA, Malaysia, <sup>2</sup>Centre of Restorative Dentistry Studies, Faculty of Dentistry, Universiti Teknologi MARA, Malaysia

**Email:** [nuraliyafilza@gmail.com](mailto:nuraliyafilza@gmail.com), [sitihajar1998@salam.uitm.edu.my](mailto:sitihajar1998@salam.uitm.edu.my),  
[alaa@salam.uitm.edu.my](mailto:alaa@salam.uitm.edu.my), [aiemeeza7738@salam.uitm.edu.my](mailto:aiemeeza7738@salam.uitm.edu.my)

Cleidocranial dysplasia (CCD) is an autosomal dominant skeletal dysplasia described by clavicles absence, late fontanelle closure, short physique and other skeletal changes. CCD is a rare bone disorder with prevalence of 1: 1,000,000. However, there is a yet a documented CCD prevalence in Malaysia. The dental manifestations of CCD are characterized by multiple retained deciduous teeth and presence of supernumerary teeth. To date, the published management of CCD is a combination approach of serial extraction of deciduous teeth and surgical removal of supernumerary teeth followed by orthodontic traction of the permanent teeth. However, this case highlights an unreported management for a teenage patient with this disorder who refused the recommended protocol. **Case Report:** A 15-year-old Malay female came with a complaint of retained deciduous teeth and missing permanent teeth. The intraoral examination revealed multiple retained maxillary deciduous teeth and marked hypomineralization on mandibular permanent central incisors and first molars. The panoramic radiograph showed numerous impacted supernumerary and permanent teeth. **Clinical Management:** The patient opted to improve her facial appearance with less aggressive treatment option due to her social circumstances, despite few other options were offered to her. The treatment is composite build-up for all maxillary anterior teeth to camouflage the deciduous teeth approximately for 3 years until the patient is ready to undergo surgical intervention. **Conclusion:** The case perceived the vitality of good communication and understanding of the patient's need when formulating the appropriate treatment plan to achieve the desirable outcome which is to attain a favourable facial aesthetics.

## P-05

### The Comparison of Adsorption in Stainless Steel Wire Immersed in Artificial Saliva and Green Tea Leaf Extract as a Corrosion Inhibitor Using FTIR

Gadis Pranitania, Mirna Febriani

Department of Dental Material, Faculty of Dentistry, University of Prof. Dr. Moestopo (Beragama),

Email: [gadis0611@gmail.com](mailto:gadis0611@gmail.com), [mirnarifky@yahoo.com](mailto:mirnarifky@yahoo.com)

In orthodontic treatments, one of the tool components used is orthodontic wire. One type of wire that is frequently used is stainless steel wire because of its convenient use and relatively affordable. In fixed orthodontic treatment, a stainless steel wire is placed in the oral cavity affected by various influences such as saliva, temperature, acidic foods, carbonated beverages, or products containing fluoride such as toothpaste and mouthwash. Those influences may cause corrosion to the stainless steel wire that is placed in the oral cavity. The corrosion process of stainless steel wire in the oral cavity can cause the metallic ions that are contained in the wire to detach. This reaction may cause allergies, toxic effects and cariogenic effects that may be harmful for the human body. The contents of tannins and catechins in the green tea leaf extract may act as an organic corrosion inhibitor that can slow down the corrosion process. **Objective:** To explain about the comparison of adsorption in stainless steel wire immersed in artificial saliva and green tea leaf extracts as a corrosion inhibitor using FTIR. **Method:** 8 stainless steel wires are divided into 2 groups where 4 samples are immersed in artificial saliva and the other 4 samples are immersed in green tea leaf extract. The samples are stored at a temperature of 37° C and the adsorption between the two groups are measured after 1, 3, 7, 14 days of immersion using *Fourier Transform Infrared* (FTIR). **Result:** There is a difference between adsorption of stainless steel wire immersed in artificial saliva and adsorption of stainless steel wire immersed in green tea leaf extract after 1, 3, 7, 14 days of immersion process. The bond of the adsorbed compound on the stainless-steel wire acting as the corrosion inhibitor is the O-H compound. **Conclusion:** Green tea leaf extract can inhibit the corrosion process of stainless steel wire within precise time and concentration.

## P-06

### **The Accomplishment Rate of Anterior Crowding Orthodontic Treatment with Rotation by Using the Combination of Simple Removable Tools**

**Belly Yordan**

Departement of Orthodontics, Faculty of Dentistry, University of Prof. Dr. Moestopo  
(Beragama)

**Email:** [b3llyordan@yahoo.com](mailto:b3llyordan@yahoo.com)

Orthodontic treatment can be done by using the fix and removable orthodontic appliance including myofunctional. Success of treatment depends on the patient's age, the type of malocclusion, treatment of space discrepancy, patient's oral hygiene, operator skills and patient cooperation. **Objectives:** to show the success of orthodontic treatment in patient with skeletal class I relationship, class I angle dental malocclusion with anterior crowding and rotation by using a removable appliance with modification. **Methods:** Removable appliance used is standard with removable plate components such as passive clasp (adam's hook clasps) accompanied with some active clasps (labial bow, some springs, etc.). Button is used as an additional tool or combined with other tools to correct tooth in rotated position. **Results:** the success of treatments which is shown in pre and post treatment photos, the overjet was reduced, the arch form became normal, the tooth malposition became normal and rotation was corrected. Facial profile appearance of the patient is getting better and the dental coordination also became better. **Conclusion:** This case report is to prove that treatment with removable appliance is quite successful with the robust wearing of appropriate retainers.

## P-07

### Comparison Effects of Using Orthodontic Toothpaste and Betel Leaf Toothpaste to Plaque Index Decrease in Fixed Orthodontic Patients

Galuh Puteri Puspita, Nety Trisnawaty

Department of Orthodontics, Faculty of Dentistry, University of Prof. Dr. Moestopo  
(Beragama)

Email: [galuhpuspita24@gmail.com](mailto:galuhpuspita24@gmail.com), [netytrisnawaty@yahoo.com](mailto:netytrisnawaty@yahoo.com)

According to the results of Riskesdas 2013, the national prevalence of dental and oral problems was 25.9 percent. One of these problems is malocclusion which can be treated with fixed orthodontic devices. However, the use of fixed orthodontic devices is one of the factors that cause increased plaque accumulation. This problem can be solved through plaque control by using a toothbrush and a toothpaste. There are orthodontic toothpastes containing enzymes, colostrum, and allantoin which aim to overcome the problems that arise in the use of fixed orthodontic devices and betel leaf toothpaste which has antibacterial and antiseptic effects because betel leaves contain essential oils. **Objective:** To describe the comparison effects of using orthodontic toothpaste and betel leaf toothpaste to the decrease of plaque index in fixed orthodontic patients. **Method:** This type of research is clinical experiments and the design of this study is control group pretest-posttest design. The number of samples were 32 people selected using purposive (judgment) sampling method. The samples were divided into two groups, orthodontic (n=16, orthodontic toothpaste) and betel leaf (n=16, betel leaf toothpaste). Plaque index is measured using the attin plaque index. The initial plaque index of the subject was measured, then the subject was asked to brush his teeth with a given toothpaste, then the plaque index was measured again. **Result:** The result of this study proved that there was a significant decrease in plaque index after brushing the teeth using orthodontic toothpaste or using betel leaf toothpaste. There were no significant differences in the reduction of plaque index in patients who brush their teeth with orthodontic toothpaste or betel leaf toothpaste. **Conclusion:** Both toothpastes are equally capable of decreasing plaque index in fixed orthodontic patients significantly due to the contents of the toothpastes.

## P-08

### **The Comparison between Using Herbal Toothpaste and Non-Herbal Toothpaste to Decrease Plaque Index in Fixed Orthodontic Dental Student Patients**

**Nety Trisnawaty, Nabila Putri Safira**

Department of Orthodontics, Faculty of Dentistry, Prof. Dr. Moestopo (Beragama) University

**Email:** [netytrisnawaty@yahoo.com](mailto:netytrisnawaty@yahoo.com), [nabilaputsafira@gmail.com](mailto:nabilaputsafira@gmail.com)

Fixed orthodontic appliance is an orthodontic appliance that is bonded to the teeth and has a complex shape, thus making it difficult to maintain oral hygiene and can lead to plaque accumulation. The effective method for preventing plaque formation is by brushing the teeth mechanically. A complementary material that help toothbrush is toothpaste. Along with the improvement of the technology and science, various manufacturers of toothpaste make innovations to add other substances that are beneficial to dental health. One of the substances added to the toothpaste is herbal ingredients. **Objective:** This study aims to determine the comparison between using herbal toothpaste and non-herbal toothpaste to decrease plaque index in fixed orthodontic patients. **Methods:** This research is an experimental research with pretest-posttest controlled group design. The population of this research is preclinical college students at Faculty of Dentistry UPDM(B). Thirty-two research subjects are taken by purposive sampling which use fixed orthodontic appliance and divided into two treatment groups. **Result:** The result of this research based on Mann-Whitney test obtained a p value of 0.211 ( $p>0,05$ ) that showed there is no significant differences between using herbal toothpaste and non-herbal toothpaste to decrease plaque index in fixed orthodontic patients. **Conclusion:** Brushing teeth using both herbal toothpaste and non-herbal toothpaste can decrease the plaque index score. However, there was no significant difference between herbal toothpaste and non-herbal toothpaste in reducing the plaque index score in fixed orthodontic patients.

## P-09

### Perception of Pain During Activation of Fixed Orthodontic Appliance on Dental Students of Prof. DR. Moestopo (B) University, Indonesia

**Hermawan MRA, Suryaprawira A**

Department of Orthodontics, Faculty of Dentistry, Prof. DR. Moestopo University, Jakarta, Indonesia

**Email:** [mkhmdreza@yahoo.com](mailto:mkhmdreza@yahoo.com), [dr\\_alberts@yahoo.com](mailto:dr_alberts@yahoo.com)

The purpose of orthodontic treatment is not only to obtain a regular dental arrangement, good occlusal contact, and efficient occlusion function but also an aesthetically pleasing facial appearance and stable treatment results. Therefore, this treatment is one of the most demanded by the modern community. But in the other way, patients will experience pain and people's perception of pain is different. **Objectives:** To explain the perception of pain from fixed appliance orthodontic treatment on dental students of Prof. DR. Moestopo University. **Methods:** A total of 40 subjects (5 men, 35 women) aged 17-21 years were selected from dental students of Prof. DR. Moestopo University to participate in the study. They were asked to fill out a questionnaire on the perception of pain they felt after ligature elastomer replacement in fixed appliance orthodontic treatment using a VAS scale. **Results:** The number of patients who experienced pain immediately after ligature elastomer replacement felt mild pain as many as 22 people. After 1 hour of application, patients with mild pain were reduced to 21 people. After 6 hours of application, 18 people felt moderate pain. After 12 hours of application, patients who experienced moderate pain decreased to 14 people and 3 people felt very severe pain. After 24 hours of application, 12 people felt severe pain and 3 people felt very severe pain. **Conclusions:** Based on the results of research conducted on dental students of Prof. DR. Moestopo University, it can be concluded that mild pain is felt in the use of fixed orthodontic appliances immediately after ligature elastomer replacement and becoming worst to reasonable level of pain in 24 hours.



## P-10

### Integrated Approach of Saving a Guarded Prognosis Molar: A Case Report

Hashim NA<sup>1</sup>, Ramlan NA<sup>2</sup>, Zainal Ariffin MH<sup>2</sup>

<sup>1</sup>Department of Comprehensive Care, Faculty of Dentistry, Universiti Teknologi Mara,

<sup>2</sup>Department of Restorative Dentistry, Faculty of Dentistry, Universiti Teknologi Mara,

<sup>3</sup>Department of Periodontology, Faculty of Dentistry, Universiti Teknologi Mara.

Email: [namirahshm@gmail.com](mailto:namirahshm@gmail.com), [nurulain\\_ramlan@yahoo.com](mailto:nurulain_ramlan@yahoo.com)

Its often challenging to make a decision whether a compromise tooth should be retained or extracted. Therefore evidence-based dentistry is important to arise with the definitive treatment plan for each patient. **Objectives:** The objective of this case report was to describe how to save guard a lower left first molar tooth (36) of a 16-year-old teenage boy who came to seek treatment at Universiti Teknologi Mara (UiTM) Citrine Clinic. **Methods:** Tooth 36 was diagnosed with pulp necrosis, asymptomatic apical periodontitis associated with curved canals. Since the restorative margin was subgingiva, a surgical crown lengthening was planned prior to endodontic treatment. An apical repositioned flap was carried followed by non-surgical root canal treatment. Local anaesthesia was administered and single tooth isolation was routinely placed throughout the endodontic procedure. Access cavity was done and working lengths were determined, all 4 canals were identified and the first binding file was k-file #15. Cleaning and shaping was done using Protaper Next and the master apical file for all canals were size #25. Canal irrigation was done using sodium hypochlorite (5%), Ethylenediaminetetraacetic acid (EDTA) solution (18%) and chlorhexidine (2%). Canal were obturated using gutta-percha and AH plus sealer. A thin layer of Smart Dentine Replacement (SDR) was placed on the orifice followed by composite core build-up. Three quarter crown was planned for the final restoration. **Results:** There was a reduction in the periapical lesion after the initial treatment and patient was asymptomatic. **Discussion:** Every case should be treated based on its individuality and key consideration (Nemcovsky 2017). Endodontic, periodontic and prosthodontic aspects should be taken into considerations when treating individual case (Peroz *et al.* 2005). **Conclusions:** A successful treatment was achieved in this case with a proper treatment planning based on evidence available.

## P-11

### The Comparison of Adsorption in Stainless Steel Wire Immersed in Artificial Saliva and Watermelon Extract as a Corrosion Inhibitor Using FTIR

Amalia Fitri Putri<sup>1</sup>, Mirna Febriani<sup>2</sup>

<sup>1</sup>Student of Academic Program; <sup>2</sup>Departement of Dental Material, Faculty of Denstistry, University of Prof. Dr. Moestopo (Beragama)

Email: [putmell.96@gmail.com](mailto:putmell.96@gmail.com), [mirnarifky@yahoo.com](mailto:mirnarifky@yahoo.com)

Some types of stainless steel wire used in orthodontic treatment. In the oral cavity, orthodontic wires have the potential to experience corrosion or release of metal elements which make up the alloy. One example is that artificial saliva containing saline (NaCl) in saliva is a weak electrolyte liquid that can cause corrosion. Corrosion is unavoidable, but the rate can be reduced by using organic inhibitors. Watermelon skin consists of pectin functional groups such as hydroxyl (-OH) and carboxylic (-COO) can easily bind metal ions. **Objectives:** to explain about the comparison of adsorption in stainless steel wire immersed in artificial saliva and watermelon extract as corrosion inhibitors. **Methods:** The type of research used in this study is experimental laboratory. A total of 8 samples will be used for research. Where 18/8 type of stainless steel wire (containing 18% Chromium and 8% Nickel) will be immersed in 2 sample groups of which 4 control group samples were immersed in artificial saliva and 4 treatment group samples were immersed in watermelon extract. Stainless steel wire will be immersed in the solution with a time interval of 1,3,7,14 days of immersion using FTIR. Data were analysed using independent sample t-test. **Results:** showed that there was a comparison of the adsorption process of -OH compounds of stainless steel wire which was soaked in watermelon extract and artificial saliva. The ratio of the number of -OH compounds in the adsorption process is very significant. Where the amount of -OH compound in the wire soaked in artificial saliva is more than the wire soaked in watermelon extract. **Conclusion:** There is a comparison of the adsorption process of -OH compounds which are soaked in artificial saliva and watermelon extract for 1,3,7,14 days.

## **P-12**

### **A Radiographic Superimposition in Orthognathic Surgical Treatment of Skeletal Class III Malocclusion**

**Suryaprawira A**

Clinical Lecturer, Department of Orthodontics, Faculty of Dentistry, Prof. DR. Moestopo University, Jakarta, Indonesia

Email: [dr\\_alberts@yahoo.com](mailto:dr_alberts@yahoo.com)

Patients requiring correction of severe Class III skeletal discrepancy has been among the most complicated treatments for orthodontists. Correction of aesthetic and functional problem is needed most. Here is a case report of an adult male aged 18 years who complained of difficulty in chewing and speaking. Patient has a mid-face hypoplasia with a concave profile. The pre-treatment cephalometric radiograph was taken to analyse the skeletal problem and to measure the amount of bone movement and the prediction soft tissue response. The panoramic radiograph was also taken to analyse bone quality, bone abnormality, third molar impaction, etc. Before the surgery, the pre-surgical cephalometric radiograph was taken to re-evaluate the plan and to settle the final amount of bone cut. After the surgery, the post-surgical cephalometric radiograph was taken to confirm the result with the plan. The superimposition between those radiographs was performed to analyse the outcome. It includes the superimposition of cranial base, maxilla and mandible. The superimposition is important to describe the amount of hard and soft tissue movement. It is also important to predict the possibility of relapse after the surgery. The patient needs to understand all the surgical plan, outcome and relapse prevention. The surgery included maxillary advancement osteotomy. Although the discrepancy was severe using this combination of treatment and the use of radiographic superimposition, an aesthetically pleasing and stable result was achieved.

## P-13

### A Review of Antimicrobial Peptides in Dentistry

**John Y Niu, May L Mei, C H Chu**

Faculty of Dentistry, The University of Hong Kong, Hong Kong

Email: [niuyun1@hku.hk](mailto:niuyun1@hku.hk), [chchu@hku.hk](mailto:chchu@hku.hk), [mei1123@hku.hk](mailto:mei1123@hku.hk)

Antimicrobial peptides are host defence peptides against pathogenic microbes. Antimicrobial peptides have attracted researchers' attention because of its selective toxicity to bacterial pathogens and low drug resistance. **Objective:** This aim of this study is to review the use of antimicrobial peptides in dentistry. **Methods:** This study reviewed both natural or endogenous and artificial antimicrobial peptides. It summarized the dental use of antimicrobial peptides in managing periodontal diseases, dental caries, oral cancer and mucosal diseases. **Results:** Natural antimicrobial peptides defend host organisms against microbes but they generally have limited direct antibiotic activity due to their unstable and long amino acid chain. Antimicrobial peptides may play a role in enhancing anti-tumour activity, inducing osteoblast differentiation, serving as potential biomarkers and promoting tissue healing. However, the mechanisms of these functions need further investigation. Research is also focus on developing novel artificial antimicrobial peptides which are stable and able to adhere to tooth or mucosal surface. This can be achieved by modifying the peptide's structure or adding functional groups to a natural antimicrobial peptide. Laboratory studies have successfully developed artificial antimicrobial peptides with selective toxicity to bacterial pathogens, specific selectivity, good pharmacokinetics and function profile. **Conclusion:** Literature suggested that antimicrobial peptides can be used to manage various oral diseases and conditions. However, their mechanisms need to be elucidated. Laboratory studies have developed artificial antimicrobial peptides with low toxicity and drug resistance. Hence, antimicrobial peptides can be a valuable strategy for management of various dental diseases.

## P-14

### Anterior Loop Length of Inferior Alveolar Nerve to Estimate Safe-Zone for Implant-planning in Malaysian-Chinese Population

Shameni Vellappan Konasilan, Toh Kai Ying,  
Pravinkumar G Patil

School of Dentistry, International Medical University, Malaysia

Email: [gshameni6@gmail.com](mailto:gshameni6@gmail.com), [PravinkumarPatil@imu.edu.my](mailto:PravinkumarPatil@imu.edu.my),  
[amandatohkaiying@hotmail.com](mailto:amandatohkaiying@hotmail.com)

Anterior loop length (AnLL) of inferior alveolar nerve (IAN) is an important clinical landmark in implant dentistry as it may get injured during implant placement. **Objective:** To measure the prevalence of anterior loop (AnL) of the IAN and estimate side-, gender- and age-related variations in AnLL in the Malaysian-Chinese population. **Methodology:** 244 randomly chosen cone-beam computed tomography-Digital Imaging and Communications in Medicine images were divided into three age groups; 18-40, 41-60, and 61-80 years. The route of IAN was traced using a software till it exited the mental foramen. AnLL was measured from the point where the IAN exited the mental foramen to the anterior-most margin of the AnL of IAN by following the diagonal course of the IAN. The measurement was replicated on the opposite side. Data were analysed using one-way analysis of variance, independent and paired sample T-test with the significance threshold set at  $P < 0.05$ . **Results:** Prevalence of AnL of IAN was 89.1% in 488 hemimandibles. Overall AnLL ranged between 3.04 and 9.63mm. The mean AnLL was  $5.49 \pm 1.07$ mm on the right side and  $5.48 \pm 1.20$ mm on the left side. The mean AnLL in the 61-80 year group ( $5.62 \pm 1.00$ mm) was longer compared to the 41-60 ( $5.48 \pm 1.11$ mm) and 18-40 ( $5.46 \pm 1.19$ mm) year groups. There were no statistically significant differences when comparing the mean AnLL between different sides of the mandible (male:  $P = 0.962$ , female:  $P = 0.983$ , total:  $P = 0.984$ ), gender (right AnLL:  $P = 0.048$ , left AnLL:  $P = 0.086$ ) and age ( $P = 0.636$ ) groups. **Discussion:** By using the mental foramen as a landmark, the actual AnLL and the mesiodistal spread of the AnL of IAN may help in planning the horizontal and vertical direction of implant placement in the mandibular premolar region. **Conclusions:** The high prevalence of the AnL of IAN and its varied AnLL suggests that a 3-dimensional assessment is required if implant placement is planned in the interforaminal region.

## P-15

### The Efficacy of *Salvadora persica* Extract in the Elimination of the Intracanal Smear Layer: SEM Study

Amirul Hafizi B, Mohamad Hakimi B, Sam'an MM

Department of Clinical Teaching, Faculty of Dentistry, Lincoln University College

Email: [hafizibaharum@gmail.com](mailto:hafizibaharum@gmail.com), [kimir\\_jeffhardy@yahoo.com](mailto:kimir_jeffhardy@yahoo.com), [saman@lincoln.edu.my](mailto:saman@lincoln.edu.my)

*Salvadora persica* has been widely used in the cleaning of the oral cavity. Root canal treatment involves the chemo-mechanical removal of bacteria, infected pulp, and dentin from within the root canal walls. Irrigation is the crucial steps in the root canal treatment for elimination of the smear layer chemically. **Aim:** This study was carried out to evaluate the in-vitro cleaning efficiency of aqueous extraction through *Salvadora persica* solution as a root canal irrigant using Scanning Electron Microscope (SEM). **Methodology:** An experimental design was carried out with a total of 12 extracted mandibular first premolar to confirm the degree of smear layer cleanliness between three irrigation solution methods. All teeth were cleaned, shaped, and randomly divided into three groups. Experimental group A, group B, and group C were irrigated with 2.5% NaOCl solution, aqueous extracts of *Salvadora persica* solution, and normal saline solution respectively. All teeth were sent for SEM to evaluate the endodontic smear layer removal at the coronal, middle, and apical thirds of the specimens. A five-category scoring system was used for determining the cleanliness of intracanal smear layer. **Results:** The results showed the smear layer removal by Sodium Hypochlorite solution and aqueous extracts of *Salvadora persica* solution were the same at coronal and middle third. Statistical analysis was carried out using the Kruskal-Wallis Test. The result showed a significant difference in removal of smear layer within irrigation method where coronal region ( $p$ -value=0.042), middle region ( $p$ -value=0.030) and apical region ( $p$ -value=0.011). **Conclusion:** The aqueous extracts of *Salvadora persica* was as effective as 2.5% NaOCl solution in removing the smear layer at the coronal and middle third of the prepared canal wall. Combination irrigation with EDTA solution needs to be performed.



## P-16

### The Applications of Silver Nanoparticles in Dental Materials

Iris X Yin, Jane J Zhang, May L Mei, CH Chu

Faculty of Dentistry, The University of Hong Kong, Hong Kong

Email: [irisyin1993@gmail.com](mailto:irisyin1993@gmail.com), [zhangjinglh817@126.com](mailto:zhangjinglh817@126.com), [chchu@hku.hk](mailto:chchu@hku.hk)

Nanoparticles within the size of 1-100 nm are extensively used in biomedical fields, including diagnostic and therapeutic applications. Among the various metallic nanomaterials, silver nanoparticles possess broad spectrum of antibacterial ability and virucidal property.

**Objective:** This review discusses the applications of silver nanoparticles in dental materials.

**Results:** Silver nanoparticles are able to kill microorganism by inactivating enzymes and penetrating cell membranes without bacterial resistance because of its greater surface to volume ratio. Silver nanoparticles show low toxicity against human cells. In addition, silver nanoparticles have no significantly negative effects on mechanical properties of the biomaterials. Hence, silver nanoparticles have been incorporated into dental materials in order to enhance the antimicrobial properties against biofilm formation. **Conclusions:** This review suggested that silver nanoparticles are potential useful substances that can be used in dentistry because of their antimicrobial properties, mechanical properties on dental material and biocompatibility on human cells.

## P-17

### Knowledge, Awareness and Attitude on Fluoride Use for Oral Health among Malaysian Adolescents

**Kelvinder S, Addini F, Rahimah AK**

Department of Community & Family Oral Care, Faculty of Dentistry, LUC

Email: [kelvinder.singh@hotmail.com](mailto:kelvinder.singh@hotmail.com), [rahimahk@gmail.com](mailto:rahimahk@gmail.com)

Fluorides in various forms is a key factor in preventing caries. Despite the observed decrease in caries prevalence in Malaysian schoolchildren, fluoride use has been criticized in recent years. **Aim:** To investigate knowledge, awareness and attitudes on fluoride use for oral health among 16-year-old students from fluoridated and non-fluoridated areas. **Methodology:** A cross sectional, self-administered questionnaire study was conducted on 370 16-year-old-students living in unfluoridated (Kelantan) and fluoridated(Penang) areas. Variables included were knowledge (10 items), awareness (10 items) and attitudes (5 items) on the use of fluoride for oral health. Descriptive statistics were generated (using SPSS-PC Version 25). Mann-Whitney statistical test was used to compare the differences( $p=0.05$ ). **Results:** Findings suggest students living in unfluoridated areas have better knowledge on fluoride use. However, students from fluoridated areas have better awareness and attitude on the use of fluorides for oral health. The differences were statistically significant at  $p=0.000$ . **Conclusion:** Benefits of fluorides among the young today needs to be enhanced.

## P-18

### Prevalence of Tori among Patients Attending Dental Clinic in Lincoln University College: A Retrospective Study

**Imanina Z, Fazelah A, Narendra PR**

Department of Clinical Teaching, Faculty of Dentistry, Lincoln University College

Email: [imanina.zulkafli@yahoo.com](mailto:imanina.zulkafli@yahoo.com), [prakash.raio5@yahoo.in](mailto:prakash.raio5@yahoo.in), [fazelahazmi@yahoo.com](mailto:fazelahazmi@yahoo.com)

Torus palatinus (TP) and torus mandibularis (TM) are normal bony outgrowth seen commonly in people. **Objectives:** To examine the prevalence of TP, TM and both tori (TP and TM) based on races and gender among patients attending dental clinic in Lincoln University College (LUC). **Methodology:** A retrospective study was carried out by assessing all the patients' folders (3574 folders) for the presence of tori in the period of January 2017 to October 2018. Folder pertaining three major races in Malaysia namely- Malay, Chinese, and Indian were assessed as other races were excluded from this study. **Results:** A total of 3,574 subjects, 69.3% were Malay, 19.4% were Chinese, and 11.4% were Indian. Gender distribution showed 47.4% were male and 52.6% were female. From the total subjects, patients present with tori were 68.5%. Out of the percentage, a variation in the prevalence of TP, TM and both tori were 78.2%, 4.3% and 17.4% respectively. There was a significant difference between prevalence of TP, TM and both tori according to races. The prevalence of TP was most commonly found among Malay (58.3%) followed by Chinese (45.0%) and Indian (39.2%). Whereas the highest prevalence of TM was seen among Chinese (5.3%) followed by Indian (4.4%) and Malay (2.1%). The prevalence of both tori found among Malay, Chinese and Indian were 13.0%, 10.1% and 8.6% respectively. TP was significantly more common in female (61.1%) than male (45.2%). Male had the highest prevalence of TM and both tori which were 4.3% and 13.7% respectively compared to female. **Conclusion:** The prevalence of TP and both tori were more common among Malay population whereas TM was commonly seen in Chinese population. The prevalence of TP was higher in female compare to male while for TM and both tori, male had a higher prevalence than female.

## P-19

### Awareness and Knowledge of Cracked Tooth Syndrome among LUC Health Science Student

Adibah NS, Safwanah S, Hussin ZA

Department of Clinical Teaching, Faculty of Dentistry, Lincoln University College

Email: [adibahnabilah700@yahoo.com](mailto:adibahnabilah700@yahoo.com), [nxu717@gmail.com](mailto:nxu717@gmail.com), [safasahul1611@gmail.com](mailto:safasahul1611@gmail.com)

Dental pain associated with caries and periodontal disease are well known amongst the general population. The same cannot be said of pain due to cracked tooth syndrome (CTS) as there are no obvious cavitation or swelling. Early treatment of CTS is essential as untreated cracks will become bigger and longer and may result in fracture of the tooth. Awareness and knowledge of CTS will encourage the public to seek early professional help where only simple conservative treatment is necessary. **Objectives:** The purpose of the study is to assess the awareness and knowledge of CTS among health science undergraduates at Lincoln University College. **Methodology:** This is a descriptive cross-sectional study using a self-administrated questionnaire which had been validated and pre-tested. Data were collected from a convenient sample comprising of 146 students. All the information obtained are entered and analysed using SPSS 25.0 statistical software. Descriptive statistics were used to describe the results. **Results:** Study showed that 91.1% student had experienced tooth pain. Most of them 79.5% and 72.6% respectively thought that the sources of dental pain are due to dental caries and gum swelling. One third or 30.2% of them did not believe that dental pain could occur even when there were no cavities or abscesses in the mouth. Most students 63.0% had never heard of the term CTS and 74.0% are not knowledgeable of the syndrome. More than three-quarters or 86.3% do not know the cause of CTS. **Conclusion:** Based on the study, the knowledge and awareness among LUC health science students was low. Most students will attend dental clinic when having pain but unfortunately, they assumed CTS are the same as other dental pain symptoms.

## P-20

### Eurycoma Longifolia Jack (Tongkat Ali) Extract Reduces the Growth of Salivary Isolated *Streptococcus mutans* and *Lactobacillus*

Muhamad Iyad Ramzi<sup>1</sup>, Muhammad Hazzim Kosnin<sup>1</sup>, Ghasak Ghazi Faisal<sup>1</sup>,  
Hafiz Arzmi<sup>1</sup>, Anisa Kusumawardani<sup>2</sup>

<sup>1</sup>Fundamental Dental and Medical Sciences Department, Kulliyyah of Dentistry, IIUM,

<sup>2</sup>Department of Restorative Dentistry, Kulliyyah of Dentistry, IIUM

Email: [muhdiyr@gmail.com](mailto:muhdiyr@gmail.com), [drghasak@iium.edu.my](mailto:drghasak@iium.edu.my)

The roots of *E. longifolia* or Tongkat Ali is well known in traditional medicine and have wide spectrum of biological activity including antibacterial properties. The objectives of this study were to investigate the effect of the *E. Longifolia* root extracts on the growth of *Streptococcus mutans* and *Lactobacillus* isolated from saliva of adult patients with high caries risk. **Materials and methods:** The ethanolic extract of the root of this plant was tested against saliva isolated *Streptococcus mutans* and *Lactobacillus* via disc diffusion assay at a concentration of 200mg/mL. The minimum inhibitory concentration was carried out by the standard broth microdilution method. **Results:** Disk diffusion assay showed positive zones of inhibition for all test microorganisms with *S. mutans*, *Lactobacillus* exhibiting zones of inhibition of  $8.3 \pm 0.7\text{mm}$ ,  $12.4 \pm 2.4\text{mm}$  respectively. For minimum inhibitory concentration, the test microorganisms were tested at concentration of 250mg/mL, 125mg/mL, 62.5mg/mL, 31.3mg/mL and 0mg/mL. The minimum inhibitory concentration showed that MIC of *S. mutans* was at 62.5mg/mL, *Lactobacillus* at 125mg/mL. **Conclusion:** Ethanol-based *E. longifolia* Jack root extract has an antimicrobial effect on *S. mutans* and *Lactobacillus* which gives this extract the potential to be used in oral health preparations such as toothpastes and mouthwashes.

## P-21

### Effectiveness of Cure of Bulk-fill Restorative and Flowable PRG Composites

**Lee JW<sup>1</sup>, Chan BH<sup>1</sup>, Eweis AH<sup>1</sup>, Yap AU<sup>2,3</sup>, Yahya NA<sup>2</sup>**

<sup>1</sup>Faculty of Dentistry, University of Malaya; <sup>2</sup>Department of Restorative Dentistry, Faculty of Dentistry, University of Malaya; <sup>3</sup>Department of Dentistry, Ng Teng Fong General Hospital, National University Health System, Singapore

Email: [jasonlee.9494@gmail.com](mailto:jasonlee.9494@gmail.com), [baohuichan@hotmail.com](mailto:baohuichan@hotmail.com),  
[ahmed.hesham2011@gmail.com](mailto:ahmed.hesham2011@gmail.com), [aujyaprd@gmail.com](mailto:aujyaprd@gmail.com), [nazlin@um.edu.my](mailto:nazlin@um.edu.my)

Bulk-fill PRG (pre-reacted glass ionomer) composites were recently introduced and their curing efficacy had not been widely explored. **Objectives:** This study compared the effectiveness of cure of bulk-fill restorative and flowable PRG composites (giomers) with different light curing modes. **Methods:** The bulk-fill restorative (Beautifil Bulk-fill Restorative [BR]) and flowable (Beautifil Bulk-fill Flowable [BF]) PRG composites were placed in black acrylic moulds with cylindrical recesses of 5mm diameter and 4mm height. The composites were then polymerized with a LED light (Bluephade N) using three curing modes: High power (HP) 1200mW/cm<sup>2</sup> (10s); Low power (LP) 650mW/cm<sup>2</sup> (18.5s); Soft-start (SS) 0-650mW/cm<sup>2</sup> (5s) followed by 1200mW/cm<sup>2</sup> (10s). The cured specimens were then stored at 37°C for 24 hours and subjected to microhardness testing at the top and bottom surfaces. Mean bottom:top hardness ratios were computed and data was analysed using one-way ANOVA with Bonferroni's post-hoc tests as well as independent samples T-test at significance level  $p < 0.05$ . **Results:** For BR, mean top and bottom Knoop hardness number (KHN) ranged from 41.6 to 44.6 and 16.8 to 22.6 respectively. For BF, mean top and bottom KHN varied from 38.2 to 40.0 and 23.8 to 25.8. Hardness ratios ranged from 40.67 to 50.69 for BR and 59.98 to 67.89 for BF with the three curing modes. **Discussion:** Effectiveness of cure of PRG composites was curing mode and material dependent. The most effective cure was achieved with LP for BR and SS for BF. For all curing modes, the effectiveness of cure of BF was significantly higher than BR. **Conclusion:** The effectiveness of cure of PRG composites was curing mode and material dependent. The flowable bulk-fill material had better curing efficacy than its restorative counterpart regardless of curing mode.



## P-22

### The Correlation between Caries Severity Index and Salivary pH of Mentally Disabled People in Harapan Ibu Social Institution Kalumbuak, Padang West Sumatera

Yuhelmina Khamisli<sup>1</sup>, Dewi Elianora<sup>2</sup>, Intan Batura Endo Mahata<sup>3</sup>

<sup>1</sup>Dentistry student, Faculty of Dentistry, Baiturrahmah University, <sup>2</sup>Department of Pediatric Dentistry, Baiturrahmah University, <sup>3</sup>Department of Dental Public Health, Baiturrahmah University

Email: [dewi.elianora12345@gmail.com](mailto:dewi.elianora12345@gmail.com)

**Objectives:** The aim of the research is to look at the correlation between caries severity index and salivary pH of mentally disabled people. **Methods:** This analytical cross-sectional study involved 100 samples obtained by total sampling technique. Caries was measured based on DMF-T index. Observed data was analysed by using Chi-Square test. **Results:** This study showed DMF-T index was in high-category with acidic salivary pH. Chi-Square statistical analysis showed a significant correlation between caries severity index and salivary pH ( $p$  value < 0,005). **Conclusions:** From this study, it can be concluded that there is a correlation between caries severity index and salivary pH of mentally disabled people.

## P-23

### The Effect of Temperature and Exposure Time on the pH of Beverages: A Pilot Study

**Nur Nabila Abdul Wahab, Nur Afiqah Rosman,  
Annapurny Venkiteswaran, Norashikin Abu Bakar**

Centre of Studies for Paediatric Dentistry & Orthodontics, Faculty of Dentistry, UiTM

E-mail: [nabilawahab12@gmail.com](mailto:nabilawahab12@gmail.com), [annapurny@salam.uitm.edu.my](mailto:annapurny@salam.uitm.edu.my)

**Objectives:** The objective of this pilot study was to determine if temperature and exposure time affected the pH of various beverages. **Methods:** Five types of beverages (fruit drink, juice, carbonated drink, malted drink and sports drink) were selected for the pilot study. The pH of each drink was measured using separate cans at three different temperatures which are 4°C, 25°C and 27°C. The pH of the drinks was recorded in triplicate readings and repeated ANOVA test was done. Separately, each type of drink was assessed at an interval of 10 minutes for a total duration of 30 minutes. Triplicate readings were taken at a consistent room temperature of 27°C. A repeated ANOVA test was done to determine if there is any significant difference in pH changes caused by the time of exposure. **Results:** With the exception of juices, all other drinks showed significant difference in pH value when drinks are tested in different temperatures. As for the effect of exposure time on pH of beverage, three drinks (carbonated, sports drink and juice) showed significant difference. **Conclusions:** Given the fact that pH readings are different in the same drink in different environments, the timing of reading and the room temperature should be standardized for the main study. Further studies which include longer length of exposure time should be done to assess if there is any recognizable pattern of pH change in the various beverages.

## P-24

### Effect of Using Sticker Media Learning for Autism Approach to Oral Hygiene Status at SLB West Sumatera

Iffa Rahma Sari, Dewi Elianora, Valendriyani Ningrum

Paediatric Dentistry Faculty of Dentistry Baiturrahmah University, Indonesia

Email: [iffa.rahma@yahoo.co.id](mailto:iffa.rahma@yahoo.co.id), [azzahraningrum@gmail.com](mailto:azzahraningrum@gmail.com)

**Objectives:** The aim of the research to reduce caries prevalence in children autism with used visual learning media which is a visual learning media that can be used establish communication how to apply tooth brushing education of how to brush teeth properly and form the habit of brushing teeth. **Methods:** This type of research was a Quasi Experimental with Pre-Post test One Group design, Using disclosing agent to identify plaque on the teeth before and after treatment and used index measurement Personal Hygiene Performance of Modified (PHPM). A total sample of 14 subjects with autism, the time of research in August 2018, the results were statistically analysed using paired sample t test. **Results:** The average value of the PHP-M exam pre-test group of 20.86 decreased to 8.57 in the post-test and there was a supportive difference from the results of the PHP-M pre-test to the post-test value ( $p < 0.05$ ). The average knowledge of the pre-test group of 72.32% increased to 77.68 in the post-test and there was significant difference from the pre-test results of the measurement of knowledge to the post-test value. **Conclusions:** The index of plaque calculation in autistic children in SLB West Sumatra was decreased after intervention. The level of knowledge has increased.

## P-25

### Talon Cusp on Maxillary Right Lateral Incisor: A Case Report

**Rashid I, Hussein AS, Hamzah SH**

Centre of Paediatric Dentistry and Orthodontics Studies, Faculty of Dentistry, Universiti Teknologi MARA

Email: [intanwj@yahoo.com](mailto:intanwj@yahoo.com), [alaa@salam.uitm.edu.my](mailto:alaa@salam.uitm.edu.my), [sitihajar1998@salam.uitm.edu.my](mailto:sitihajar1998@salam.uitm.edu.my)

Talon cusp is rare dental anomaly in which a cusp-like mass of hard tissue protrudes from the cingulum area of maxillary or mandibular anterior teeth. The typical appearance of this projection is conical and resembles an eagle's talon. The prevalence of talon cusp on maxillary lateral incisor in Malaysia is 5.2%. It can be classified into three categories which is type I talon, type II semi-talon and type III trace talon. In addition, talon cusp may cause several functional and aesthetic problems. **Case Report:** A 12-years-old healthy Malay boy came for a regular dental check-up. Intra-oral examination revealed presence of accessory cusp-like projection on the palatal surface of right maxillary lateral incisor. Clinically, there was presence of dental caries on the labial surface and on the fissure of the projection, without evidence of extension to the pulp. Radiographic investigation demonstrated a radiopaque inverted V-shaped pointed toward the incisal edges, which superimposed over the image of the affected lateral incisor and radiolucency detected on mesial side of lateral incisor extended to the dentin layer. In the literature, diverse treatment options have been reported to manage talon cusps. No treatment is an option if the size of talon cusp is small and no clinical problem was caused by the talon cusp. However, the planned treatment is fissure sealant on the palatal surface and composite restoration on labial surface of the tooth since there was presence of dental caries as well as review every three months. **Conclusions:** This case illustrates the management of dental caries on tooth with talon cusp. The timing of the early detection and intervention is essential to prevent occurrence of dental caries in dental anomalies.

## P-26

### **Accessory Cusps on Maxillary Deciduous Second Molars and its Management: An Unusual Occurrence**

**Hazni NM, Khairuddin NKA, Hamzah SH, Hussein AS**

Centre of Paediatric Dentistry&Orthodontics Studies, Faculty of Dentistry, Universiti Teknologi MARA, Malaysia.

Email: [ninamarianna@hotmail.com](mailto:ninamarianna@hotmail.com), [nurkhairinadillah@gmail.com](mailto:nurkhairinadillah@gmail.com),  
[sitihajar1998@salam.uitm.edu.my](mailto:sitihajar1998@salam.uitm.edu.my), [alaa@salam.uitm.edu.my](mailto:alaa@salam.uitm.edu.my)

Supernumerary or accessory cusps are extra number of cusps that occur on surface of tooth. (The incidences differ depending on the type and the tooth affected). Accessory cusps are occasional to rare. Three most common reported accessory cusps are the Carabelli's cusp in molars, Leong's tubercle in premolars and Talon's cusp in incisors. The incidence of presence of three additional cusps on maxillary deciduous second molar and congenital missing of succedaneous permanent premolar have yet reported in the literature. **Case report:** A four-year-old healthy Malay girl came to paediatric dental clinic for dental check-up. The intraoral examination revealed presence of single accessory cusp on the palatal surface on maxillary right deciduous second molar and three additional cusps on the palatal surface maxillary left deciduous second molar. There was presence of carious lesion on both teeth (ICDAS 03). The radiographs showed normal crown and roots of these teeth and presence of accessory cups with no pulp extension. Moreover, agenesis of bilateral maxillary second premolars was found. The best management option for this patient was placement of stainless steel crown for both teeth, which is to maintain the long-term functional need and the longevity of the teeth, as well as to preserve the integrity of the arch. **Conclusion:** The presence of additional cusps on maxillary second primary molars is unusual. Early diagnosis, careful examination, and proper treatment are important to prevent any dental complication for this anomaly.

## P-27

### An Accessory Cusp and Three-Rooted in Primary Mandibular Left First Molar: A Rare Entity

**Andytan NII, Ikhwan NFI, Hamzah SH, Hussein AS**

Centre of Paediatric Dentistry and Orthodontics Studies, Faculty of Dentistry, Universiti Teknologi MARA

Email: [iryani.contact@gmail.com](mailto:iryani.contact@gmail.com), [fara.izani95@yahoo.com](mailto:fara.izani95@yahoo.com),  
[sitihajar1998@salam.uitm.edu.my](mailto:sitihajar1998@salam.uitm.edu.my), [alaa@salam.uitm.edu.my](mailto:alaa@salam.uitm.edu.my)

Accessory cusps or supernumerary cusps are defined as an increase in numbers of cusp on tooth surfaces. It is a relatively rare occurrence in which this condition is often caused by an abnormal proliferation of epithelial fold during differentiation stage of tooth development. Accessory cusp is mainly found in East Asian population but there is a finding reported in Malay population with 1.10% incidence rate. While mandibular primary molars usually presented with two roots, an unusual finding of additional root situated mesiobuccally is referred as radix paramolaris and additional root situated distolingually to the main distal root is referred as radix entomolaris. The prevalence of three-rooted mandibular first molars is reported very rare with less than 1% in primary dentition. Its presentation is primarily unilateral with prevalence of 83%. However, there is yet no incidence reporting combination anomalies of accessory cusp on three-rooted mandibular primary molar. This case report highlights an uncommon incidental finding of accessory cusp on three-rooted mandibular primary molar including clinical and radiographic examination as well as its management. **Case Report:** A 6-years old medically fit and healthy mixed ancestry boy came for dental check-up. Intraoral examination revealed presence of an accessory cusp on occlusal surface of bilateral primary mandibular first molars. The radiographic findings showed presence of additional root on left primary mandibular first molar. The proposed treatment is placement of stainless steel crown on left and right primary mandibular first molars. **Conclusions:** A combination anomalies of accessory cusp and three-rooted primary mandibular first molar is an unusual occurrence. A thorough examination and early diagnosis are essential for better treatment planning.

## P-28

### The Description of Malocclusion Children with Mental Retardation at Budi Karya Special Education School, Nagari VIII Koto, West Sumatra

**Hilmi Khairi<sup>1</sup>, Dewi Elianora<sup>2</sup>, Busman<sup>3</sup>**

<sup>1</sup>Undergraduated student Faculty of Dentistry, Baiturrahmah University; <sup>2</sup>Pediatric Dentistry, Faculty of Dentistry, Baiturrahmah University; <sup>3</sup>Department of Oral Biology, Faculty of Dentistry, Baiturrahmah University.

Email: [hilmi29khairi@gmail.com](mailto:hilmi29khairi@gmail.com), [dewi.elianora12345@gmail.com](mailto:dewi.elianora12345@gmail.com)

**Objectives:** The aim of this study is to find out the descriptions of dental malocclusion based on the classification of Angles, lip position, facial profile and facial type in mentally retarded children. **Methods:** This research is a descriptive survey and used total sampling method. **Results:** The results of research on mentally retarded children at Budi Karya Special Education School, Nagari VII Koto, Guguk Sub-District, Lima Puluh Distric, Payakumbuh City are obtained class I Angle malocclusion: 17 persons (74%), class II: 3 persons (13%), and class III: 3 persons (13%). Lip position showed lips competent condition: 7 persons (74%) and incompetent lip: 6 persons (26%). Convex facial profile of 14 persons (47.68%), concave profile 1 persons (4.34%) and straight profile 8 persons (34.78%). The face shape of 16 persons were hypereuryprosopic (69.56%), euryprosopic: 5 persons (21.74%), zero mesoprosopic (0%), leptoprosopic 1 person (4.34%), and hyperleptoprosopic 1 person (4.34%). **Conclusions:** Based on the results of the study showed that the most common malocclusions found were class I Angle with competent lip position, convex facial profile and also hyper euryprosopic facial shapes.



## P-29

**Phytochemical Analysis, Antibiofilm and Anti-Adherence Activities of *Spilanthes acmella* Leaves Extracts (SALE)-*n*-hexane & SALE-Methanol (MeOH) against *Streptococcus mutans***

**Luqman Atif Elias, Siti Sarah Azhar, Rohazila Mohamad Hanafiah,  
Siti Aisyah Abd Ghafar**

Department of Basic Science, Faculty of Dentistry, Universiti Sains Islam Malaysia

Email: [luqmanatif@gmail.com](mailto:luqmanatif@gmail.com), [rohazila@usim.edu.my](mailto:rohazila@usim.edu.my), [saraazhar1795@gmail.com](mailto:saraazhar1795@gmail.com),  
[aisyahghafar@usim.edu.my](mailto:aisyahghafar@usim.edu.my)

*Spilanthes acmella* or 'Subang Nenek' from Asteraceae family founds in tropical and subtropical region such as Asia. Recent study shown that SALE-*n*-hexane & SALE-MeOH posses bactericidal activity against *Streptococcus mutans*. To date, there has been no study reported on antibiofilm and anti-adherence activities of *S. acmella* leaves extract on cariogenic *S. mutans*. **Objectives:** The objectives of this study are to investigate antibiofilm and antiadherence activities of SALE-*n*-hexane & SALE-MeOH against *S. mutans* as well as to identify its bioactive compounds. **Methodology:** *S. mutans* was subculture in BHI broth and agar. SALE-*n*-hexane and SALE-MeOH were tested on antibiofilm and anti adherence assays by using Crystal violet & Glass surface assays, respectively. Bioactive compounds identification was performed via liquid chromatography mass spectrometry analysis (LCMS) and gas chromatography mass spectrometry analysis (GCMS). **Results:** Biofilm formation of *S. mutans* was decrease until 32.0% and 33.3% after exposed with SALE-MeOH (100mg/ml) and SALE-*n*-hexane (100mg/ml), respectively. Meanwhile, adherence activities of *S. mutans* were inhibited at 30.0% and 34.7% after treated with SALE-*n*-hexane (100mg/ml) and SALE-MeOH (100mg/ml), respectively. **Discussion:** Result from GCMS revealed that SALE-*n*-hexane consist of several bioactives compounds such as spilanthol and phytol. Besides that, LCMS analysis reported that SALE-MeOH possessed bioactive compound such as pyrazine and benzaldehyde. **Conclusion:** SALE-MeOH and SALE-*n*-hexane inhibit biofilm formation and adherence activity of *S. mutans* in concentration dependent manner and possessed bioactive compounds that responsible to respective activities.

## P-30

### Effectiveness of Guided Tooth Brushing Technique on People with Disabilities

Hazwin H, Nurul ACH, Rahimah AK

Department of Community & Family Oral Health, Faculty of Dentistry, Lincoln University College

Email: [wixxowin@yahoo.com](mailto:wixxowin@yahoo.com), [rahimahk@lincoln.edu.my](mailto:rahimahk@lincoln.edu.my), [amore.hassan@yahoo.com](mailto:amore.hassan@yahoo.com)

Most studies on people with disabilities (PWDs) focused more on untreated dental diseases and problems in accessing dental care. Few studies relate PWDs' poor oral hygiene status to the tooth brushing technique with or without the guidance of oral hygiene instruction (OHI). **Objectives:** This study attempts to identify common tooth brushing technique practised by PWDs, to assess the effectiveness of toothbrushing technique pre- and post-OHI, and with or without OHI guidance. **Methodology:** This cohort study was carried out on PWDs from *Pusat Penjagaan Kanak-Kanak Cacat* Taman Megah, Selangor. Plaque scores of the subjects were clinically measured using OHI-S Index. Roll technique tooth brushing was used as a tool for OHI guidance. Subjects were then divided into 2 groups; OHI reinforcement were given to 1 group and the other group act as control. Data was collected over 3 visits and analyzed by using SPSS-PC-Ver 25. **Results:** A total of 27 PWDs (51.9% females and 48.1% males) consented and were recruited for this study. Majority (85.2%) PWDs used horizontal toothbrushing technique (HT), others used undefined mixed technique (MT). Both HT and MT subjects had poor baseline score, 69.6% and 75%, respectively. More MT subjects showed improved OHI-S score after provided with guided OHI (MT 75% good vs HT 43.5%). In both control and OHI reinforced group, 100% MT subjects improved from poor to good score, and 69.2% HT subjects in reinforced group and 20% in control group also showed improvement in their OHI-S score. **Conclusion:** Guided tooth brushing technique, particularly with reinforced OHI, showed improved oral hygiene practise among PWDs regardless of their tooth brushing technique.

## P-31

### Knowledge and Sexual Behaviour as the Risk Factor of Oral Lesion in Commercial Sex Workers

Erdianto Setya W<sup>1</sup>, Rochman M<sup>2</sup>

<sup>1</sup>Department of Community Dental Health, The Faculty of Dentistry, Sultan Agung Islamic University Indonesia; <sup>2</sup>Department of Oral Disease Sciences, The Faculty of Dentistry, Sultan Agung Islamic University Indonesia

Email: [erdianto.wardhana@unissula.ac.id](mailto:erdianto.wardhana@unissula.ac.id)

Sexually transmitted infections (STIs) are commonly found in commercial sex workers (CSWs) due to lack of knowledge and bad behaviour in sexual intercourse. STIs not only cause symptoms in the genital area but can cause manifestations of lesions in the oral cavity. **Objective:** The objective of this study was to determine the differences in the influence of knowledge and sexual behaviour on the incidence of oral cavity lesions. **Method:** Research Design is an analytical survey with a cross sectional approach. The research sample of 110 CSWs was chosen by simple random sampling. A validated questionnaire was used to identify the level of knowledge and sexual behaviour of CSWs. **Results:** In this study found oral cavity lesions related to sexually transmitted infections in CSW namely Suspect Candidiasis, ulcer, Suspect Linear Gingival Erythema (LGE), Suspect Kaposi Sarcoma and Oral Hairy Leukoplakia. Oral cavity lesions were found in 44 cases. Lesions on respondents with less knowledge level of 43.9%. While the level of good knowledge found lesions of 37.7%. The Chi-Square test obtained a p value of 0.328 ( $p > 0.05$ ) indicating that there was no difference between the level of lack of knowledge and good knowledge of the occurrence of lesions. Lesions in respondents with bad sexual behaviour were 94.1%. While respondents with good sexual behaviour were 15.8%. The Chi-Square test obtained a p value of 0.00 ( $p > 0.05$ ) which means that there were significant differences between respondents of good sex behaviour and bad sex behaviour towards the presence of lesions. **Conclusion.** In this study found the oral cavity lesions related with sexually transmitted infections in commercial sex workers as many as 44 cases. The level of knowledge is not a risk factor for the occurrence of oral cavity lesions, while bad sexual behaviour is a risk factor for oral lesions.

## P-32

### Knowledge, Attitude and Awareness Towards Oral Health among Adults in Kelana Jaya

Nasuha AT, Pang JY, Dasan S

Department of Community and Clinical Prevention Program Head, Faculty of Dentistry, Lincoln University College

Email: [nasuhatazini@yahoo.com](mailto:nasuhatazini@yahoo.com), [dasanswami@yahoo.com](mailto:dasanswami@yahoo.com), [joyijoyijoyi217@gmail.com](mailto:joyijoyijoyi217@gmail.com)

Oral health is essential to general health and quality of life. **Objectives:** The objectives of this study are to assess the level of knowledge, attitude and awareness towards oral health among adults in Kelana Jaya and also to compare between the level of knowledge, attitude and awareness towards oral health with age group, gender, race, educational level and monthly income among adults in Kelana Jaya. **Methodology:** A cross-sectional study was carried out on 152 adult staff aged between 20 to 65 years old in Kelana Jaya which involved staff from MAS Academy and Tabung Haji Complex using a questionnaire forms which is validated and pre-tested. Descriptive statistics and non-parametric test were performed using SPSS version 25. The level of significance at 0.05. **Results:** A total of 126 adults participated in this study. The majority were females (54.8%). The largest group of the participants (28.6%) were between age 18-24 years old. About 58.7% of the participants were Malays. The majority of the participants received tertiary education. The percentage mean score of knowledge, attitude, and awareness were 66.75%, 46.68% and 67.19% respectively. In addition, there were a significant difference in knowledge and attitude towards monthly income and race. Also there was a significant difference between awareness and educational levels. **Conclusion:** The knowledge regarding oral health among adults in Kelana Jaya was found to be satisfactory. A moderate and low oral health awareness and attitude towards oral health care was identified among them. It is therefore essential to consistently educate participants on their increased risk for oral health problems, motivate them for good oral health awareness and facilitate access to dental care.

## P-33

### Flexural Strength, Diametral Tensile Strength, Viscosity and SEM/EDS Analyses of Zirconia Reinforced Experimental Nanohybrid Dental Composite (NHDC)

**Nor Amirun Asyraf Mohammad, Nur Naimah Mohd Rizali, Ismail NH, Awang RA**

School of Dental Sciences, Health Campus, Universiti Sains Malaysia, Kelantan, Malaysia

Email: [noramirunasyraf.mohammad@yahoo.com](mailto:noramirunasyraf.mohammad@yahoo.com), [naimahrizali@hotmail.com](mailto:naimahrizali@hotmail.com),  
[noorhuda@usm.my](mailto:noorhuda@usm.my), [rjazman@usm.my](mailto:rjazman@usm.my)

**Objectives:** School of Dental Sciences, USM is developing a zirconia reinforce NHDC using silica purified from rice husk as filler. This study aims to analyse the effects of zirconia reinforcement on the NHDC flexural strength, diametral tensile strength (DTS) and viscosity, as well as its surface microstructure. **Methods:** The experimental NHDC was reinforced with 3 or 5 wt % of zirconia, and tested for physical and mechanical properties. Specimens were prepared for each group, according to zirconia reinforcement and mixing methods, which were as follow: Negative control (without zirconia), Mixing method I (3 or 5 wt % zirconia), Mixing method II (3 or 5 wt % zirconia), Mixing method III (5 wt % zirconia), and Positive control (Filtek Z250; 3M ESPE). Flexural strength and DTS were analysed using universal testing machine, and viscosity was analysed using MCR 301 rheometer (Anton-Paar, Graz, Austria). One sample from each flexural strength analysis group, with the strength value close to the mean was selected for SEM/EDS analysis using Scanning Electron microscopy (SEM) coupled to Energy Dispersive X-ray spectrometry (EDS). One-way ANOVA was used for multiple group comparison, followed by post-hoc Tukey's test. **Results:** Flexural strength and DTS of NHDC were found significantly increased with the zirconia reinforcement (5 wt %) when compared to negative control ( $p < 0.05$ ). Although the viscosity of the NHDC were lower compared to the commercial product at lower shear rate, the viscosity became incomparable when shear rate was increased beyond  $10 \text{ s}^{-1}$  to reach a plateau of limit viscosity. SEM/EDS analysis showed homogenous distribution of fillers such as zirconia and silica into organic matrix. There were no significant differences of physical and mechanical properties of NHDC in three different mixing methods evaluated. **Conclusion:** This data suggest that zirconia reinforcements may increase the flexural strength and DTS of this experimental NHDC.

## P-34

### The Incidence Rate of Inferior Alveolar Nerve Block (IANB) Failure from 1999-2019: A Preliminary Report on a Systematic Review

**Fazleen Z<sup>2</sup>, Hazmyr AW<sup>1</sup>, Andrean H<sup>1</sup>, Nur Aqilah MZ<sup>2</sup>, Mimi Syafiqah AJ<sup>2</sup>,  
Tengku Intan Baizura TJ<sup>1</sup>**

<sup>1</sup>Centre of Oral and Maxillofacial Surgery Studies, Faculty of Dentistry, Sungai Buloh Campus, Universiti Teknologi MARA Selangor, Malaysia; <sup>2</sup>Bachelor of Dental Surgery Student, Faculty of Dentistry, Sungai Buloh Campus, Universiti Teknologi MARA Selangor, Malaysia.

Email: [fazleenzulzaidi@gmail.com](mailto:fazleenzulzaidi@gmail.com), [intanbaizura3124@salam.uitm.edu.my](mailto:intanbaizura3124@salam.uitm.edu.my)

Inferior alveolar nerve block (IANB) is one of the most routinely performed mandibular anaesthesia by dental practitioners in provision of pain control during dental procedures. In the advent of improved local anaesthetic agents, preservatives, and techniques over the years, local anaesthetic administration has improved success rates. However, IANB is still found to contribute a high failure rate in comparison to other local anaesthetic techniques even among experienced clinicians. **Objective:** This systematic review aimed to compare and evaluate the incidence rate of inferior alveolar nerve block failure in dental patients from the year 1999 to 2019. **Methods:** This literature search was conducted in line with PRISMA-P 2015 guidelines. A PubMed database search followed by snowballing method was conducted with no restrictions on language by using MeSH terms inferior alveolar nerve block + IANB + failure. Screening, selection of papers and data extraction was performed independently by two reviewers and verified by a third reviewer to reduce bias and errors. Both qualitative and quantitative records reported in English were selected by pre-defined inclusion criteria. Methodological quality assessment via critical appraisal and strength of evidence were determined as eligibility protocol. **Results:** Initially, 101 records were selected from PubMed database. Subsequently, 42 additional records from published articles and textbook were retrieved via snowballing method. Screening was conducted based on pre-defined exclusion criteria and a narrative synthesis of 23 records meeting the inclusion criteria. This review has shown a wide range of IANB failure ranging from 10% up to 85.7%. Reflectively, this may be due to diverse research questions relevant to failure of IANB. Some studies compare failure rates between anaesthetic agents, techniques, age and tooth that fails to achieve anaesthesia. Notably, most studies do not include the experience of the operator who performed IANB. **Conclusion:** Further investigation is warranted, to demonstrate failure rates based on IANB techniques used and operator experience.

## P-35

### Effect of Micro-osteoperforations on Orthodontically Induced Inflammatory Root Resorption: *A Randomized Clinical Trial*

Azaitun Akma S, Sarah Haniza AG, Noraina Hafizan N

Centre of Paediatric Dentistry and Orthodontics Studies, Faculty of Dentistry, Universiti Teknologi MARA

Email: [akmashahrin@gmail.com](mailto:akmashahrin@gmail.com), [drsarahaniza@gmail.com](mailto:drsarahaniza@gmail.com), [noraina@salam.uitm.edu.my](mailto:noraina@salam.uitm.edu.my)

**Objectives:** The aim of this study was to investigate the effect of micro-osteoperforations (MOPs) on orthodontically induced inflammatory root resorption (OIIRR) during the initial alignment phase of fixed appliance treatment. **Methods:** Twenty patients (18 females, 2 males: mean age, 23.5 years ( $\pm$  3.34) with moderate crowding of upper labial segment undergoing extraction based fixed-appliance treatment were randomly allocated to adjunctive treatment of MOPs group (n=10) or control group with fixed appliances only (n=10). OIIRR was measured blindly from long-cone periapical radiographs taken at the start and at sixth month of treatment. Root length was measured from the cemento-enamel junction (CEJ) midpoint to the root apex and the crown length was measured from the centre of the incisal edge to the midpoint of the CEJ. A correction factor for the enlargement difference was used to calculate OIIRR. Data were analysed blindly with descriptive statistics, Mann-Whitney Test and Wilcoxon Signed-Rank Test **Results:** The median root length change of patients was not significantly different after 6 months of fixed appliances treatment with or without MOPs ( $p=0.185$  and  $p=0.959$  respectively). Median overall OIIRR measured in MOPs group was  $0.05\text{mm} \pm 0.60$  and  $0.12\text{ mm} \pm 1.19$  in control group. There was no statistical difference of OIIRR between both groups ( $p\text{-value}=0.94$ ). Overall grading indicated 35% of the teeth were suffering mild root resorption and only 10% of moderate root resorption. **Conclusions:** Accelerating orthodontic tooth movement with adjunctive micro-osteoperforations therapy during alignment phase does not exacerbate OIIRR when compared to control group.



## P-36

### The pH of Fruit Drinks, Juices, Sports Drinks, Malted Drinks and Carbonated Drinks in Malaysia

**Nur Afqah Rosman, Nur Nabila Wahab, Annapurny Venkiteswaran,  
Norashikin Abu Bakar**

Centre of Studies for Paediatric Dentistry & Orthodontics, Faculty of Dentistry, UiTM

Email: [afiqahr96@gmail.com](mailto:afiqahr96@gmail.com), [annapurny@salam.uitm.edu.my](mailto:annapurny@salam.uitm.edu.my)

Sugar-sweetened beverages (SSB) refer to any soft drinks, colas, sodas fruit drinks with added sugar, and other sweetened carbonated beverages. The consumption of sweetened and carbonated beverages has seen an increase globally and the same pattern is apparent for the local population in Malaysia. **Objective:** The aim of this study is to identify the acidity and erosive potential of commercially available soft drinks in Malaysia. **Materials & Methods:** A pilot study showed that there was a significant difference in the pH of beverages when measured under different temperature and exposure time. Hence the timing of reading and the room temperature was standardized for the main study. A total of 151 beverages were included in the main study and classified according to types of drinks which were fruit drinks, juices, sports drinks, malted drinks and carbonated drinks. Mettler Toledo™ pH meter was used to measure the pH of each beverage in triplicate readings. The readings were taken immediately upon opening of the can and at room temperature of 25°C. The mean pH value of the beverages was then classified as extremely erosive (pH < 3.0), erosive (pH 3.0 to 3.9), minimally erosive (pH 4.0 to 5.4) and non-erosive (pH > 5.5). **Results:** None of the beverages showed an extremely erosive potential of pH less than 3.0. Only 11.3% of the beverages showed an erosive potential with pH between 3.0 to 3.9. Majority of the beverages (74.8%) were classified as minimally erosive with pH value between 4.0 to 5.4. The remaining 13.9% of the beverages were classified as non-erosive. **Conclusion:** This study outlines the mean pH and erosive potential of popular non-dairy beverages found in Malaysia. This vital information can be used for specific dietary advice based on the patient's beverage consumption.

## P-37

### Evaluation of Degree of Conversion and Hardness of Flowable Resin Composites from Rice Husk

Nur Nadiah Md Isa, Yanti Johari, Nazrul Md Yusoff, Mohd Fadhli Khamis,  
Zaihan Ariffin, Dasmawati Mohamad

School of Dental Sciences, Universiti Sains Malaysia, 16150 Kubang Kerian, Kelantan, Malaysia

Email: [nadiahnur16@gmail.com](mailto:nadiahnur16@gmail.com), [yjohari@usm.my](mailto:yjohari@usm.my)

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. **Objectives:** This study aimed to evaluate the degree of conversion and hardness of experimental flowable resin composites derived from rice husk in comparison to commercialized counterpart. **Methods:** One commercial flowable composite (Filtek Z350 XT, 3M ESPE) and three experimental flowable composites 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 analysed 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 commercialized counterpart whilst VHN of experimental flowable composites was lower than that of commercialized counterpart.

## P-38

### A Novel Nano-Hydroxyapatite-Silica-Glass Ionomer Cement for Dental Application

**Moheet IA<sup>1</sup>, Luddin N<sup>2</sup>, Rahman I<sup>1</sup>, Kannan TP<sup>1,3</sup>, Nik Abdul Ghani NR<sup>4</sup>**

<sup>1</sup>Biomaterial Unit, School of Dental Sciences, Universiti Sains Malaysia, Health Campus, 16150 Kubang Kerian, Kelantan, Malaysia; <sup>2</sup> Department of Prosthodontics, School of Dental Sciences, Universiti Sains Malaysia, Health Campus, 16150 Kubang Kerian, Kelantan, Malaysia; <sup>3</sup> Human Genome Centre, Universiti Sains Malaysia, Health Campus, 16150 Kubang Kerian, Kelantan, Malaysia; <sup>4</sup> Department of Conservative Dentistry, School of Dental Sciences, Universiti Sains Malaysia, Health Campus, 16150 Kubang Kerian, Kelantan, Malaysia.

Email: [ia\\_moheet@hotmail.com](mailto:ia_moheet@hotmail.com), [norhayatikck@usm.my](mailto:norhayatikck@usm.my), [arismail@usm.my](mailto:arismail@usm.my), [kannan@usm.my](mailto:kannan@usm.my), [rozainah@usm.my](mailto:rozainah@usm.my)

The strategy of dental care using chemically cured, intermediate restorative materials in countries where children do not have access to optimal care has been named Atraumatic Restorative Treatment. This Atraumatic Restorative Treatment (ART) consists of an elementary technique based on caries removal using hand instruments only, combined with the use of a glass ionomer cement (GIC) with adhesive characteristics. **Objective:** To evaluate and compare the effect of incorporation of nano-hydroxyapatite-silica (nano-HA-Si) on mechanical and chemical properties of conventional glass ionomer cement (cGIC). **Materials and Methods:** Nano-hydroxyapatite-silica was fabricated through one-pot sol-gel method. It was then characterized using Fourier transform infrared spectroscopy (FTIR), X-ray diffraction (XRD), scanning electron microscope (SEM) and transmission electron microscope (TEM). GIC specimens were fabricated according to the manufacturer's instructions, with the addition of 10% of nano-HA-Si by weight. Surface hardness, compressive strength, flexural strength, ion-exchange, fluoride release, shear bond strength and microleakage of the cGIC and nano-HA-Si-GIC were evaluated. The results were analyzed using ANOVA, repeated measure ANOVA and two-tailed t-test. **Results:** FTIR and XRD analysis confirmed the formation of hydroxyapatite-silica nano-particles. SEM and TEM images showed all hydroxyapatite crystals were elongated and covered by smaller silica particles. Nano-HA-Si-GIC reported significant increase in surface hardness, compressive strength and flexural strength. Significantly higher rate of ion-exchange was observed between nano-HA-Si-GIC and tooth structures. Nano-HA-Si-GIC reported a highly significant increase in fluoride ion release over a period of 28 days. Additionally, nano-HA-Si-GIC reported significant increase in shear bond strength resulting in decreased microleakage as compared to cGIC. **Conclusion:** The application of nano-HA-Si-GIC, in conjunction with the ART, may be an excellent alternative cGIC (Fuji IX) to bring dentistry to the population in rural areas of non-industrialized countries as well as a conservative approach for the management of early childhood caries, because it can be used without the use of complex instrumentation.

## P-39

### Retrospective Study of Dental Treatment Needs of Patients Attending Lincoln University College Dental Clinic

**Noor AMY, Farhain SR, Noraini NNY**

Department of Community and Family Oral Health, Faculty of Dentistry, Lincoln University College

Email: [nooraziramatyasin@yahoo.com](mailto:nooraziramatyasin@yahoo.com), [norainiy@yahoo.com](mailto:norainiy@yahoo.com), [farhainshafiqah@hotmail.com](mailto:farhainshafiqah@hotmail.com)

Oral health is one of the health needs of man. Individuals need optimal oral health status by receiving treatments for their oral disease and thus, improving their quality of life. As healthcare providers, we have the responsibility to aid people by determining their treatment needs and provide care as necessary. **Objectives:** This study was conducted to identify dental treatment needs of patients attending LUC dental clinic, to determine patient normative needs and demands and to assess if the patients' treatment needs can fulfil the undergraduate dental student's clinical requirement. **Methodology:** This retrospective study was conducted on 1000 files of patients seen by dental students from September 2016 until August 2018. Five treatment needs namely surgery, conservative, periodontics, prosthodontics, and orthodontics were evaluated and the parameters assessed were the age group, gender, race, and nationality. Data were analyzed with descriptive statistics and cross tabulation using SPSS version 25. **Results:** This study found that periodontal treatment was the highest treatment needs among patients who attended the LUC Dental clinic, affecting 89.8% of 1000 patients. 89.7% needed scaling and 13.8% of the patients needed further periodontal management. Nearly 80%, 32%, and 28% of the patients needed conservative, surgical, and prosthetic care respectively. On the whole, 94.8% of the patient needed more treatments other than presenting complaint. There were some cases which did not meet students' requirement such as extraction, pulp therapy, crown and complete denture by 849, 233, 388 and 93 cases respectively. **Conclusion:** Treatment needs of patients were high especially in periodontal treatment followed by conservative care. This information can be used as a baseline information of patient seeking for a dental care in this clinic. It can also assist the faculty in planning further provision of dental service to meet patients' expectation and dental students' requirement.

## P-40

### A Survey of Dental Anxiety and Fear among Future Doctors: Are They Afraid?

**Ghazali IA<sup>2</sup>, Mohd Kama MS<sup>2</sup>, Aza A<sup>1</sup>, Izyan Hazwani B<sup>2</sup>**

<sup>1</sup>Centre of Comprehensive Care Studies, Faculty of Dentistry Universiti Teknologi MARA,

<sup>2</sup>Faculty of Dentistry Universiti Teknologi MARA

Email: [izzulalifghazali@gmail.com](mailto:izzulalifghazali@gmail.com), [syukrikama3@gmail.com](mailto:syukrikama3@gmail.com), [azafazura@yahoo.com](mailto:azafazura@yahoo.com),  
[izyan9192@salam.uitm.edu.my](mailto:izyan9192@salam.uitm.edu.my)

**Objective.** To determine the prevalence of dental fear and anxiety among dental medical and dental students and its association towards dental stimuli and other sociodemographic factors.

**Methods.** A cross-sectional study was conducted among students of UiTM Sungai Buloh. A validated Index of Dental Anxiety and Fear Scale (IDAF-4C+) questionnaires were distributed by stratified random sampling to 497 students. Data on demographic characteristics were also collected. A cut point of 2.5 in average score for IDAF-4C module was set to indicate the presence of dental fear and anxiety. Prevalence was determined by descriptive statistics. Pearson's correlation was used to check the association of related dental stimuli (IDAF-S module) towards dental fear and anxiety score. Logistic regression was used to determine the associated sociodemographic factors. **Results.** Response rate was extremely good (86.9%). Medical students reported higher prevalence of dental fear (25.6%) compared to dental students (18.9%). The highest stimuli correlated to dental fear and anxiety is "feeling sick, queasy or disgusted" ( $r=0.537$ ) followed by "not being in control of what is happening" ( $r=0.484$ ). Having bad dental experience increases the likelihood of dental anxiety and fear by 4 times while those from T20 income group has 51.7% lower likelihood compared to those from B40 income group. **Conclusion.** Medical students have higher anxiety and fear towards dental treatment compared to dental students, which mostly correlated to feeling sick, queasy and disgusted. The bad dental experience and low household income have significant association towards dental fear and anxiety.

## P-41

### Comparison of Bimaxillary Protrusion Occlusion Morphology: A Geometric Morphometric Analysis

**Che Aziz NFA<sup>1</sup>, Yunos S<sup>1</sup>, Alias A<sup>2</sup>, Yusof MYPM<sup>3</sup>, Norman NH<sup>4</sup>**

<sup>1</sup>Faculty of Dentistry, Universiti Teknologi MARA, Sungai Buloh Campus; <sup>2</sup>Department of Medical Sciences, Faculty of Dentistry, Universiti Sains Islam Malaysia; <sup>3</sup>Centre of Oral & Maxillofacial Diagnostics & Medicine Studies, Faculty of Dentistry Universiti Teknologi MARA; <sup>4</sup>Department of Orthodontics Studies, Faculty of Dentistry Universiti Teknologi MARA

Email: [fazleenans@yahoo.com.my](mailto:fazleenans@yahoo.com.my), [noraina@salam.uitm.edu.my](mailto:noraina@salam.uitm.edu.my)

**Objectives:** To compare the craniofacial shape and size in bimaxillary protrusion morphology according to its severity by application of geometric morphometric technique. **Methods:** Lateral cephalometric radiographs of 92 bimaxillary protrusion patients (24 males, 68 female) aged between 21±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 differences of skeletal and dental components of bimaxillary protrusion occlusion can be classified into its severity of craniofacial morphology (mild, moderate or severe). 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. However, it can be seen that 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±10% within the classification of bimaxillary occlusions upon cross validation which demonstrates the accuracy in classifying these groups. **Conclusions:** 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.

## P-42

### Prevalence of Malocclusion in Sagittal Relationship Among Malaysian Adolescents

**Fatihah N, Adzmi A, Rasheed AS**

Faculty of Dentistry, Lincoln University College

E-mail: [yeyah13@gmail.com](mailto:yeyah13@gmail.com), [dr\\_rashed68@yahoo.com](mailto:dr_rashed68@yahoo.com), [adzmiayub95@gmail.com](mailto:adzmiayub95@gmail.com)

Statistical data on malocclusion prevalence in Malaysia is very finite especially in sagittal relationship. **Aims:** This study aims to determine the prevalence of malocclusion in sagittal relationship with gender differences among Malaysian adolescents. **Methodology:** This study is a cross-sectional study which is clinically based involving 152 students of Sekolah Menengah Kebangsaan Kelana Jaya, aged 13 to 16 years old with male contributed slightly higher number of participants (52.6%) compared to female (47.4%). A clinical examination form with variables prepared and used during the procedure to examine the malocclusion in sagittal relationship which include anterior cross bite, maxillary overjet and bi-maxillary protrusion. Descriptive statistics was used to show the malocclusion prevalence and chi-square test was used to examine the association between malocclusion prevalence in sagittal relationship with gender. The level of significance is set at 0.05. **Results:** The data showed that normal maxillary overjet was the most (74.3%), followed by decreased (15.1%) and increased maxillary overjet (10.5%). Only (3.9%) with bi-maxillary protrusion among male and female. Small percentage (10.5%) was seen with anterior cross bite with slightly higher in male dominance. Chi-square result reported no significant association between prevalence of malocclusion in sagittal relationship with gender. **Conclusion:** Findings showed the prevalence of malocclusion in sagittal relationship was highest in maxillary overjet, followed by anterior cross bite and bi-maxillary protrusion respectively. These findings will be significant as Malaysian database in malocclusion.



## P-43

### Antibacterial Effects of *Spilanthes acmella* Leaves Extracts (SALE) against *Streptococcus mutans*.

Siti Sarah Azhar, Luqman Atif Elias, Rohazila Mohamad Hanafiah,  
Siti Aisyah Abd Ghafar

Department of Basic Science, Faculty of Dentistry, Universiti Sains Islam Malaysia.

Email: [saraazhar1795@gmail.com](mailto:saraazhar1795@gmail.com), [aisyahghafar@usim.edu.my](mailto:aisyahghafar@usim.edu.my), [luqmanatif@gmail.com](mailto:luqmanatif@gmail.com),  
[rohazila@usim.edu.my](mailto:rohazila@usim.edu.my)

*Spilanthes acmella* or 'Subang Nenek' from Asteraceae family founds in tropical and subtropical region such as Asia. It has been used traditionally as remedy for toothache. Spilanthol from *S. acmella* leaves were reported to have analgesics and anti-inflammatory properties. To date, there is no study on antibacterial properties of *S. acmella* towards *Streptococcus mutans*, the main contributor of tooth decay. **Objective:** To investigate antibacterial properties of *S. acmella* leaves extracts (SALEs) against *S. mutans*. **Methodology:** *S. mutans* was subcultured in BHI broth and agar. Sequential extractions of *S. acmella* leaves were conducted using four different solvents with increasing polarity, [*n*-hexane, dichloromethane (DCM), acetone, methanol (MeOH)] and tested with different concentrations against *S. mutans* via disc diffusion assay, minimal inhibitory concentration (MIC) and minimal bactericidal concentration (MBC). Penicillin was used as positive control and DMSO as negative control. **Results:** Disc diffusion assay shows SALEs inhibited *S. mutans* growth. SALE-*n*-hexane shows the highest inhibition zone (10.0±0.001 mm) followed by SALE-MeOH (8.0±0.001 mm). While SALE-DCM and SALE-acetone shows no inhibition zone (6.00±0.001 mm). MIC value for SALE-*n*-hexane and SALE-MeOH is 25.0 mg/mL respectively. MBC value SALE-*n*-hexane is 50.0 mg/mL while SALE-MeOH is 100.0 mg/mL. **Conclusion:** Based on these findings, *S. acmella* leaves extracts possess bactericidal properties against *S. mutans*.

## P-44

### The Effect of Incorporation of Cellulose Kenaf Fibre in Composite Resin on Mechanical Properties

Nur Aliya Ibrahim<sup>1</sup>, Mohd Nazrulhuzaimi Md Yusoff<sup>2</sup>, Yanti Johari<sup>3</sup>,  
Nor Aidaniza Abdul Muttlib<sup>3</sup>, Rabihah Alawi<sup>4</sup>

<sup>1</sup>Undergraduate student, School of Dental Sciences, USM Health Campus, <sup>2</sup>Postgraduate student, <sup>3</sup>School of Dental Sciences, USM Health Campus, Prosthodontics Unit, School of Dental Sciences, USM Health Campus, <sup>4</sup>Conservative Unit, School of Dental Sciences, USM Health Campus

Email: [aidenh86@gmail.com](mailto:aidenh86@gmail.com), [rabihah@usm.my](mailto:rabihah@usm.my), [nazrulhuzaimi@gmail.com](mailto:nazrulhuzaimi@gmail.com),  
[yjohari@usm.my](mailto:yjohari@usm.my), [aidaniza@usm.my](mailto:aidaniza@usm.my)

Fibre reinforced composite is characterized by high, specific strength and improved stiffness. Currently, natural-based fibre product such as kenaf is widely used for various applications. **Objective:** To evaluate the mechanical properties of composite resin after incorporation of cellulose kenaf fibres. **Methods:** 2% kenaf fibres were manually incorporated into composite resin [Tetric (Ivoclar Vivadent, Liechtenstein) after alkaline treatment and wetted with coupling agent (3-methacryloxypropyltrimethoxy silane,). Ten specimens for each experimental and control group, Tetric (Ivoclar Vivadent, Liechtenstein) were prepared using stainless steel moulds with a dimension of 6mm x 4mm and 25mm x 2mm x 2mm for compressive and flexural strength tests respectively and later tested using Instron Universal Testing Machine (Shimadzu, Japan). Raw kenaf fibre, treated kenaf fibre and fractured sample from flexural strength were analyzed using Scanning Electron Microscopy (SEM) (FEI Quanta FEG 450, USA) for their surface topography. Data were analyzed using independent T-test.  $p < 0.05$  was considered as significant. **Results:** Experimental group has a significantly lower flexural and compressive strength than control group. 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. Fibres dispersed in composite mainly as a single strand and few bundles with a minimal gap between fibres and composite. **Conclusion:** Good adaptation between kenaf fibres and composite was noted after alkaline treatment and coupling agent wetting, however flexural and compressive strength did not increase. Therefore, additional treatments of kenaf fibres and more works on finding suitable percentage of fibres, as well as better silane coupling agent are required for a favourable result.

## P-45

### Necrotic Immature Premolar with Dens Evaginatus: A Case Report

Rasid LH<sup>1</sup>, Abu Bakar N<sup>1</sup>, Ramlan NA<sup>2</sup>

<sup>1</sup>Centre of Paediatrics Dentistry and Orthodontics Studies, Faculty of Dentistry University Teknologi MARA, <sup>2</sup>Centre of Restorative Dentistry Studies, Faculty of Dentistry, Universiti Teknologi MARA

Email: [liyanahazirah305@gmail.com](mailto:liyanahazirah305@gmail.com), [norashikin8234@salam.uitm.edu.my](mailto:norashikin8234@salam.uitm.edu.my),  
[ainramlan@salam.uitm.edu.my](mailto:ainramlan@salam.uitm.edu.my)

Dens evaginatus (DE) is a developmental dental anomaly which defined as a tubercle or protuberance from occlusal and lingual surfaces of teeth (Levitan et al., 2006). The tubercle of dens evaginatus are prone to pulpal exposure from wear or fracture once the tooth erupted in occlusion which lead to pulpal inflammation, pulpal necrosis and further causes periapical infection. (Echeverri et al, 1994) **Case Report:** A healthy 8 years old Malay girl came to Universiti Teknologi Mara Dental Centre Sungai Buloh, complained of pain on the lower left back tooth for the past 2 months. Intraoral examination revealed the presence of sinus tract on lingual of 35 and swelling on the buccal attached gingiva of 35 with fractured dens evaginatus on 35. Radiographic examination shows presence of periapical radiolucency at the immature tooth 35 with widening of periodontal ligament surrounding the root. This patient is plan for revascularization procedures to stimulate the continuous root development in terms of length and thickness. **Conclusion:** Early diagnosis of dens evaginatus helps to initiate preventive treatment and to prevent complication in management especially in cases of immature tooth.

## P-46

### The Effect of Educational Programme in Curbing Work-related Musculoskeletal Disorder (WMSD) among UiTM Dental Students

**Nursyafinas Arifin Al Idrus<sup>1</sup>, Khairil Anuar Md Isa<sup>2</sup>, Wan Najwa Wan Mohd Zohdi<sup>3</sup>,  
Noor Aziella Mohd Nayan<sup>4</sup>, Tengku Intan Baizura Tengku Jamaluddin<sup>5</sup>**

<sup>1</sup>Bachelor of Physiotherapy (Hons.), Centre of Physiotherapy Studies, Faculty of Health Sciences, Universiti Teknologi MARA, <sup>2</sup>Head, Basic Sciences, Faculty of Health Sciences, Universiti Teknologi MARA, <sup>3</sup>Head, Department of Rehabilitation Medicine, Faculty of Medicine, Universiti Teknologi MARA, <sup>4</sup>Master in Health Sciences (Occupational Therapy), Faculty of Health Sciences, Universiti Teknologi MARA, <sup>5</sup>Oral and Maxillofacial Surgeon, Centre of Oral & Maxillofacial Surgery Studies, Faculty of Dentistry, Universiti Teknologi MARA.

Email: [syafinasnur96@gmail.com](mailto:syafinasnur96@gmail.com), [khairil996@puncakalam.uitm.edu.my](mailto:khairil996@puncakalam.uitm.edu.my),  
[wannajwa@salam.uitm.edu.my](mailto:wannajwa@salam.uitm.edu.my), [ms.ziella88@gmail.com](mailto:ms.ziella88@gmail.com),  
[intanbaizura3124@salam.uitm.edu.my](mailto:intanbaizura3124@salam.uitm.edu.my)

Dental practitioners have a high-risk to work-related musculoskeletal disorders (WMSD). Several studies have shown incidence of musculoskeletal disorder pain among dental undergraduates which may exacerbate later in the future. **Objectives:** The objective of this quasi-experimental study was to determine the risk of WMSD among dental undergraduates whilst observing the effect of an educational programme comprising of a series of exercise and ergonomics training among UiTM dental undergraduates. **Methods:** This study composed of three phases, where Phase One entailed screening of musculoskeletal pain via a validated Extended Nordic Musculoskeletal Questionnaire (NMQ-E) In Phase Two, physical body assessment was evaluated by an occupational therapist by Rapid Entire Body Assessment (REBA) in order to assess the risk of WMSD of subjects while performing maxillary dental extractions. Intervention consisted of notes on prescribed exercises and ergonomics. 50% of participants obtained an online video link of the prescribed education programme. Post-assessment was done by redistributing the NMQ-E in Phase Three in order to assess the effect of the interventional education programme. **Results:** Ten participants were recruited for this test group, as they had high risk of WMSD. McNemar test revealed that there is no statistically significant difference between pre and post assessment on neck ( $p>0.013$ ), lower back ( $p>0.38$ ), shoulder ( $p>0.63$ ) subsequent to exercise and ergonomics training between both groups. **Discussion:** The effect of exercise training may not be significant due to nature of dental practice which requires repetitive practice of their tasks during daily clinical training. Hence, interfering in the recovery process. However, improvement of each participant was seen based on the post-NMQ-E assessment. **Conclusion:** This study shows that exercise and ergonomics training is beneficial for them in order to curb the risk of WMSD at an early age. Further studies are currently ongoing on a larger sample size to obtain a representation of the education programme amongst dental undergraduates.

## P-47

### The Antibacterial Effects of Aqueous Oil Palm (*Elaeis Guineensis*) Leaf Extracts against Periodontopathogen

**Nur Fatimah Nordin, Hasnah Begum Said Gulam Khan,  
Kazi Ahsan Jamil**

Faculty of Dentistry, Universiti Teknologi MARA, Sungai Buloh, Selangor, Malaysia

Email: [ftahnordin63@gmail.com](mailto:ftahnordin63@gmail.com), [hasnah1305@gmail.com](mailto:hasnah1305@gmail.com)

Nowadays, natural product has been used widely in pharmaceutical field as it is considered as safe and no aftereffect. Oil palm (*Elaeis guineensis*) leaf extract has been known to have antibacterial activity against micro-organism. **Objectives:** The aim of this study was to determine the antibacterial activity of aqueous oil palm leaf extract against periodontopathogen; *Aggregatibacter actinomycetemcomitans*. **Methods:** The antibacterial activity of aqueous oil palm leaf extract has been identified by agar diffusion method, minimum inhibitory concentration (MIC) and minimal bactericidal concentration (MBC) assay. The antibacterial activity of aqueous oil palm leaf extract against *Aggregatibacter actinomycetemcomitans* can be determined by the measurement of inhibition zone. The diameter of clear zone formed around the well is measured by ruler in milimeter. **Results:** The range of inhibition zone for *A. actinomycetemcomitans* are between 7 – 11 mm. For 200mg/ml, the zone of inhibition is at  $7.33 \pm 0.58$ mm while for 500mg/ml, the zone of inhibition is at  $10.33 \pm 0.58$ mm. The higher the concentration of aqueous oil palm leaf extract, the bigger the inhibition zone. The MIC and MBC values for *A. actinomycetemcomitans* are 6.25mg/ml and 12.5mg ml respectively. **Conclusion:** The result of this study indicate that oil palm leaf extract has a potential to be a natural antimicrobial source to be used in oral care.

## P-48

### Accessory Central Cusp in Bilateral Maxillary First Permanent Molar: A Unique Presentation

Mohd SH<sup>1</sup>, Mohammed Zainuri AQ<sup>1</sup>, Hussein AS<sup>2</sup>, Hamzah SH<sup>2</sup>

<sup>1</sup>Faculty of Dentistry, Universiti Teknologi MARA, Malaysia. <sup>2</sup>Centre of Paediatric Dentistry and Orthodontics Studies, Faculty of Dentistry, Universiti Teknologi MARA, Malaysia

Email: [siti.hajar1596@gmail.com](mailto:siti.hajar1596@gmail.com), [alaa@salam.uitm.edu.my](mailto:alaa@salam.uitm.edu.my),  
[sitihajar1998@salam.uitm.edu.my](mailto:sitihajar1998@salam.uitm.edu.my)

The occurrence of accessory cusps is common variations of tooth morphology that are rarely seen clinically. However, its incidence differs depending on the type and the tooth affected. Three most commonly reported variations of accessory cusps are the Carrabelli cusp on the molars, Talon cusp on the incisors and Leong's tubercle on the premolars. The frequencies of occurrence of these variations different depending on the type, 52%- 68% for Carabelli cusp, 1%-7.7% for the Talon cusp, and 8% for the Leong's turbecele. The aetiology of these anomalies is unknown. **Case Report:** A 10-year-old Malay girl was seen at the paediatric clinic of the Faculty of Dentistry, Universiti Teknologi MARA (UiTM) for dental check-up. She was medically fit and healthy. Intra-oral examination revealed she is caries-free but with poor level of oral hygiene. Moreover, a large central projection of a cusp was seen on the occlusal surfaces of both the right and left maxillary first permanent molars with no caries occurrence. Intraoral periapical radiograph revealed the presence of accessory cusp at the occlusal surface of the affected teeth and no pulpal extension into the central cusp. The management consisted of oral hygiene instruction and fluoride application to prevent the development of caries in the future. The patient will be reviewed every three months. **Conclusions:** Occurrence of supernumerary cusp is a very rare entity. The presence of the accessory cusp in this case report was an incidental finding. Therefore, thorough clinical examination is very important during the dental check-up. Early diagnosis of these anomalies and preventive measures are imperative to prevent caries incidence. Close monitoring is needed as soon as the dental anomalies are noted.

## P-49

### Talon Cusp on Mandibular Right Lateral Incisor: A Rare Occurrence

**Azmimurad AM<sup>1</sup>, Zaharudin S<sup>1</sup>, Hamzah SH<sup>2</sup>, Hussein AS<sup>2</sup>, Ramlan NA<sup>3</sup>**

<sup>1</sup>Faculty of Dentistry Universiti Teknologi MARA; <sup>2</sup>Centre of Paediatric Dentistry and Orthodontics Studies, Faculty of Dentistry, Universiti Teknologi MARA; <sup>3</sup>Comprehensive Care Studies, Universiti Teknologi MARA

Email: [maizananis@gmail.com](mailto:maizananis@gmail.com), [sajidahzaharudin@gmail.com](mailto:sajidahzaharudin@gmail.com), [sitihajar1998@salam.uitm.edu.my](mailto:sitihajar1998@salam.uitm.edu.my), [alaa@salam.uitm.edu.my](mailto:alaa@salam.uitm.edu.my), [ainlolz@gmail.com](mailto:ainlolz@gmail.com)

Talon cusp is a rare developmental anomaly characterised by the presence of an extra cusp-like structure projecting from the cingulum area of maxillary or mandibular incisors, which also resembles an eagle's talon in shape. The most common affected teeth are maxillary lateral incisors. The prevalence of talon cusp is 5.2% in Malaysian population. The aetiology is unknown. However, hyperactivity of the enamel organ during the morphodifferentiation stage may be attributed. It is composed of enamel, dentine with or without pulp tissue. **Case report:** A healthy 15-year-old Malay female came to paediatric dental clinic at the Faculty of Dentistry, UiTM with chief complaint of teeth sensitivity. An intra-oral examination revealed the presence a prominent cusp on the lingual surface as well as the deep fissure on the labial surface of mandibular right lateral incisor with slight degree of mobility due to periapical abscess. Intraoral periapical radiograph revealed a radiopaque projection confirming it is talon cusp. The planned treatment is root canal treatment since the tooth was non-vital. **Conclusions:** This case highlights the endodontic treatment of talon cusp on mandibular lateral incisor. Presence of talon cusp on mandibular lateral incisor is very unusual finding. Therefore, early diagnosis and management is essential to avoid future complications.



## P-50

### Surface Hardness Deterioration of Expired Glass Ionomer Cement

**Muhammad Dian Firdausy**

Department of Dental Materials and Technology, Faculty of Dentistry, Universitas Islam Sultan Agung Semarang Indonesia

Email: [dian\\_firdausy@unissula.ac.id](mailto:dian_firdausy@unissula.ac.id)

Small amount usage of restoration materials, including Glass Ionomer Cement (GIC) tend to make prolonged storage time exceeding its expiration date (ED). **Objectives:** The objective of this laboratory experimental was to determine how ED affected surface hardness GIC type II and its deterioration when immersed in acidic drink. **Methods:** 30 specimens made using GIC with 3 different ED's (4 years after ED (G1), 2 years after ED (G2), 3 years before ED (G3)). Initial surface hardness of each specimen was measured using Vickers testing tools. All specimens were immersed individually using carbonated drink and changed daily. After 7 days, specimens were dried in desiccator for 24 hours. Final surface hardness was measured. **Results:** G3 showed a significantly higher ( $p < 0.000$ ) initial surface hardness ( $54.66 \pm 1.38$  VHN) compared to G1 ( $45.58 \pm 1.58$  VHN) and G2 ( $52.03 \pm 1.34$  VHN). After 7 days immersed in carbonated drink, surface hardness of all groups was reduced significantly ( $p < 0.000$ ). G1 showed highest surface hardness reduction ( $-22.64 \pm 1.45$  VHN) compared to G2 ( $-18.65 \pm 5.16$  VHN) and G3 ( $-8.12 \pm 2.36$  VHN) ( $p < 0.000$ ). **Conclusions:** Expiration date of GIC has great impact in its surface hardness, furthermore it also become prone to acidic solutions. Thus, clinicians should take serious consideration on restorative expiration date.

## P-51

### Tooth Size Measurements through Conventional and CAD/CAM Measurements: A Study on the Malay Ethnic

**Hashim KC<sup>1</sup>, Kuddus AY<sup>1</sup>, Nasruddin MF<sup>2</sup>, Syed Bakhtiar SBA<sup>3</sup>**

<sup>1</sup>Faculty of Dentistry, Universiti Teknologi MARA, Sungai Buloh Campus, <sup>2</sup>Centre of Comprehensive Care Studies, Faculty of Dentistry Universiti Teknologi MARA, <sup>3</sup>Centre of Paediatric Dentistry and Orthodontic Studies, Faculty of Dentistry Universiti Teknologi MARA

Email: [khalisyahchehashim@gmail.com](mailto:khalisyahchehashim@gmail.com), [yusribinkuddus@gmail.com](mailto:yusribinkuddus@gmail.com),  
[drfaiz@salam.uitm.edu.my](mailto:drfaiz@salam.uitm.edu.my), [bazlialwi@salam.uitm.edu.my](mailto:bazlialwi@salam.uitm.edu.my)

The objectives of this study were to characterize tooth dimension measurements of Malay ethnicity and to compare measurement of tooth sizes between conventional digital calliper versus CAD technology. **Materials and Method:** Sample calculation (power of 80%) was performed. Thirty-six (36) people of Malay ethnicity that fits the inclusion criteria were chosen. An alginate impression that produced a cast was subjected to each participant to which was measured with a Vernier digital calliper (Hammacher Solingen) and a CAD scanner (CEREC Omnicam, Denstply Sirona) with internal measuring software, repeated three times per tooth. Teeth 16 — 26 (maxilla) and 36 — 46 (mandible) were selected. The width of each tooth was measured from its mesial to distal contact point at its greatest interproximal distance. The height was measured from the lowest part of the gingival margin to the highest point of crown. All data was analysed in SPSS version 23. Descriptive statistics were performed to disclose mean and standard deviation for individual tooth dimensions. Independent sample t-test was then executed to compare between the two techniques. **Results:** Descriptive statistics analysis reveals the mean for mesiodistal and height of anterior teeth: 7.72mm (0.8) and 8.78mm (1.2), premolars: 7.09mm (0.5) and 6.86mm (1.1) molars: 10.43mm (0.5) and 5.49mm (0.71) for maxilla, meanwhile for mandible anterior teeth: 6.06mm (0.7) and 7.84mm (1.1), premolars: 7mm (0.5) and 7.39mm (0.9) and molars: 11.06mm (0.5) and 6.15(0.9) of Malay ethnicity. Results comparing CAD measurements against conventional measurements were not significantly different ( $p>0.05$ ). **Conclusion:** Apprehension of tooth dimensions of Malay ethnicity can be clinically used in prosthodontics and orthodontics applications. Measurement utilizing CAD scanners guises a promising alternative to the conventional method of acquiring data for tooth dimensions.

## P-52

### Supporting Preventive Strategy of Smoking Cessation Practice in IMU Oral Healthcare Centre

Lim Li Yin<sup>1</sup>, Lim Xian Jin<sup>1</sup>, Sobia Bilal<sup>2</sup>

<sup>1</sup>Dental students from School of Dentistry IMU <sup>2</sup> Senior lecturer, Division of Children and Community Oral Health, School of Dentistry IMU.

Email: [lim.liyin@student.imu.edu.my](mailto:lim.liyin@student.imu.edu.my), [lim.xianjin@student.imu.edu.my](mailto:lim.xianjin@student.imu.edu.my),  
[SobiaBilal@imu.edu.my](mailto:SobiaBilal@imu.edu.my)

Smoking is a common risk factor that is responsible for a number of ailments. Smoking cessation is the most effective preventive strategy. The objective of this audit was to determine the smoking cessation practice among dental clinicians and students for patients visited IMU Oral Healthcare Centre (OHC) for any treatment from August 2017 to August 2018. **Methods:** A total of 242 subjects were selected using simple random sampling technique. Records of the smoking status of the patients were determined from OHC patient records. If patients were recorded as being current smokers, further evaluation was carried out based on 3As strategy adopted by IMU clinical practice protocol which includes Fagerstorm test, carbon monoxide (CO) level, brief advice to smokers and referral to smoking cessation clinic. Descriptive statistics were analysed with SPSS-22. **Results:** The smoking status of patients recorded by dental students was 64.5% whereas by clinicians was 16.1%. More than half (54.3%) of dental students had recorded Fagerstorm test and three quarter (72.3%) had determined CO level. Whereas no record of Fagerstorm and CO level was found for smokers treated by dental clinicians. Brief advice was given by dental students and clinicians to 64.9% and 50% of patients who were smokers respectively. Referral to smoking cessation clinic was done by 40.4% of dental students and 12.5% of dental clinicians. **Conclusions:** Overall results were unsatisfying regarding the smoking cessation practice in IMU-OHC based on the set criteria of >80% adherence. Recommendations to improve the practice of this preventive strategy are based on the feedback from students and clinicians. These include the availability of Smokerlyzer CO level chart and information regarding smoking cessation clinic operating time and charges at all clinicians' and students' work stations. Reinforcement of smoking cessation practice for all clinicians and should be calibrated through a workshop.

## P-53

### Psychological Well-being and Dental Health Experience of Patients Attending Dental Clinic in Hospital Universiti Sains Malaysia

Cheryl Yip Ying Ling, Zainab Mat Yudin, Normastura Abd Rahman

School of Dental Sciences, Health Campus, Universiti Sains Malaysia, 16150 Kubang Kerian, Kelantan, Malaysia.

Email: [cherrrling@gmail.com](mailto:cherrrling@gmail.com), [drzainab@usm.my](mailto:drzainab@usm.my)

Psychological well-being is important for general well-being including the oral health as well. **Objectives:** The aim of this study is to evaluate the psychological well-being which include depression, anxiety and stress in relation to dental health experience among patients attending outpatient dental clinic in Hospital Universiti Sains Malaysia. **Methods:** This was a cross-sectional study involving 106 adult patients who attended the outpatient dental clinic. Psychological well-being was evaluated using the Malay version of Depression, Anxiety and Stress Scales (DASS 21M) questionnaire. Clinical oral examination was conducted to determine the caries experience using the decayed, missing and filled teeth (DMFT) index. **Results:** The prevalence of moderate to severe depression and stress were 5.7% (CI:1.2-10.1) and 6.6% (CI:1.8-11.4) respectively. Meanwhile for anxiety symptoms, the level was much higher, which was 19.8% (CI:12.2-27.5). The median (IQR) of the caries experience was 7.0 (IQR=7). Despite of high prevalence of anxiety symptoms, it was not common in those with higher caries experience. Unexpectedly, patients with normal to mild anxiety symptoms level have significantly higher caries experience (9.0). There was no significant difference for depression ( $p=0.099$ ) and stress symptoms ( $p=0.452$ ) stress related to the dental caries experience. **Conclusions:** People with dental caries experience did not have serious mental health issues. However, the psychological well-being screening can be considered at the primary care dental setting as it would help to recognize and channel the sufferer for early treatment.

## P-54

### Synthesis and Characterization of Zirconia Stabilized by Nano Calcium Oxide Derived from Cockle Shell and Commercial Nano Calcium Oxide

Abbas Ibrahim Hussein, Nur Atikah Ab Ghani, Zuryati Ab-Ghani,  
Ismail Ab. Rahman, Adam Husein

School of Dental Sciences, Universiti Sains Malaysia, Health Campus, 16150 Kubang Kerian, Kelantan

Email: [nuratikahabdghani@gmail.com](mailto:nuratikahabdghani@gmail.com), [zuryati@usm.my](mailto:zuryati@usm.my)

Different oxides have been used to stabilize zirconium oxide ( $ZrO_2$ ). Use of calcium oxide (CaO) as a stabilizer has been studied previously. However, the particle size of CaO was not clearly described, while use of cockle shell to derive CaO to stabilize zirconia for dental application has not been done before. **Objectives:** To study the morphology and particle size of zirconia stabilized by CaO derived from cockle shell and from commercial source when sintered at different temperatures using scanning electron microscope (SEM). **Methodology:** In this study, nano CaO derived from cockle shells and commercial CaO were physically mixed with  $ZrO_2$ , packed into a mould and sintered at different temperatures from 1200 to 1500 °C. Then, zirconia stabilized by CaO derived from cockle shell and commercial CaO were characterized using a scanning electron microscope (SEM), and energy dispersive X-ray analyzer (EDX). **Result:** SEM image of CaO derive from cockle shells showed evenly dispersed and structurally similar, whereas the particles of commercial CaO were agglomerated and many voids were visible. Besides, SEM image of zirconia stabilized CaO derived from cockle shells that sintered at 1400 °C for 2h holding time had a smoother surface compared to other samples that prepared at different temperature. The zirconia stabilizes CaO using cockle shells had an average particle size of 61.13 nm as compared to zirconia stabilized using commercial CaO that had an average size of 63.37 nm. **Conclusion:** The CaO stabilized zirconia derived from cockle shells sintered at 1400 °C with holding time of 2 hours were comparable to zirconia stabilized by commercial CaO which may be used as alternative to the current zirconia available in the market for dental application.

## P-55

### The Relationship of Facial Measurements with the Mesiodistal Width of the Maxillary Anterior Teeth

Nur Ilyana Aifa Aziz<sup>1</sup>, Nadia Che Mohd<sup>1</sup>, Izyan Hazwani Baharuddin<sup>3</sup>,  
Aiemeeza Rajali<sup>1</sup>, Rohana Ahmad<sup>1,2</sup>

<sup>1</sup>Center of Studies for Restorative Dentistry, Faculty of Dentistry, Universiti Teknologi MARA, Sg Buloh, Malaysia; <sup>2</sup>Integrative Pharmacogenomics Institute, Universiti Teknologi MARA, Puncak Alam Campus, Selangor, Malaysia; <sup>3</sup>Center of Population Oral Health and Clinical Prevention Studies, Faculty of Dentistry, Universiti Teknologi MARA, Sg Buloh, Malaysia

Email: [nadiachemohd27@gmail.com](mailto:nadiachemohd27@gmail.com), [drrohana@uitm.edu.my](mailto:drrohana@uitm.edu.my)

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). **Methods:** 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 mesiodistal width of the maxillary anterior teeth were measured using a flexible ruler. The three facial dimensions were correlated with the mesiodistal width of the maxillary anterior teeth 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 mesiodistal width of the maxillary anterior teeth 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 mesiodistal width of the maxillary anterior teeth 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 mesiodistal width of the maxillary anterior teeth 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.

## P-56

### Comparison of the Bond Strength of Different Endodontic Sealers to Dentine Walls: *An In-Vitro Study*

Galvin Sim Siang Lin<sup>1</sup>, Nik Rozainah Nik Abdul Ghani<sup>1</sup>, Tahir Yusuf Noorani<sup>1</sup>,  
Noor Huda Ismail<sup>2</sup>, Noraida Mamat<sup>3</sup>

<sup>1</sup>Conservative Dentistry Unit, <sup>2</sup>Prosthodontics Unit, <sup>3</sup>Paediatric Dentistry Unit, School of Dental Sciences, Health Campus, Universiti Sains Malaysia, 16150, Kubang Kerian, Kelantan, Malaysia.

Email: [gaelvylin@yahoo.com](mailto:gaelvylin@yahoo.com), [rozainah@usm.my](mailto:rozainah@usm.my), [tahir@usm.my](mailto:tahir@usm.my), [noorhuda@usm.my](mailto:noorhuda@usm.my)

Endodontic obturation aims to completely fill the root canal space. This is achieved 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 dentine wall. **Methods:** Seventy-two recently extracted mature human 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 using gutta percha and various sealers 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 respectively. One mm slice of mid root region was prepared for push-out test using Universal Testing Machine. Adhesive patterns were then examined under Leica Microscope. Data analysis carried out using two-ways ANOVA test complemented by Turkey HSD test with level of significance set at  $p < 0.05$ . **Results:** A significant difference in bond strength was observed ( $p < 0.05$ ) with EndoSeal MTA ( $26.87 \pm 0.89$  MPa) demonstrating the highest push-out bond strength after 10000 cycles followed by Sealapex ( $5.67 \pm 0.41$  MPa), EndoRez ( $3.13 \pm 0.43$  MPa) and lastly the control group ( $2.51 \pm 0.35$  MPa). However, no significant difference was noted among Group 1, Group 2 and Group 3. Besides, EndoSeal MTA also exhibited significantly ( $p < 0.05$ ) higher rate of Type 3 and Type 4 adhesive pattern as the cycles increased compared to the other groups. **Conclusions:** Bioceramic based sealer demonstrated higher bond strength and better adhesive pattern especially after aging compared to resin based and calcium hydroxide based sealers.



## P-57

### Pain Levels Assessment in Orthodontic Patients with Mini-Implants Using a Pain Diary: A Pilot Study

**Mohd Ali ND<sup>1</sup>, Norman NH<sup>2</sup>, Mohammed Al-Jaf N<sup>3</sup>**

<sup>1</sup>Orthodontic Postgraduate Department, Department of Orthodontic, Faculty of Dentistry, Universiti Teknologi MARA; <sup>2</sup>Department of Orthodontic, Faculty of Dentistry, Universiti Teknologi MARA; <sup>3</sup>Department of Orthodontic, Faculty of Dentistry, Universiti Teknologi MARA

Email: [nordayana03@gmail.com](mailto:nordayana03@gmail.com), [norainanorman@gmail.com](mailto:norainanorman@gmail.com),  
[nagham.mohammed@yahoo.com](mailto:nagham.mohammed@yahoo.com)

Orthodontic mini implant (MI) is one of the modalities to reinforce anchorage in orthodontic treatment. Recently, MIs have been a more popular option amongst clinicians and have developed vastly. However, there are concerns with it and one of it is mucosal irritation such as ulceration which causes pain. **Objective:** This study aims to assess the pain levels and patients' perception and satisfaction in subjects with or without the MI cover as well as to evaluate the feasibility of the study. **Methods:** In this pilot study, 5 subjects were recruited and allocated into three different groups randomly. The three groups are: Control (C), Silicone (SF) and Composite (CR). All subjects were given a Pain diary each which includes a pain scale (Numeric Rating Scale) scaled from 0 to 10 and also two modified questionnaires (Likert 5-point scale) regarding the MI and Modified oral health impact profile (S-OHIP-14) that was validated by a panel of experts. Subjects were followed through from T0 (immediately after MI placement), T1 (1 hour), T12 (12hours), T24 (24hours), TD3 (3 days), TD7(7 days), TD14 (14 days) and TD30 (Day 30). **Results:** Preliminary results showed that the control group had the highest mean pain score of 4 at TD7 and the pain lasted throughout the entire study. However, the SF and CR group experienced pain only at the beginning of the study, which diminishes by TD7. The SF group had the lowest mean pain score of 0.5 at TD7 throughout the study. Subjects understood the questionnaires asked and were able to answer with minimal comments. All 5 subjects recommended the use of MI. **Conclusion:** From this study, subjects receiving intervention had lower mean pain score compared to the control group. The questionnaires were valid and can be used readily to assess pain associated with the MI head.

## P-58

**A Pilot Study:  
The Efficacy of the Maxillofacial Suturing Kit in Assessing  
Undergraduate Skill Performance**

**Abdul Bari N, Firdaus MS, Hamuddin S, MD Sabri BA**

Center for Oral & Maxillofacial surgery Studies, Faculty of Dentistry, Universiti Teknologi MARA

Email: [naquib1026@gmail.com](mailto:naquib1026@gmail.com), [sakinah\\_hamuddin@yahoo.com](mailto:sakinah_hamuddin@yahoo.com),  
[shawal@salam.uitm.edu.my](mailto:shawal@salam.uitm.edu.my), [budiaslinie@salam.uitm.edu.my](mailto:budiaslinie@salam.uitm.edu.my)

To evaluate the impact of the maxillofacial suturing kit on undergraduates' competence and confidence level on performing basic suturing. **Materials and methods:** This pilot study was both qualitative and quantitative research based on five point and two point rating scale questionnaire, also two point rating scale evaluation form. The study sample included 45 students from Year 4 Bachelor of Dental Surgery (BDS) (2018/2019). Prior to the distribution of suturing kits, a questionnaire was given out to subjects, assessing their baseline knowledge and confidence in suturing. The students then performed suturing exercises under specialist's supervision for 10 minutes and were evaluated. Then the students were given the suturing kit with instructions to utilize it for one week after which the students were asked to complete a post exposure questionnaire. Then, a post exposure suturing exercise and evaluation was conducted. The study data was entered using SPSS (Version 25) and analysed using paired T-test analysis. **Result:** A significant improvement between pre (5.82) and post (16.51) intervention score was observed ( $P < 0.001$ ) showing that students' competency in performing basic sutures improved after exposure to the kit. An increase in students' confidence in suturing was also seen where the pre-intervention score (19.18) increased to 25.82 post intervention. ( $P < 0.001$ ) **Conclusion:** Increased undergraduates' knowledge, competence and confidence level is observed with the exposure to the maxillofacial suturing kit.

## P-59

### Bilateral Accessory Cusp in Deciduous Mandibular First Molars and Bilateral Cusp of Carabelli in Permanent Maxillary First Molars: A Case Report

Mohammad Zainuri NA<sup>1</sup>, Zaim Faisal UN<sup>1</sup>, Hussein AS<sup>2</sup>, Hamzah SH<sup>2</sup>

<sup>1</sup>Faculty of Dentistry, Universiti Teknologi MARA, <sup>2</sup>Centre of Paediatric and Orthodontics Studies, Faculty of Dentistry, Universiti Teknologi MARA

Email: [unajwa11@gmail.com](mailto:unajwa11@gmail.com), [qila.zainuri@gmail.com](mailto:qila.zainuri@gmail.com), [alaa@salam.uitm.edu.my](mailto:alaa@salam.uitm.edu.my), [sitihajar1998@salam.uitm.edu.my](mailto:sitihajar1998@salam.uitm.edu.my)

Accessory cusps are relatively rare anomalies and have wide variations. The most three commonly reported variations of accessory cusps are cusp of Carrabelli on the molars, Dens evaginatus on the premolars and Talon cusp on the incisors. The incidence of these variations different depends on the type, 52%- 68% for Carabelli cusp, 8% for the Dens evaginatus and 1-7.7% for the Talon cusp. These anomalous structure are composed of enamel, dentin and either has varying extensions of pulp tissue into it or is a devoid of pulp horn. A cusp of Carabelli is a morphological anomaly that located on the mesio-palatal surface of maxillary first permanent molars and most commonly detected symmetrically on both sides of maxillary molars. **Case report:** A medically fit and healthy 8-year-old Malay girl came to the paediatric clinic for dental check-up. An intra-oral examination revealed that she was in mixed dentition stage with poor oral hygiene. Dental caries was present on most posterior teeth. Moreover, an extra cusp was seen projecting from the occlusal surface of both primary mandibular first molars with mobility (Grade 2). Also there was presence of an extra cusp on the palatal surface of both permanent maxillary first molars. Radiograph examination showed that there is a radiopaque projection on primary mandibular first molars confirming extra cusp. The proposed treatment is extraction of both primary mandibular first molars because of their mobility, fissure sealants on cusp of Carabelli, composite restorations on posterior carious teeth and preventive measures. **Conclusions:** This case highlights a rare presentation of bilateral extra cusp on primary mandibular first molars and bilateral cusp of Carabelli on permanent maxillary first molars. Both thorough oral examination and early detection of such anomalies are crucial to overcome future complications.

## P-60

### Fluoride Content, Cost and Labelling of Commercially Available Toothpastes in Malaysia

Anis JW<sup>1</sup>, Abdul Hamid MH<sup>1</sup>, Mohd Nor NA<sup>2</sup>

<sup>1</sup>Faculty of Dentistry, University of Malaya, Kuala Lumpur; <sup>2</sup>Department of Community Oral Health & Clinical Prevention, Faculty of Dentistry, University of Malaya, Kuala Lumpur

Email: [juwairiahwafa@yahoo.com](mailto:juwairiahwafa@yahoo.com), [azlida@um.edu.my](mailto:azlida@um.edu.my)

To document the ingredients in toothpastes that are available in Malaysia and to explore cost, manufacturers' recommendations for toothpaste use and their labelling practices. **Methods:** The availability of toothpaste was identified from the online and over-the-counter markets. Online search was conducted through major online shopping websites in Malaysia. For over-the-counter toothpastes, selected pharmacies, supermarkets and convenient family stores in the Klang Valley area were visited. Relevant information (i.e. fluoride type, fluoride concentration, abrasive agent, price per item and usage recommendation) on the toothpaste packaging were recorded. Data were analysed descriptively using Microsoft Excel and SPSS. **Results:** A total of 176 types of toothpastes were identified in this survey. About 73.86% and 26.14% were indicated for adults and children use respectively. Among these, 47.98% were labelled as fluoridated toothpaste and 50.29% as non-fluoridated toothpaste. Different units of labelling were used to indicate fluoride concentration. Herbal ingredients were mostly found in non-fluoridated toothpaste. Generally, common abrasive agents used are silica, phosphates and carbonates. The cost of toothpaste per 10 gram range from MYR 0.10 to MYR 9.50 with mean of MYR 2.00 (S.D:1.10). The manufacturers' recommendation of toothpaste use varies, with a small proportion following evidence-based recommendations. **Conclusions:** There are many types of toothpastes available in Malaysia, with growing number of non-fluoridated toothpastes. The cost of toothpaste varies greatly across brands. There is a lack of standardisation regarding labelling practice and recommendations of use which may place consumers and dental professionals at a disadvantage.

## P-61

### Perception of Tooth Carving in Clinical Dental Practice among Undergraduate Dental Students: A Pilot Study

**Gun Sheh Tat, Gan Chen Wei, Guee Yuxin, Hanis Masyitah Mohd Said,  
Anitha Krishnan Pandarathodiyil, Md Nurul Islam**

Faculty of Dentistry, SEGi University, Kota Damansara, Selangor Malaysia.

Email: [bobbeyrabbit@gmail.com](mailto:bobbeyrabbit@gmail.com), [anithakrishnan@segi.edu.my](mailto:anithakrishnan@segi.edu.my), [mdnurul@segi.edu.my](mailto:mdnurul@segi.edu.my),  
[smithgcw@gmail.com](mailto:smithgcw@gmail.com), [y\\_xinguee@hotmail.com](mailto:y_xinguee@hotmail.com), [hanismasyitah95@gmail.com](mailto:hanismasyitah95@gmail.com)

Teaching methods in dental anatomy include observation and analysis of the morphological features of natural teeth and reproducing them on wax blocks through the technique of carving. As far as we are aware, there has not been such a study in Malaysia to evaluate the perception of tooth carving and its usefulness in future years for dental students. **Objectives:** This study assessed the perceived importance of tooth carving in clinical dental practice, including simulation labs, among undergraduate dental students. **Material and Methods:** This cross-sectional study involved 150 Years 2 to 5 students who have experienced tooth carving during their year 1 dental anatomy practical sessions. A close-ended questionnaire with 12 items on a 5 point Likert scale was adapted and modified from previous studies for this study. The questionnaire was distributed among students and there were 150 responses. Items ranged from interest in tooth carving, opinion on the practical significance and recommendations regarding tooth carving. Data was analysed as percentages using SPSS V22.0. **Results:** About half (46.6%) agreed that tooth carving helped in developing manual dexterity, 30.7% strongly agreeing. A total of 42.6% agreed that tooth carving helped them recognize morphological features of teeth in later years, while 1.1% strongly disagreed. Only 4% found tooth carving as 'not very useful overall', whilst 31.3% remained neutral. **Conclusion:** This survey suggests that manual dexterity can be developed through tooth carving exercises. However, a larger study sample is required to further validate our research findings.

## P-62

### Comparison of Colour Stability of Two Commercially Available Rapid Heat-Cured Acrylic Resins

**Chong ZW<sup>1</sup>, Chee TY<sup>1</sup>, Lim GS<sup>2</sup>, Ahmad SF<sup>2</sup>**

<sup>1</sup>Faculty of Dentistry, University of Malaya, Kuala Lumpur, Malaysia, <sup>2</sup>Department of Restorative Dentistry, Faculty of Dentistry, University of Malaya, Kuala Lumpur, Malaysia.

Emails: [ziwei106@siswa.um.edu.my](mailto:ziwei106@siswa.um.edu.my), [tsuiyan@siswa.um.edu.my](mailto:tsuiyan@siswa.um.edu.my), [g.s.lim@um.edu.my](mailto:g.s.lim@um.edu.my), [sfauzza@um.edu.my](mailto:sfauzza@um.edu.my)

Rapid heat-cured acrylic resin is the current advancement in denture base material. Colour stability of acrylic resin is crucial for aesthetic purpose. **Objective:** To compare colour stability of two commercially available rapid heat-cured acrylic resins, Acron Express (Kemdent, UK) which is ISO certified, with Fast Heat Curing (Huge Dental, China) which is non ISO certified using different flask cooling methods at different thermocycling cycles. **Methodology:** A total of 75 specimens were prepared and divided into 5 groups (A1, F1, F2, F3, F4). Each group consisted of 15 specimens. A1 was prepared using Acron Express followed manufacturer's flask cooling method. Specimens prepared using Fast Heat Curing were further divided into four groups (F1, F2, F3, F4) using different flask cooling methods. F1 followed manufacturer's flask cooling method while F2, F3, F4 used three alternative shorter period of flask cooling methods. Specimens were subjected to aging in thermocycling machine. Colour of specimens were measured by CIE L\*a\*b\* using spectrophotometer at baseline and after 500, 1000 and 1500 thermocycling cycles. The colour changes ( $\Delta E$ ) of all groups were then calculated, analysed and compared. **Results:** Independent Samples t-Test showed no significant difference ( $t=0.400$ ,  $p>0.05$ ) between the colour stability of F1 and A1. Different flask cooling methods showed statistically insignificant ( $p>0.05$ ) effect for colour stability of Fast Heat Curing. The most to least colour-stabled acrylic resin groups were F1, F4, F3, F2 followed by A1. **Discussions:** 500, 1000 and 1500 thermocycling cycles in this study simulated four months, eight months and one year intraoral wearing period respectively. Colour changes of all groups of acrylic resins within one year wearing were clinically acceptable ( $\Delta E \leq 3.7$ ). **Conclusion:** Both Acron Express and Fast Heat Curing were comparable and had acceptable colour stability within one year wearing period regardless of flask cooling method.

## P-63

### Perceived Stressor among Dental Postgraduate in Klang Valley

**Md Amin M<sup>1</sup>, Azmimurad AM<sup>1</sup>, Abdul Halim R<sup>2</sup>, Noor E<sup>3</sup>**

<sup>1</sup>Undergraduate Dental Student, Faculty of Dentistry, Universiti Teknologi MARA; <sup>2</sup>Centre for Paediatric Dentistry and Orthodontics Studies, Faculty of Dentistry, Universiti Teknologi MARA; <sup>3</sup>Postgraduate Director for Doctor of Clinical Dentistry (Periodontology), Faculty of Dentistry, Universiti Teknologi MARA

Email: [masturina.amin@gmail.com](mailto:masturina.amin@gmail.com), [maizananis@gmail.com](mailto:maizananis@gmail.com), [erninoor@gmail.com](mailto:erninoor@gmail.com), [rohaida.halim@gmail.com](mailto:rohaida.halim@gmail.com)

To identify the perceived stressor among dental postgraduate clinical residents in Klang Valley. **Materials and methods:** One hundred and twenty-six postgraduate residents (PG) were invited to participate in the study via online survey. Among the 126, only 30 (23.8%) responded to the questionnaires. **Result:** Majority of the respondent (80%) were females and the mean age was 31 (SD=62.64). The result showed that 53.3% of the PGs reported they were stressed, with female (87.5%) being more stressed than males but this was statistically non-significant. Main contributor for elevated stress levels were found to be (i) lack of time for relaxation and neglect of personal life (86.7%), (ii) too much workload inadequate time (93.3%), and (iii) stress of academic activities like seminar and case presentation (100%). Hanging out with friends (83.3%) and music (76.7%) were found to be the most preferred option to cope with stress. **Conclusion:** The current study found PGs clinical residents in 3 selected universities in Klang Valley have high level of stress. The findings of this study further support the need to consider re-evaluation and improvement of the curriculum design in order to minimize students' stress level.



## P-64

### The Effect of Dental Caries in Children on the Colonization of *Candida* species

**Muhammad Hazzim Kosnin<sup>1</sup>, Harina Akila Che Hussin<sup>1</sup>, Nadiah Arshad<sup>1</sup>,  
Ahmad Faisal Ismail<sup>2</sup>, Zurainie Abllah<sup>2</sup>, Mohd Hafiz Arzmi<sup>3</sup>**

<sup>1</sup>Student, Kulliyyah of Dentistry, International Islamic University Malaysia; <sup>2</sup>Department of Paediatric Dentistry and Dental Public Health, Kulliyyah of Dentistry, International Islamic University Malaysia; <sup>3</sup>Department of Fundamental Dental and Medical Sciences, Kulliyyah of Dentistry, International Islamic University Malaysia.

Email: [hazzim0706@gmail.com](mailto:hazzim0706@gmail.com), [hafizarzmi@iium.edu.my](mailto:hafizarzmi@iium.edu.my)

**Objective:** To determine the effect of caries towards colonization of *Candida* spp. **Methods:** To assess the colonization of *Candida* spp. in the oral cavity of paediatric patient, samples were obtained from 30 subjects aged five to six years old from International Islamic University Malaysia (IIUM) Dental Clinic and Adik Arif Kindergarten in Kuantan, Pahang, Malaysia. The samples were collected from buccal mucosa, palate and tooth surfaces using sterile swab. In addition, 10 mL of patient's saliva suspension was also collected. Following that, the samples were inoculated aseptically on CHROMagar and incubated for 24 h to 48 h at 37 °C. Finally, the colour, morphology and colony forming unit were determined. **Results:** This study has shown that no *C. albicans* was isolated from caries-free oral cavity. Meanwhile, 76% of children with caries possessed *Candida* spp. in their oral cavity with 65% of *Candida* spp. isolated was from the tooth surface. Only 35% of the total isolates were obtained from soft tissues including palatal and buccal mucosa. In addition, 82% and 67% of the yeast isolated from the tooth surface and buccal mucosa, respectively were *C. albicans*. Meanwhile, only *C. albicans* ( $1.2 \pm 0.5 \times 10^5$  cfu mL<sup>-1</sup>) was isolated from saliva of children with caries. **Conclusions:** Dental caries enhance the colonization of *Candida* spp. particularly *C. albicans* in children's oral cavity.

## P-65

### Comparison of Microleakage in Coloured Composite and Giomer: An In-Vitro Study

Nabila Nadia Naharuddin, Muhammad Sanim Satri, Ng Jia Hui,  
Muhammad Anwar Khalid, Prashant Choudhary

Faculty of Dentistry, SEGi University

Email: [nadianaha@gmail.com](mailto:nadianaha@gmail.com), [prashantchoudary@segi.edu.my](mailto:prashantchoudary@segi.edu.my)

**Objectives:** Recently a variety of colored flowable composites have been introduced commercially to improve patient acceptance in the current concept of minimal invasive cavity designs like Conservative Adhesive Restorations (C.A.R). This in-vitro study was designed to evaluate the microleakage and sealing ability of these colored composites in C.A.R type 2 restorations and compare them with commonly used Giomer. **Methods:** A total of 40 extracted premolars were randomly assigned to four groups of 10 each. C.A.R type 2 cavities were prepared and restored with one material per group - Giomer, pink-, green- and blue-coloured composites. The teeth were thermocycled, subjected to 0.3% methylene blue dye penetration and then sectioned. The cut sections were evaluated under a stereomicroscope. Data was analysed using Chi-square and Kruskal-Wallis tests in SPSS V22.  $P < 0.05$  was considered significant. **Results:** The lowest percentage of microleakages was found in blue-coloured composite group (30%) compared with other groups; pink (70%), green (60%) and Giomer (60%) group. This was significant ( $P = 0.047$ ). However, there was no significant difference in the grades of micro-leakage among the four groups with Kruskal-Wallis test ( $P = 0.253$ ). **Conclusions:** All groups showed microleakages, with blue-coloured composite having the least. As coloured composites are relatively new, more studies are needed to have a better idea of this new material.

## P-66

### Identification of Microbial Population Isolated from UiTM Dental Students' Mobile Phones

Anuwa AA<sup>1</sup>, Kharuzhar AM<sup>1</sup>, Harun N<sup>1</sup>, Hassan EH<sup>2</sup>

<sup>1</sup>Centre of Oral and Maxillofacial Diagnostics and Medicine, Faculty of Dentistry, Universiti Teknologi MARA, <sup>2</sup>Centre of Preclinical Science Studies, Faculty of Dentistry, Universiti Teknologi MARA

Email: [nissaazfa223@gmail.com](mailto:nissaazfa223@gmail.com), [encikmirul96@yahoo.com](mailto:encikmirul96@yahoo.com), [drharnani@salam.uitm.edu.my](mailto:drharnani@salam.uitm.edu.my), [eddyhasrul@uitm.edu.my](mailto:eddyhasrul@uitm.edu.my)

**Objectives:** The aim of this study was to assess the awareness level of mobile phone hygiene practice and to identify different types of microbial population isolated from UiTM dental students' mobile phones; among preclinical and clinical students. **Materials and Methods:** 80 students; 40 each from preclinical and clinical years were randomly selected. A questionnaire assessing their awareness and mobile phone hygiene practice was distributed. Swabs were taken from the students' mobile phones using sterile cotton swab, cultured on nutrient agar and incubated for 24 to 48 hours. Bacterial colonies were harvested, transferred onto glass slide, gram-stained and viewed under light microscope. Data obtained were analysed using chi-square and t-test based on SPSS 25 program. **Results:** There was no significant difference in all parameters assessed in the questionnaire between the clinical and preclinical students. Bacterial contamination was identified on all 80 (100%) mobile phones. 38.75% (n=31) showed a single colony type, 41.25% (n=33) had two different colony types while 20% (n=16) of the cases grew three or more different colony types. Of all isolated bacteria, 83.75% (n=67) was gram positive while 16.25% (n=13) was 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 shape was coccus (82.5%), followed by bacillus (16.25%) and candida (1.25%). Coccus was further categorized into *Staphylococcus spp* (38.75%), followed by *Streptococcus spp* (30%), diplococcus (12.5%), and tetrad (1.25%). **Conclusions:** A high level of awareness but poor attitude towards mobile phone hygiene practice was observed among preclinical and clinical students. This study suggested that gram negative bacteria was mainly harbored in the dental clinics and simulation laboratory. The bacterial source conceivably originate from skin and oral region; and transferred onto the mobile phones by direct contact or through saliva splash.

## P-67

### Prevalence of Leukoedema and Fordyce's Granules in Patients Attending a University Centre

Fong Chan Yip, Choy Yip Seng, Chung Yi Vien, Goh Song Jia,  
Anitha Krishnan Pandarathodiyil

Faculty of Dentistry, SEGi University

Email: chanyip33\_fong@hotmail, [yipseng94@gmail.com](mailto:yipseng94@gmail.com), [yivienc@gmail.com](mailto:yivienc@gmail.com),  
[s\\_jia@live.com](mailto:s_jia@live.com), [anithakrishnan@segi.edu.my](mailto:anithakrishnan@segi.edu.my)

Fordyce's granules are yellow spots located on the oral mucosa as a result of ectopic sebaceous glands. Leukoedema, is a grayish-white lesion that characteristically appears on the buccal mucosa. Both these mucosal lesions are considered to be developmental oral lesions, anatomical variants rather than disease processes. There have not been prevalence studies of these two lesions per se in the recent past although prevalence of oral mucosal lesions among Malaysian outpatients has been studied. **Objectives:** This study assessed the prevalence of leukoedema and Fordyce's granules among dental patients attending a University Centre. **Methods:** A sample of 1000 was determined for this retrospective, cross-sectional study, based on the inclusion and exclusion criteria. The sample was limited to attendance of the patients during the past six months. The demographic details like gender, ethnicity and age were recorded. **Results:** The prevalence of Fordyce's granules was 3.7% (n=37) and leukoedema 0.4% (n=4). Fordyce's granules was found to be more prevalent among males 67.6% (n=25) when compared to female 32.4% (n=12), with a statistical significance of  $P < 0.05$ . Fordyce's granules were also found to be more prevalent in the Chinese population when compared to Malays and Indians ( $P = 0.168$ ). However, the difference was not statistically significant. Leukoedema had no statistical significance when compared by gender or ethnicity. **Conclusion:** Results of this study show that Fordyce's granules occur more frequently than leukoedema. Fordyce's granules are also found to be more predominant in males which is reported in previous studies. The lower prevalence of leukoedema and Fordyce's granules in our study could be due to unrecorded data in patients' folders as they are benign developmental anomalies than disease processes. Future investigations need be carried out with a much bigger sample size, as a prospective cross-sectional study to assess the true prevalence of these lesions.

## P-68

### See the C-Shaped Better: A Case Report

**Misni MK<sup>1</sup>, Ramlan NA<sup>2</sup>, Kamaruzaman M<sup>2</sup>**

<sup>1</sup>Faculty of Dentistry, Universiti Teknologi MARA, <sup>2</sup>Centre of Studies of Comprehensive Care, Universiti Teknologi MARA

Email: [khairiemisni16@gmail.com](mailto:khairiemisni16@gmail.com), [ainramlan@salam.uitm.edu.my](mailto:ainramlan@salam.uitm.edu.my),  
[marlena@salam.uitm.edu.my](mailto:marlena@salam.uitm.edu.my)

C-shaped canals were first reported in 1979 by Cook and Cox and named that way because of their cross-sectional root canal morphology. C-shaped canals are more commonly found in Asian especially Chinese compared to other ethnic groups and most frequently found in lower permanent second molar. One of the known causes for this variant is the failure of Hertwig's epithelial root sheath (HERS) to fuse on buccal or lingual root surface of the tooth. **Case history:** A 66-years-old healthy Malay man came to the clinic complaining about intermittent pain on his lower right molar, and upon intra-oral examination, tooth 47 was carious disto-occlusally and unresponsive to sensibility test. Intra-oral periapical (IOPA) radiograph revealed that the pulp chamber appears to be large in occlusal apical dimension with a low bifurcation. Diagnosis for the tooth was pulp necrosis with asymptomatic apical periodontitis. Root canal treatment (RCT) was indicated and initial treatment was done without magnification tools. Difficulty happened during access cavity to locate the canals thus dental operating microscope (DOM) was used. Class 1 C-shaped configuration was located and treatment was carried out until the placement of semi-permanent restoration with the aid of the microscope. **Discussion:** Due to the anatomical complexity, endodontic treatment in C-shape canal required more precision. Thus, the use of DOM with appropriate lighting aid in better visualization, improve quality and precision of treatment. Because of the large area of canal space that is doubtful to be properly instrumented and debride, therefore irrigation procedures is very important to clean the entire continuum of the isthmus area. Thermoplasticised or injectable materials is the most appropriate technique to obturate a C-shape canal. **Conclusions:** The case illustrates the importance of good magnification tools in endodontic treatment especially in C-shaped canals cases where anatomical complexity carry the most challenge in the treatment.

## P-69

**Influence of Ethanol Extract of Tuber Granting Ant (*Hydnophytum Formicarum*)  
against the Density of Collagen Fibers Wound Healing Post Extractions of Teeth  
Experimental Research on Male Guinea Pigs (*Cavia In Cobaya*)**

**Efa Ismardianita<sup>1</sup>, Andries Pascawinata<sup>2</sup>, Siti Velanita<sup>3</sup>**

Faculty of Dentistry Baiturrahmah University

Email: [efa\\_ismardianita@yahoo.co.id](mailto:efa_ismardianita@yahoo.co.id)

**Objective:** The purpose of this research is to know the influence of ethanol extract *Hydnophytum formicarum* granting against the density of collagen fibers wound healing post extractions of teeth. **Method:** This type of research is purely experimental design post-test only control group design. Research using Guinea Pigs tail 48 are divided into 4 groups, the control group and treatment I, II, III, each group consists of 3 tail *cavia in cobaya*. In the entire sample is carried out for the removal of 1 ppt, bottom left teeth further done the giving of CMC 0.5% per oral to the control group and the granting of extracts *Hydnophytum formicarum* dissolved with CMC 0.5% dose of 4.65 mg, 6.2 mg and 9.3 mg per oral each Guinea pig was given as many as 3 cc, 3 times a day until the day determination. On day 3, 7, 14 and 21 Guinea pig determination and histological preparations made with colouring HE. To see the difference in density of collagen fibers used one-way Anova test and, to see the significance between groups continued with test LSD. **Result:** The results of the research there is a meaningful difference between the control group with group p treatment, dose 0.05 < effective is 4, 65mg. **Conclusion:** Ethanol extract *Hydnophytum formicarum* can increase the density of collagen fibers on the healing process of wounds under the lifting gear and the effective dose is 4.65 mg.

## P-70

### **A Comparison of the Number of Colonies of Bacteria of Saliva and pH on the Toddler Early and Non-Early Childhood Caries after Consuming Infant Formula by Using a Bottle (Dot)**

**Dewi Elianora<sup>1</sup>, Busman<sup>2</sup>, Febri Mona Ayusa<sup>3</sup>**

Faculty of Dentistry Baiturrahmah University

Email: [dewi.elianora12345@gmail.com](mailto:dewi.elianora12345@gmail.com)

**Objective:** This study aims to determine the comparison number of colonies of bacteria of saliva and pH on the toddler early childhood caries and non-early childhood caries after consuming milk formula using a bottle (dot). **Method:** This research is a laboratory experimental research with cross sectional approach. The subjects in this study was the disciple of 2-4 year old PAUD Padang West Sumatera, consist 15 children and the children of Non ECC ECC who consume formula milk by using bottle (dot). From the 30 subjects were asked to collect saliva into a sterile container provided. Statistical analysis is using independent sample t-test. **Results:** he results showed that there was difference of pH and number of salivary bacterial colonies in under fives early childhood caries and non-early childhood caries after consuming milk formula by using bottle (dot) significantly ( $p < 0,05$ ). Significantly i.e. amount on toddler early childhood caries higher with an average of  $407.2 \times 10^{-4}/\text{ml}$  whereas in toddlers early childhood caries non lower average  $125.5 \times 10^{-4}/\text{ml}$ . Whereas pH saliva on toddlers early childhood caries acid with an average 6.2 and pH on toddlers early childhood caries non normally with an average of 6.9. **Conclusion:** There is a difference in the number of colonies of bacteria of saliva on the toddler early childhood caries and non-early childhood caries after consuming infant formula using the bottle (dot).



## P-71

### Prevalence of Smoking among Dental Students in Universiti Sains Malaysia

**Thittikkon Suvanpratum Laer<sup>1</sup>, Mohd Zulkarnain Sinor<sup>2</sup>,  
Rabihah Alawi<sup>3</sup>, Nor Aidaniza Abdul Muttlib<sup>4</sup>**

<sup>1</sup>Undergraduate student, School of Dental Sciences, USM Health Campus; <sup>2</sup>DPH Unit, School of Dental Sciences, USM Health Campus; <sup>3</sup>Conservative Unit Unit, School of Dental Sciences, USM Health Campus; <sup>4</sup>Prosthodontics Unit, School of Dental Sciences, USM Health Campus

Email: [thittikkonf3@gmail.com](mailto:thittikkonf3@gmail.com), [aidaniza@usm.my](mailto:aidaniza@usm.my), [zulkarnainsinor@usm.my](mailto:zulkarnainsinor@usm.my), [rabihah@usm.my](mailto:rabihah@usm.my)

Smoking was reported to linked with respiratory, cardiovascular, neurological and oral diseases. Recent trends suggest that young adults have risk of picking up smoking habit. Dental students has an importance role in promoting smoking cessation awareness while educating patients on oral disease prevention and general health promotion during their studies as well as after becoming dental practitioner. **Objective:** To determine the percentage of dental student in Universiti Sains Malaysia (USM) who smoke and to identify the possible risk factors associated with their smoking habit. **Methods:** Data on smoking habits, smoking factors, cessation plan and sociodemographic status is collected by 92 distributed questionnaires using convenience sampling method. Pearson Chi-Square test with P-value set at 0.05 with 95% confidence interval and logistic regression analysis were used to identify significant differences between groups and compute odd ratios respectively using SPSS version 24.0. **Results:** Our results showed that the prevalence of smoking is 6.5%. All current smokers were found to be male (6 person) with 83.3% are Malay and 16.7% are other races ( $p < 0.05$ ). There is higher likelihood of cigarette smoking if students originated from rural residency (OR = 9.75, 95% CI = 1.68-56.56) and those has close friends who smoked has 10 times tendency to become a smoker (OR = 10.29, 95% CI = 1.72- 61.69). **Conclusion:** Approximately one in every twenty undergraduate dental students at USM is a current smoker and it's associated with students' sex, race, original residency and having close friends who smoked.

## P-72

### Prevalence of Dental Developmental Anomalies among Patients Visiting SEGi Oral Health Centre

**Chong Min Yi, Chong Jing Yi, Chen Sze Min,  
Roojee Beebee Nafeesah Mohseen, Anand S Tegginamani**

Faculty of Dentistry, SEGi University

Email: [minyicmy@gmail.com](mailto:minyicmy@gmail.com), [chongjingyicassie@gmail.com](mailto:chongjingyicassie@gmail.com), [anandsiddappa@segi.edu.my](mailto:anandsiddappa@segi.edu.my),  
[nafissurooj@yahoo.com](mailto:nafissurooj@yahoo.com), [janellechen99@yahoo.com](mailto:janellechen99@yahoo.com)

Early diagnosis of dental anomalies is important to prevent possible complications associated with dental caries and periodontal disease. **Objective:** This study was to determine the prevalence of dental developmental anomalies among patients at a dental faculty. **Methods:** This was a cross-sectional study based on retrospective patient data on dental developmental anomalies. Data of 3,846 patients were recorded for 9 months. Data were tabulated based on the inclusion criteria of clinically evident developmental anomalies for structural anomalies, size and number. Anomalies that required radiographs like taurodontism, dilacerations, enamel pearl, concrescence, and supernumerary roots were excluded from the study unless found accidentally when radiographs were taken for other diagnostic reasons. Data were tabulated by gender and ethnicity and analysed using Pearson chi-square test. **Results:** 230 patients had dental developmental anomalies giving a prevalence of 6.0% of this gender breakdown was 50.9% males and 49.1% females; giving a significantly higher mean proportion of anomalies in males ( $P=0.025$ ,  $P<0.05$ ). Structural anomalies (Hypoplasia) was higher among Chinese (21.73%) followed by Indians (4.3%) and Malays (3.92%). Developmental anomalies affecting the size of the teeth (Microdontia) was higher among Chinese (9.58%) followed by Malays (3.91%) and Indians (0.86%). Whereas developmental anomalies affecting the number (supernumerary teeth) were more among Chinese (5.85%) followed by Malays (2.25%) and Indians (1.35%). **Conclusion:** Developmental anomalies are not common in occurrence. However, most of the patients with these anomalies were of concern with dental caries and periodontal disease. The association between the different dental anomalies may provide new insights into the etiological and genetic factors.

## P-73

### Temporomandibular Joint Disorders (TMD) among Workers in Selangor

Fouzi Z, Kamal Phami F, Rokhani F

Department of Oral Maxillofacial, Pathology and Medicine, Faculty of Dentistry, Universiti Sains Islam Malaysia.

Email: [fa\\_na9549@yahoo.com](mailto:fa_na9549@yahoo.com), [drfaezahr@usim.edu.my](mailto:drfaezahr@usim.edu.my), [zulfahmifouzi95@gmail.com](mailto:zulfahmifouzi95@gmail.com)

Temporomandibular joint dysfunction is well known associated with stress, however no documented data in Malaysia. **Objectives:** The aims of this cross sectional study are to assess 1. the prevalence of TMD, 2. to compare the stress level and TMD 3. to determine the correlation between type of works with TMD and stress 4. To determine the correlation between TMD and stress. 5. to assess the other risk factors and TMD among workers in Selangor. **Materials and methods:** A total number of 329 workers in Selangor were given a set of questionnaires that comprised of Demographic Questionnaire, Fonseca's Questionnaire (FQ), Modified DC/TMD Axis II and Perceived Stress 10(PSS10) Questionnaire. **Results:** The prevalence of TMD among workers in Selangor based on FQ is 6.38% for managers, 27.15% for professionals, 4.02% for technical occupation, 19.46% for administrative and secretarial and 48.98% for sales and customer services. By using Kruskal-Wallis, there is significance difference between TMD – stress and types of work – stress with p-value<0.05. However, there is no significance difference between type of work and TMD. By using Spearman test, there is correlation between TMD and stress. In this study, women and divorced people shows the highest mean rank of the occurrence of stress and TMD. **Discussion:** Though the subjects were 35 workers less compared the calculated sample size due to time and cost restriction, this study helps to understand further the trends of TMD among workers in Selangor. The prediction of types of work, stress and TMD aids in prevention of morbidity and lower work performance. **Conclusion:** Types of work predispose to certain level of stress but not a predisposing factor to have TMD. However, stress may cause TMD to occur and women and divorced people are highly reported for having high stress and TMD.

## P-74

### Effects of pH of Sports and Energy Drinks on Demineralisation of Dental Hard Tissue

**Joshua Lee Tzu Shiuan, Jan Ee Ven, Kamaleshewary Gunalan,  
Katrice Lim Xin Jie, Sulinda Daud**

Faculty of Dentistry, SEGi University Kota Damansara

Email: [joshualeesite@hotmail.com](mailto:joshualeesite@hotmail.com), [eevenjan@gmail.com](mailto:eevenjan@gmail.com), [kamaleshgunalan@yahoo.com](mailto:kamaleshgunalan@yahoo.com),  
[kat\\_rice95@hotmail.com](mailto:kat_rice95@hotmail.com), [sulinda@segi.edu.my](mailto:sulinda@segi.edu.my)

Sports and energy drinks are popular but are mostly acidic and prolonged contact may demineralise hard tooth tissues. **Objectives:** This in-vitro study evaluated the extent of tooth demineralisation caused by different sports drink **Methods:** Extracted permanent premolars were randomly allocated into 5 groups of 15 each. The pH of five beverages were measured. An electronic digital scale (OHAUS PIONEER™) was used to measure the differences in tooth weight before and after beverage exposure. Each group was assigned to one of the five respective solutions, immersed for 120 seconds, reflecting an average daily consumption. Each tooth was measured at the start of study and then daily before and after immersion. This procedure was repeated for 30 days. Data was analyzed using SPSS V22.0. Paired t-test and ANOVA were used.  $P < 0.05$  was considered significant. **Results:** For all samples, there were significant differences in weight before and after immersion ( $P < 0.001$ ). However, there was no difference between the five groups ( $P = 0.702$ ) **Conclusion:** Consumption of any beverage with low pH have significant demineralisation effect on teeth. However, it is beyond the scope of this study to characterize the exact relationship between the tooth storage medium and the exposed tooth surface.

## P-75

### Comparison and Evaluation of Dental Erosive Potential: Non-Nutritive Sweeteners Vs. Steviol Glycosides in Acidic Beverage

**Muhamad Adib AH<sup>1</sup>, Nur Aqilah MZ<sup>1</sup>, Mukarramah Z<sup>2</sup>, Rahayu Z<sup>2</sup>,  
Aimi Nadia R<sup>2</sup>, Izyan Hazwani B<sup>3</sup>**

<sup>1</sup>Faculty of Dentistry, UiTM Campus Sungai Buloh, Malaysia; <sup>2</sup>Centre of Preclinical Science Studies, Faculty of Dentistry, UiTM Campus Sungai Buloh, Malaysia; Research Methodology and Biostatistics, Faculty of Dentistry, UiTM Campus Sungai Buloh, Malaysia.

Email: [adibhalim19@gmail.com](mailto:adibhalim19@gmail.com), [qila.zainuri@gmail.com](mailto:qila.zainuri@gmail.com), [mukarramah@uitm.edu.my](mailto:mukarramah@uitm.edu.my), [rahayu88@salam.uitm.edu.my](mailto:rahayu88@salam.uitm.edu.my), [aimirazlan@uitm.edu.my](mailto:aimirazlan@uitm.edu.my), [izyan9192@uitm.edu.my](mailto:izyan9192@uitm.edu.my)

**Objectives:** In the last few decades, a huge transformation of the acidic beverages to meet consumer demand has been witnessed. The link of acidic beverage consumption and dental erosion is a well-known fact. However, the substitution of sucrose and high-fructose corn syrup (HFCS) by either non-nutritive sweeteners (NNS) or Steviol Glycosides in carbonated soft drinks remains unclear. Therefore, the objective of this in vitro study was to compare and evaluate dental erosive potential of NNS (Aspartame, Acesulfame-K, Sucralose) in Light Coke<sup>TM</sup> versus Steviol Glycoside in Stevia Coke<sup>TM</sup> by measuring amount of calcium released from enamel surface. **Methods:** This in vitro study involved 60 extracted healthy human premolar teeth. Samples were randomly assigned into five groups: Group 1: Classic Coke<sup>TM</sup> (pH 3.25±0.015), Group 2: Light Coke<sup>TM</sup> (pH 3.53±0.015), Group 3: Stevia Coke<sup>TM</sup> (pH 3.52±0.031), Group 4: Mineral Water (pH 7.24±0.161), Group 5: Distilled Water (pH 7.24±0.027). Group 1 act as positive control while group 4 and 5 represent as negative controls. Initially, characterization of beverages was done by analyzing pH level, titratable acidity and calcium content. Standard enamel surface area of 30 mm<sup>2</sup> were exposed in selected five beverages in 5-minute duration, three times in 4 hours' interval daily for four consecutive days. The erosive potential was determined by chemical measurement which are calcium released. Statistical analysis was done by using repeated measure ANOVA ( $p < 0.05$ ). **Results:** Amount of calcium released for Light Coke<sup>TM</sup> (533.51±8.30µg/ml) showed the highest value compared to Stevia Coke<sup>TM</sup> (143.26±8.76µg/ml), which was directly proportional to the titratable acidity results. Repeated measure ANOVA displayed statistical significance difference in all tested carbonated soft drinks  $p < 0.05$ . **Conclusions:** Utilization of natural sweetener (Steviol Glycoside) in carbonated soft drinks bring a beneficial impact in-terms of lessen dental erosion potential compared to NNS, sucrose and high-fructose corn syrup (HFCS).

## P-76

### Bail Out Using Brains: Teaching & Learning in Dentistry through Games

**Priyadarshini HR, Daniel Dicksit, Khairiyah Abd Muttalib, Basuri Faki**

Dental Public Health, Faculty of Dentistry, SEGi University, Kota Damansara, Malaysia

Email: [priyadarshiniramamurthy@segi.edu.my](mailto:priyadarshiniramamurthy@segi.edu.my)

**Objectives:** To conduct a revision of topics in the subject of dental public health, using gamification method. **Methods:** A game called “Bail out using Brains” was designed to revise some topics in dental public health. The participants were year 4 undergraduate students of Faculty of Dentistry, SEGi University. The batch of 50 students was divided into 5 groups of 10 each. The students were made to sit in a room-the so called “prison”. One representative from each group was made to sit in a different room to answer questions related to the topics. The type of questions asked were objective type. Every correct answer bailed out another person from their team. All students in the prison could see and hear their representatives through video conferencing, which helped them to listen to the questions asked. A treasure hunt was organized at the end which contained questions with more difficulty levels. The team which bailed out all its members first by answering maximum correct answers was declared as winners. Students’ feedback was obtained using an online evaluation form. All data were expressed as percentages. **Results:** A total of 46 students participated in the game. Most of the teams managed to answer about 75% of the questions asked. The team with 85% of correct answers were declared winners. The results from the feedback form showed that about 95% of the participants agreed that learning through games would help them apply their knowledge, improve critical thinking, team work and communication skills. About 90% of them agreed that they would like to have more of such activities in future. **Conclusions:** Gamification can be a useful way of revising topics with students. Carefully designed games to stimulate individual thinking and also to encourage team work, could be effective alternative teaching methods that students may embrace positively.

## P-77

### First Consultation of the Cleft Lip and/or Palate Newborn: Is it of Good Quality?

Tan YS<sup>1</sup>, Tan YL<sup>1</sup>, Marhazlinda J<sup>2</sup>

<sup>1</sup>Faculty of Dentistry, University of Malaya, Kuala Lumpur, Malaysia; <sup>2</sup>Department of Community Oral Health & Clinical Prevention, Faculty of Dentistry, University of Malaya, Kuala Lumpur, Malaysia.

Email: [shern\\_tan@hotmail.com](mailto:shern_tan@hotmail.com), [marhazlinda@um.edu.my](mailto:marhazlinda@um.edu.my), [yitlin@live.com](mailto:yitlin@live.com)

During the vulnerable period of the birth of a baby with cleft lip and/or palate (CLP), the quality of the first consultation is paramount for the parents who need support and encouragement to adapt to their child's condition. **Objectives:** This study aimed to assess parents' experiences of the quality of the first consultation specifically the timing, sources, content, and the delivery, and to determine factors associated with it. **Methods:** A survey using a validated self-administered questionnaire was done among forty parents of CL/P children aged five-year-old and below attending the Combined Cleft Clinic, the University of Malaya between March to August 2018. Descriptive statistics and Chi-square tests with the level of significance of 0.05 were performed. **Results:** Participants comprised of more biological mothers (58%) and mostly were Malay (75%). Their mean age was 33-year-old while their child's mean age was two-year-old, mostly with CLP (65%), and no family history of a cleft. A majority (88%) received the first consultation held mostly at the government hospital (45%). The median time of the first consultation was two days after birth, believed as the right time by most parents (77%). Delivered by CLAPAM (32%), gynecologists and oral-maxillofacial surgeons (30%), CLAPAM and oral-maxillofacial surgeons were suggested mostly to hold the first consultation. Although most parents (>70%) has received information on reasons for cleft, management, treatment and hearing, almost half (45%) was not briefed about parents' association while almost one-third (30%) was not advised on diet and feeding. The majority, however, were satisfied with the information (85%), delivery (87.5%), and how their concerns being addressed (85%). Relationship with the child and birth order significantly associated with the quality rating of the consultation. **Conclusions:** The quality of the first consultation of the CLP newborn ranged from moderate to good and was influenced by parents and child's characteristics.



## P-78

### First Consultation of the Cleft Lip and/or Palate Newborn: What Information do Parents Critically Need?

Tan YL<sup>1</sup>, Tan YS<sup>1</sup>, Marhazlinda J<sup>2</sup>

<sup>1</sup>Faculty of Dentistry, University of Malaya, Kuala Lumpur, Malaysia; <sup>2</sup>Department of Community Oral Health & Clinical Prevention, Faculty of Dentistry, University of Malaya, Kuala Lumpur, Malaysia.

Email: [yitlin@live.com](mailto:yitlin@live.com), [marhazlinda@um.edu.my](mailto:marhazlinda@um.edu.my), [shern\\_tan@hotmail.com](mailto:shern_tan@hotmail.com)

The birth of a baby with a cleft lip and/or palate (CL/P) is very challenging for the parents. The first consultation, therefore, is vital to reduce the anxiety and uncertainty of the parents and to facilitate parental adaptability. However, too much information at a time may overwhelm the parents; thus, identifying essential information needed by the parents during their child's early days of life is crucial. **Objectives:** This study aimed to determine critical information required by the parents on their child's early days (1- 3 days) of life, and to investigate factors associated with it. **Methods:** A survey using a validated self-administered questionnaire was conducted among parents of CL/P children aged five-year-old and below attending the Combined Cleft Clinic, the 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:** Forty parents with a mean age of 33-year-old had participated in this study. Mean age of the child was two-year-old. Most have CLP, no family history of a cleft, and not the first-born child. Feeding, feeding difficulties, recognizing signs-symptoms of danger/illness, treatment plan, prognosis, surgical procedure, and schedule were the most critical information required during child's early days of life reported by the parents. Physical examination, education on cleft, and psychosocial issues were helpful but less critical or could wait until later. Parents' gender, child's birth order, and cleft's severity were significantly associated with the criticality of cognitive development, speech impairment, recognizing danger/illness, the chance of being a normal child, feeling sad or shock, and financial topics. **Conclusions:** Of all the information, the parents reported home management, cleft management, and treatment prognosis as the most critical to be heard at early days of their newborn. Parents and child characteristics significantly influenced the criticality of the information.

## P-79

### The Use of Song and Superhero in Oral Health Education Targeting Pre-schoolers

**Foong Yeong Jui<sup>1</sup>, Adlina Yosri<sup>1</sup>, Roslan Saub<sup>2</sup>, Norintan Ab-Murat<sup>2</sup>**

<sup>1</sup>Faculty of Dentistry, University of Malaya, Kuala Lumpur, Malaysia; <sup>2</sup>Department of Community Oral Health and Clinical Prevention, Faculty of Dentistry, University of Malaya

Email: [yjfoong96@gmail.com](mailto:yjfoong96@gmail.com), [norintan@um.edu.my](mailto:norintan@um.edu.my)

**Objectives:** To explore the use of a song and a superhero in oral health education (OHE) activities for preschool children aged 4-6 in Malaysia's rural community, and to evaluate its effectiveness in enhancing children's oral health knowledge and behaviour in oral disease prevention. **Methods:** This project was part of a community-based dental curriculum which was compulsory for all Year 4 dental students of University of Malaya. All preschool children (N= 69) attending Tabika Kemas, located in a rural area in Pahang, participated in this project. Situational analysis data showed that the children's knowledge and behaviour related to oral health practices were commendable, but could be improved further. We changed the lyrics of a song from the popular Didi & Friends cartoon series, and modified it into a toothbrushing song, with keywords that emphasised on the technique, frequency and time. The song was repeatedly played and sung throughout the OHE session. One dental student acted as a superhero (Kapten Berus) by donning a makeshift mask and suit, and through a drama play, important information on oral health were conveyed to the children. The effectiveness of using a song and a superhero in enhancing knowledge and behaviours was evaluated through observation and pre-post quizzes. **Results:** The use of a song and a superhero maximized children's engagement and interest in the OHE session. The pre-post quizzes' results showed that there were improvements in the children's overall oral health knowledge and behaviour. **Conclusions:** Repetition of song seems to enhance the impact of OHE, through enhancing both knowledge and behaviour. Young children are usually at the stage of developing concepts of good and bad, hence a superhero character appear to assist them in adopting good oral health behaviours.

## P-80

### Comparative Outcomes of Regenerative Endodontic Therapy for Non-vital Immature Permanent Teeth: A Case-series

Said HM, Bustami KA, Mani SA, Shoaib LA

Paediatric Dentistry and Orthodontics Dept., Faculty of Dentistry, University of Malaya,  
Kuala Lumpur, Malaysia

Email: [drhabibahmdsaid@gmail.com](mailto:drhabibahmdsaid@gmail.com), [drkhairunnisa@iium.edu.my](mailto:drkhairunnisa@iium.edu.my), [shani@um.edu.my](mailto:shani@um.edu.my),  
[lilyazura@um.edu.my](mailto:lilyazura@um.edu.my)

Management of non-vital immature teeth posing a great challenge to endodontic treatment however has been relatively successful with the traditional approach of apexification using calcium hydroxide-based material and the more recent use of Mineral Trioxide Aggregate (MTA) as a physical barrier prior to root canal obturation. **Case report:** A case-series of three patients attending to the clinic presented with non-vital tooth; one of which presented with facial abscess secondary to infected dens invaginatus (type II) of tooth 22, and two patients presented with open apices traumatized incisors. Regenerative Endodontic Therapy (RET) was successfully carried out in all patients using MTA and showed healing with different outcomes. **Follow-up:** Post-operative reviews revealed that one case has significant apical closure within 6 months; while traumatized teeth healed without closure of apices after one-year. **Conclusion:** Regenerative Endodontic Treatment (RET) is an ideal treatment options used in management of non-vital immature permanent teeth. However, it poses significant healing outcomes in different types of causative factors. Proper diagnosis and early interventions contributed to excellent treatment outcomes in young children with non-vital immature permanent teeth.

## P-81

### Assessment of Extra Oral Soft Tissue, 3D Airway Volume and Quality of Life (QoL): A Monoblock Therapy Appliance in Obstructive Sleep Apnea (OSA) Study

**Hazni MS<sup>1</sup>, Roziana MR<sup>2</sup>, Mohd Yusof ZY<sup>3</sup>, Ibrahim N<sup>4</sup>, Abu Bakar MZ<sup>5</sup>**

<sup>1</sup>Faculty of Dentistry, University of Malaya, K. Lumpur, Malaysia; <sup>2</sup>Department of Paediatric Dentistry and Orthodontics, Faculty of Dentistry, University of Malaya; <sup>3</sup>Department of Community Oral Health & Clinical Prevention, Faculty of Dentistry, University of Malaya; <sup>4</sup>Department of Oro-Maxillofacial Surgical & Medical Sciences, Faculty of Dentistry, University of Malaya; <sup>5</sup>Department of Otorhinolaryngology, Faculty of Medicine, University of Malaya.

Email: [shuk98@gmail.com](mailto:shuk98@gmail.com), [rozirazi@um.edu.my](mailto:rozirazi@um.edu.my), [zamros@um.edu.my](mailto:zamros@um.edu.my),  
[norlizaibrahim@um.edu.my](mailto:norlizaibrahim@um.edu.my), [abzulkiflee@um.edu.my](mailto:abzulkiflee@um.edu.my)

**Objectives:** 1) To assess the efficacy of monoblock in treating patients with mild to moderate OSA in terms of 3D pharyngeal airway measurement and extra oral soft tissue for pre-and post-treatment use of CBCT data set. 2) To evaluate changes in the QoL among patients 6 months post-treatment. **Methods:** 19 OSA patients who underwent polysomnography, met the inclusion and exclusion criteria were recruited from ENT clinic, University of Malaya Medical Centre (UMMC). They were given the sleep apnea QoL questionnaire (SAQLI) at T0, T1, T2 and T3 visit. Single operator was calibrated with a gold standard clinician. Patients received a mandibular monoblock appliance, titrated at 60% of maximum mandibular protrusion with 5mm vertical opening between upper and lower incisors. CBCT imaging taken at T1 and T3 visit. T3 data was collected 6 months post-treatment. **Results:** 19 patients (n=7 male, n= 12 female) diagnosed with mild to moderate OSA were recruited. All 4 domains of questionnaire (SAQLI) showed low QoL in OSA patients. Most of the individual domain score and the patients' mean SAQLI were found significantly improved after 6 months of monoblock wear. The overall mean score at T0=3.3, T3=5.8. The inter and intra correlation coefficient of 3-dimensional airway volume was 0.98 and 0.99 respectively. The inter correlation coefficient of the angle between Sn-Pog, and C point-Me was 0.98 and intra coefficient correlation was 0.99. **Conclusion:** OSA impair all aspects of patient's QoL including physical, emotional health and social functioning. However, with the monoblock mandibular advancement device, patient's QoL was greatly improved.

## P-82

### Oral Health Care Practise and Knowledge of Parents with Autism Spectrum Disorder (ASD) Children Attending Special Education Program Centre

**Nur Amirah Hamid, Nur Fatin Faqhira Jalani, Izyan Hazwani Baharuddin,  
Ilham Wan Mokhtar**

Centre of Studies for Comprehensive Care, Faculty of Dentistry, Universiti Teknologi MARA

Email: [amirah\\_laseradial@yahoo.com](mailto:amirah_laseradial@yahoo.com), [nurfatinfaghira96@gmail.com](mailto:nurfatinfaghira96@gmail.com),  
[ilham@salam.uitm.edu.My](mailto:ilham@salam.uitm.edu.My), [izyan9192@uitm.edu.my](mailto:izyan9192@uitm.edu.my)

**Objective:** To assess parental oral health practise and knowledge towards their ASD children. **Methods:** A 13-item of self-administered questionnaire of World Health Organization (WHO) Oral Health Questionnaire for Children (Annex 8) is administered to parents from four different special education program centre named Pusat Permata Kurnia Kuala Lumpur, Pusat Pemulihan Dalam Komuniti Puncak Alam, Qamara Sensory Therapy and Intervention Centre Sungai Buloh and Pusat Jagaan & Latihan Insan Istimewa Subang Jaya. Data were analysed using SPSS version 24 for descriptive analysis. **Results:** Eighty-seven parents were recruited. All children were diagnosed with any kind of ASD during the data collection. The age range of the children is between 3 – 17 years old consist of 68 boys and 19 girls. Equal percentage of parents reported that both their child's teeth and gum health were excellent with 4.6%. 44.3% reported as good followed by 42% as average and 9.2% stated as poor for teeth while 4.6% poor for the gum. 35.6% parents stated that they had never brought their child to seek for dentist care within the past 12 months. However, 77% parents do clean their child's teeth at least once a day. In terms of diet practise, majority of the parents choose to give their children sweet snacks such as biscuits, cream cakes and buns (95.4%) and more than half of them do give fruits as a snack at least once a week (56.3%) . 33.3% of the children are caries free. **Conclusion:** The oral health care practises and knowledge of parents with ASD are considered as above average. However, there is a space for improvement for empowerment pertaining dental visits.

## P-83

### Influence of Various Sugar Types in Acidic Beverages on Dental Erosion: A Laboratory Investigation

Nur Aqilah MZ<sup>1</sup>, Muhamad Adib AH<sup>1</sup>, Mukarramah Z<sup>2</sup>, Rahayu Z<sup>2</sup>,  
Aimi Nadia R<sup>2</sup>, Izyan Hazwani B<sup>3</sup>

<sup>1</sup>Faculty of Dentistry, UiTM Campus Sungai Buloh, Malaysia; <sup>2</sup>Centre of Preclinical Science Studies, Faculty of Dentistry, UiTM Campus Sungai Buloh, Malaysia; Research Methodology and Biostatistics, Faculty of Dentistry, UiTM Campus Sungai Buloh, Malaysia.

Email: [adibhalim19@gmail.com](mailto:adibhalim19@gmail.com), [qila.zainuri@gmail.com](mailto:qila.zainuri@gmail.com), [mukarramah@uitm.edu.my](mailto:mukarramah@uitm.edu.my), [rahayu88@salam.uitm.edu.my](mailto:rahayu88@salam.uitm.edu.my), [aimirazlan@uitm.edu.my](mailto:aimirazlan@uitm.edu.my), [izyan9192@uitm.edu.my](mailto:izyan9192@uitm.edu.my)

**Objectives:** Dental erosion is increasing especially in developed country. The main etiological factor is due to consumption of acidic beverages. Due to health conscious, the beverage manufacturers used either non-nutritive sweeteners (NNS) or recently Steviol Glycosides (SG) to substitute sucrose and high-fructose corn syrup (HFCS). The certainty of these sweetener on the potential cause of dental erosion is not much being study. Therefore, the objective of this in vitro study was to assess the dental erosion potential related to NNS (Aspartame, Acesulfame-K, Sucralose) in Light Coke<sup>TM</sup>, and SG in Stevia Coke<sup>TM</sup> on 60 extracted healthy premolar teeth. **Methods:** Teeth specimens were randomly distributed into three set of five groups (n=4): Group 1: Classic Coke<sup>TM</sup> (pH 3.25±0.015), Group 2: Light Coke<sup>TM</sup> (pH 3.53±0.015), Group 3: Stevia Coke<sup>TM</sup> (pH 3.52±0.031), Group 4: Mineral Water (pH 7.24±0.161), Group 5: Distilled Water (pH 7.24±0.027). Group 1, 2 and 3 represents as experimental groups while the rest act as controls. Characterization of tested drinks was done by analyzing pH value and titratable acidity followed by teeth immersion in tested drinks. 30mm<sup>2</sup> enamel surface area of premolar teeth were exposed in selected five beverages in 5-minute duration, three times in 4 hours interval daily for four consecutive days (constant stirring, 70rpm). The erosive potential was determined by measuring teeth weight loss. Repeated measure ANOVA was run with  $p < 0.05$  was considered as significance. **Results:** Dental weight loss for Light Coke<sup>TM</sup> showed the highest value followed by Classic Coke<sup>TM</sup> and Stevia Coke<sup>TM</sup> which tally with the titratable acidity results. Repeated measure ANOVA pre- and post-immersion results displayed statistical significance difference in all tested acidic beverages. **Conclusions:** Substitution of sweeteners types in acidic beverages do give a different influence on teeth erosion. SG can be proposed as future sweetener substitute in acidic beverages to reduce dental erosion.

## P-84

### Comparing the Resin Penetration Depth and Nanoleakage of Three Different Bonding Systems in Class V Cavities

Vei Xhion Tan<sup>1</sup>, Jun Hong Tan<sup>1</sup>, Hanan Omar<sup>2</sup>, Liang Lin Seow<sup>3</sup>, Umer Daood<sup>3</sup>

<sup>1</sup>School of Dentistry, International Medical University, <sup>2</sup>Missouri School of Dentistry and Oral health (MOSDOH) – ATSU, <sup>3</sup>Clinical Dentistry, Restorative Division, Faculty of Dentistry, International Medical University Kuala Lumpur, 126, Jalan Jalil Perkasa 19, Bukit Jalil, 57000 Bukit Jalil, Wilayah Persekutuan Kuala Lumpur, Malaysia

Email: [tan.veixhion@student.imu.edu.my](mailto:tan.veixhion@student.imu.edu.my), [umerdaood@imu.edu.my](mailto:umerdaood@imu.edu.my), [lianglin\\_seow@imu.edu.my](mailto:lianglin_seow@imu.edu.my), [tan.junhong@student.imu.edu.my](mailto:tan.junhong@student.imu.edu.my)

**Objectives:** The objective of this study was to compare resin adhesive penetration depths and nanoleakage of three different resin adhesive systems in Class V cavities using Raman spectroscopy and nanoleakage. **Methods:** Kerr Optibond™ S (total-etch), 3M Adper™ Easy Bond Self-Etch Adhesive (self-etch) and 3M ESPE Single Bond Universal (Universal; used in self-etch mode) were used in this study. Class V Cavities were prepared on buccal and lingual surfaces of sound maxillary premolars. Resin adhesives were applied following manufacturers' instructions. All teeth were then restored with shade A3 composite-resin (Filtek Z-350, 3M ESPE, St. Paul, MN, USA). Teeth were sectioned occluso-gingivally in a bucco-lingual direction to produce 1 mm thick sections ( $n=9$ ). Specimens for resin penetration depth were analysed with micro-Raman spectroscopy across resin-dentine interface. The CH<sub>2</sub> alkyl group at 605 cm<sup>-1</sup> was selected as a measure of resin-dentine adhesive penetration. Specimens for nanoleakage were stored in ammoniacal silver nitrate. After storage, the nanoleakage specimens were examined using scanning electron microscopy. **Results:** Maximum resin penetration depth decreases in the order of total etch > universal > self-etch. The depths achieved for the specimens are as follows: total-etch adhesive specimens, 14µm; self-etch adhesive specimens, 10 µm; and universal adhesive specimens, 12 µm. Additionally, silver depositions were found in the hybrid layer of all nanoleakage specimens, with the total-etch adhesives group showing the least silver particle deposition along the resin-dentine interface. The differences observed in resin penetration and nanoleakage of three tested adhesive systems were postulated to be related to the method of application, ethanol concentration and stability of the resin-dentine hybrid layer. **Conclusion:** Within the limitations of the present study, the adhesive system using total-etch technique appeared to be the preferred choice with deeper resin penetration and least nanoleakage.



## P-85

### Effect of Silver Incorporation on Physiochemical Properties and Antibacterial Activity of Hydroxyapatite Nanoparticles

Mohd Faiz Mohd Yusoff<sup>1</sup>, Noor Hayaty Abu Kasim<sup>2</sup>, Zamri Radzi<sup>1</sup>

<sup>1</sup>Department of Paediatric Dentistry and Orthodontics, Faculty of Dentistry, University of Malaya; <sup>2</sup>Department of Restorative Dentistry, Faculty of Dentistry, University of Malaya

Email: [faiz.mohd.yusoff@gmail.com](mailto:faiz.mohd.yusoff@gmail.com)

**Objectives:** The objective of this cross sectional study was to investigate the effect of silver incorporation on physical properties and antibacterial activity of hydroxyapatite nanoparticles. **Methods:** Microwave assisted wet-precipitation method was used to produce Ag-HA nanoparticles with different Ag concentration (HA, 3 Ag-HA, 6 Ag-HA and 9 Ag-HA). The synthesized nanoparticles were then subjected to several physical characterization analyses: XRD, FTIR, HR-TEM and surface wettability. The antibacterial activity of the nanoparticles was evaluated against *Staphylococcus aureus* and *Streptococcus mitis*. The results reveal that the synthesized nanoparticles were composed of Ag and HA. The crystallinity degree of Ag-HA nanoparticles was found to be highly effective against both bacteria in a concentration dependent manner. **Conclusions:** It can be concluded that the presence OF Ag into HA affected the chemical composition of HA and restrain bacterial proliferation that will be useful for medical devices applications

## O-01

### An Intra-orbital Metallic Foreign Body: A Case Report

**Paras Ahmad<sup>1</sup>, Jawaad Ahmed Asif<sup>2</sup>**

<sup>1</sup>Oral Medicine Unit, School of Dental Sciences, Universiti Sains Malaysia, Kelantan, Malaysia; <sup>2</sup>Department of Oral and Maxillofacial Surgery, School of Dental Sciences, Universiti Sains Malaysia, Kelantan, Malaysia.

**Email:** [docparas2017@gmail.com](mailto:docparas2017@gmail.com), [doctorjawaad@gmail.com](mailto:doctorjawaad@gmail.com)

**Case report:** A 30-year-old male presented with diplopia for 20 days post occupational accident involving left side of his nose, while he was working with a nail gun. He was fully conscious and did not have any neurological deficits. Patient narrated the mechanism of injury and was sure that the nail fell down after hitting the left side of his nose. He had normal vision, but extra ocular movements were restricted and painful. Computed tomography (CT) scan revealed a curved metal object lodged in the posterior aspect of the left orbit extending diagonally from medial wall to the anterior-superior aspect of the orbital roof. The object was removed via a small surgical approach, inflicting least possible surgical trauma. Post-surgery, the patient recovered with complete resolution of diplopia.

**Conclusion:** The original aspects of this case are the lack of signs of a foreign body entry and its relative harmlessness despite its large size.

## O-02

### Combining Clinical and Molecular Factors to Predict Outcome in Oral Potentially Malignant Disorders

**Sathasivam HP<sup>1,2</sup>, Kist R<sup>2</sup>, Sloan P<sup>2</sup>, Robinson CM<sup>2</sup>**

<sup>1</sup>Stomatology Unit, Institute for Medical Research, Kuala Lumpur, Malaysia; <sup>2</sup>Centre for Oral Health Research, Newcastle University, United Kingdom

Email: [hans.prakash@imr.gov.my](mailto:hans.prakash@imr.gov.my)

**Objectives:** Oral squamous cell carcinoma (OSCC) is associated with a high degree of morbidity and mortality. OSCCs are often preceded by oral potentially malignant disorders (OPMD) which have a higher propensity to undergo malignant transformation (MT) compared to clinically normal oral mucosa. Currently there is no reliable method to determine which OPMD cases will undergo MT. This study was performed to construct a prognostic classifier for patients with OPMD by integrating clinical, histopathological and molecular factors that characterises OPMD with a high risk of undergoing MT. **Methods:** 48 patients with OPMD with complete clinico-pathological data and adequate archived formalin-fixed paraffin-embedded (FFPE) tissue for experiments were selected from an existing database of OPMD patients. Cases were assessed for loss of heterozygosity (LOH) at 3p,9p and 17p using microsatellite markers. Statistical analysis was performed using the IBM-SPSS statistical software. **Results:** Statistical analysis of the cohort showed that site of OPMD, oral epithelial dysplasia (OED) grading and loss of heterozygosity were statistically significant. Other clinical features were not statistically significant. The outputs were used to construct a composite classifier to predict clinical outcome in OPMD patients. **Conclusions:** Our findings show that combining molecular and clinical factors outperforms traditional methods for prognosticating clinical outcome in these patients.

## O-03

### Comparing the Polymerization Shrinkage Surface Displacement of a Fully and Partially Bonded Bulk-Fill Composite Resin Restorations

Siti Mariam AG<sup>1</sup>, Chew HP<sup>2</sup>, Fok AS<sup>2</sup>, Amir Radzi AG<sup>3</sup>, Abdul Halim A<sup>3</sup>,  
Mohamed Ibrahim AH<sup>1</sup>

<sup>1</sup>Centre for Restorative Dentistry Studies, Faculty of Dentistry, Universiti Teknologi Mara;  
Minnesota Dental Research Center for Biomaterial and Biomechanical, University of  
Minnesota; <sup>3</sup>Faculty of Mechanical Engineering, Universiti Teknologi MARA

Email: [sitimariam783@uitm.edu.my](mailto:sitimariam783@uitm.edu.my)

**Objectives:** This study compared the distribution of linear and volumetric surface displacement of a fully and partially bonded composite restoration. **Methodology:** Class-I cavities of 4x4x4mm<sup>3</sup> were prepared in 10 extracted molars and restored with a commercial bulk-fill composite resin: Group 1 (G1) - bonded at all surfaces (n:5); Group 2 (G2) – bonded at the walls only (n:5), Vaseline applied on the cavity floor to simulate de-bonding. Pre- and post-curing images taken with micro-computed tomography (micro-CT) and measured for linear (LD<sub>m</sub>) and volume (VD<sub>m</sub>) displacement. Theoretical shrinkage displacements were calculated for the predicted linear (LD<sub>p</sub>) and volume (VD<sub>p</sub>) displacement. The experiment was simulated using finite element analysis (FEA) for comparison where 3D-FE models of both group created. **Results:** Measured surface LD<sub>m</sub> in G1 and G2 was 63.5±9.8μ and 29.4±6.3μ, while predicted surface LD<sub>p</sub> in G1 and G2 was 62.4±7.4μ and 31.5±7.5μ. Measured surface VD<sub>m</sub> in G1 was 1.22±0.19mm<sup>3</sup> and G2 was 0.63±0.15mm<sup>3</sup> while predicted VD<sub>p</sub> in G1 was 1.36±0.18mm<sup>3</sup> and G2 was 0.67±0.16mm<sup>3</sup>. No significant difference (p>0.05) reported between the measured and predicted value of linear and volume displacement in the same group. However, surface displacement differences between group G1 and G2 was statistically significantly (p<0.05). In G2, the value almost halves the G1 value proving that shrinkages have occurred at both un-bonded areas (surface and floor) as G2 did exhibit floor linear displacement (LD<sub>f</sub>) of 33.4±5.2μ and volume displacement (VD<sub>f</sub>) of 0.66±0.22mm<sup>3</sup>. The 3D FE-model for G2 also exhibited that displacement did occur at surface and floor almost symmetrically. **Conclusion:** Measurement of linear and volumetric surface displacements of both groups using the micro-CT concurred with those derived theoretically from surfaces data and confirmed with finite element analysis. Subject to clinical validation, this information may become a novel approach to identification of de-bonded floor in composite resin restorations.

## O-04

### Surgeries Unfavourably Effect Maxillary Arch of Unilateral Cleft Lip and Palate Children: A 3D Study

**Sanjida Haque<sup>1</sup>, Mohd Fadhli Khamis<sup>2</sup>,  
Mohammad Khursheed Alam<sup>3</sup>, Wan Muhamad Amir Wan Ahmed<sup>2</sup>**

<sup>1</sup>Orthodontic Unit, School of Dental Sciences, Health Campus, Universiti Sains Malaysia;  
<sup>2</sup>School of Dental Sciences, Health Campus, Universiti Sains Malaysia; <sup>3</sup>Orthodontic  
Department, College of Dentistry, Jouf University, Saudi Arabia

Email: [dr.sanjidahaque@gmail.com](mailto:dr.sanjidahaque@gmail.com), [fadhli@usm.my](mailto:fadhli@usm.my)

Studies have claimed that the maxillary arch dimension of unilateral cleft lip and palate (UCLP) patient are significantly smaller than normal patient. The effects of cheiloplasty and palatoplasty are believed to be the most exacerbated factors of the treatment outcome (maxillary arch retardation) of UCLP patient. **Objectives:** The aim of the study was to evaluate and compare the effect of different techniques of surgeries in treatment outcome based on maxillary arch dimensions using laser scanned 3D model (LS3DM) in Malaysian and Bangladeshi UCLP children. **Methods:** One hundred and seventy (85 for each population) maxillary dental casts were taken before any orthodontic treatment and bone grafting at 5 to 12 years of age. All the dental casts were scanned and converted into LS3DM by Next Engine laser scanner and 510 linear variables [Inter-canine width (ICW), inter-molar width (IMW) and arch depth (AD)] were measured using Mimics software. Multiple linear regression analyses were used to evaluate the association between different techniques of surgeries (techniques of cheiloplasty and palatoplasty) and maxillary arch dimensions (ICW, IMW and AD) between two different populations. The significance level was set at  $p < 0.05$ . **Results:** Significant association was found between two techniques of palatoplasty and ICW ( $p = 0.029$ ) of maxilla in Bangladeshi population. Regarding Malaysian population, Significant association was found between two techniques of cheiloplasty and ICW ( $p = 0.001$ ) and also between two techniques of palatoplasty and ICW ( $p = 0.046$ ) of maxilla. No significant association observed in IMW and AD for both population. There are also no significant changes found between two population in term of ICW, IMW and AD. **Conclusions:** Bardach technique of palatoplasty had more unfavourable effect on the ICW in Bangladeshi UCLP children. Modified Millard technique of cheiloplasty and Bardach technique of palatoplasty had more unfavourable effect on the ICW in Malay UCLP children.

## O-05

### Age Estimation from Dental Imaging in Malaysian Adults on Lower Premolars

**Donni S<sup>1,2</sup>, Aspalilah A<sup>1</sup>, Haslinda R<sup>3</sup>, Phrabhakaran N<sup>4,5</sup>, Choy KW<sup>6</sup>**

<sup>1</sup>Department of Basic Sciences and Oral Biology, Faculty of Dentistry, Universiti Sains Islam Malaysia; <sup>2</sup>Department of Primary Care, Faculty of Dentistry, Segi University; <sup>3</sup>Department of Periodontology and Community Health, Faculty of Dentistry, Universiti Sains Islam Malaysia; <sup>4</sup>Department of Oral Biology and Biomedical Sciences, Faculty of Dentistry, MAHSA University. <sup>5</sup>Department of Oral and Maxillofacial Clinical Sciences, Faculty of Dentistry, University of Malaya, <sup>6</sup>Unit of Anatomy, Faculty of Medicine, MAHSA University.

Email: [donni@segi.edu.my](mailto:donni@segi.edu.my), [draspa76@gmail.com](mailto:draspa76@gmail.com), [drhaslinda@usim.edu.my](mailto:drhaslinda@usim.edu.my), [phrabha@um.edu.my](mailto:phrabha@um.edu.my), [celine\\_kerwoon@yahoo.com](mailto:celine_kerwoon@yahoo.com)

Age estimation is important in forensic science medicine, clinical dentistry and archaeology for the identification purposes process. Human teeth are particularly helpful in age estimations as they tend to stay intact under any circumstances. **Objectives:** The objective of this study was to estimate the age of Malaysian adults on lower premolars by using Gustafson's method observed on the dental panoramic tomography. **Methods:** 400 dental panoramic tomography of 227 females and 173 male Malaysians aged 18 to be 74 years old were reviewed. The characteristics of secondary dentin formation, cementum apposition, periodontal recession and attrition were evaluated in all the lower premolars. **Results:** There was a significantly different between right and left lower premolars using paired t test ( $p < 0.05$ ). However, from the Independent t-test found that most of the parameters examined showed no significant different between male and female ( $p > 0.05$ ). The correlation of the individual characteristics with the chronological age was examined. The linear and multiple regression analyses were done for the equation of age estimation. Following those results, R values amounted to 0.77 to 0.79 and the standard error of estimate was 0.67 to 0.69 years. **Conclusion:** The examination of lower premolars using Gustafson method can be used for forensic age estimation in the Malaysian population. The radiographic method in this study is favourable as it is a non-invasive technique and has been forensic, clinical as well as archaeological applications.

## O-06

### Geometric Morphometrics Analysis: A New Method in Diagnose Malocclusion

**Nurul Aiman AJ<sup>1</sup>, Aspalilah A<sup>2</sup>, Muhamad Nasim Ilmi MN<sup>1</sup>, Syiral Mastura A<sup>3</sup>,  
Nurjehan MI<sup>3</sup>, Choy KW<sup>4</sup>, Noraina Hafizan N<sup>5</sup>**

<sup>1</sup>Faculty of Dentistry, Universiti Sains Islam Malaysia, <sup>2</sup>Department of Basic Sciences and Oral Biology, Faculty of dentistry Universiti Sains Islam Malaysia, <sup>3</sup>Department of Paediatric Dentistry and Orthodontics, Faculty of dentistry Universiti Sains Islam Malaysia, <sup>4</sup>Unit of Anatomy, Faculty of Medicine, MAHSA University, <sup>5</sup>Centre of Excellent Paediatric Dentistry and Orthodontics, Faculty of Dentistry, Univesiti Teknologi Mara.

Email: [nurulaiman.jamal@gmail.com](mailto:nurulaiman.jamal@gmail.com), [draspa76@usim.edu.my](mailto:draspa76@usim.edu.my), [nasimilmi11@gmail.com](mailto:nasimilmi11@gmail.com), [syiral\\_7377@yahoo.com.my](mailto:syiral_7377@yahoo.com.my), [nurjehan@usim.edu.my](mailto:nurjehan@usim.edu.my), [celine\\_kerwoon@yahoo.com](mailto:celine_kerwoon@yahoo.com), [noraina@salam.uitm.edu.my](mailto:noraina@salam.uitm.edu.my)

Malocclusion is defined as the disability in the teeth bite arrangement that interferes with mastication, conversation and aesthetic function. To diagnose a patient's problems an orthodontist requires multiple procedures including lateral cephalogram radiograph tracing which is costly and time consuming. The geometric morphometric analysis uses anatomical landmark data to quantify the biological form. It involves an advanced statistical analysis with visualization of shape as end product. **Objective:** To compile database of malocclusion in Malaysian population using geometric morphometric analysis of lateral cephalograms and diagnose the malocclusion in a shorter time. **Materials and method:** The project involved retrospective cases, where 381 data from selected lateral cephalogram radiographs were used. The data was analysed using TPSUtil and MorphoJ software via the geometric morphometric analysis. **Results:** The geometric morphometric analysis produced visualisation of the mean shape in different malocclusion and its variation. The highest Mahalanobis distances were exhibited by the malocclusion Class II and III population comparable to the class II and III observed in manual tracings. The procrustes ANOVA showed that the shape effect was highly significant ( $p < 0.01$ ). The discriminant function analysis showed the high percentage of 80% discrimination among the malocclusions after cross validation. **Conclusions:** Skeletal shape was clearly associated with dental malocclusion and showed considerable variation. Geometric morphometrics is an alternative research tool and can be used in diagnose malocclusion shortly.



## O-07

### The Correlation of Salivary pH and Flow Rate to the Dental Caries Status in Yogyakarta 2018

**Sri Utami, Intan Kurnia Marka, Sheila Soraya Rachman**

Department of Public Health, Dental School Program, Faculty of Medicine and Health Sciences, Universitas Muhammadiyah Yogyakarta (UMY) Indonesia.

Email: [sri.utami@umy.ac.id](mailto:sri.utami@umy.ac.id)

Children aged 6-14 years old are susceptible to dental caries because at that age the influence of parents begins to decrease and children become more independent in maintaining their oral health. The characteristics of saliva, such as salivary pH and flowrate, have significant roles in the process of caries protection. **Objective:** To find out the correlation of salivary pH and flow rate to the dental caries status of 8, 9 and 14-year-old students in Yogyakarta. **Methods:** This was an observational using cross sectional design. Subjects were 118 students aged 8, 9 and 14 years who attended elementary and junior high school in Yogyakarta, and selected using simple random sampling. The variables studied were salivary pH, salivary flowrate and dental caries status. Salivary flow rate was measured using the Mettler Toledo PL303 scale, salivary pH was measured using pH digital meter (Hanna) and dental caries status was measured using the DM-S index. Kappa coefficient value for measuring DMF-S index was 1.00. Data analysis used multiple linear regression. **Result:** There is a correlation between salivary pH and flow rate to the dental caries status ( $p=0.001$ , adjusted  $R^2 = 0,361$ ). **Conclusion:** The degree of salivary pH and flowrate were positively associated to the dental caries status of students in Yogyakarta.

## O-08

### **The Difference Plaque in Dental Health Education with Media Lesson Schedule Sogi (Gosok Gigi) among Students in Elementary School Yogyakarta, Indonesia**

**Novitasari Ratna Astuti<sup>1</sup>, Adike Dica Saleha<sup>2</sup>**

<sup>1</sup>Department of Public Health, Dental School Program, Faculty of Medicine and Health Sciences, Universitas Muhammadiyah Yogyakarta, <sup>2</sup>Dental School Program, Faculty of Medicine and Health Sciences, Universitas Muhammadiyah Yogyakarta.

Email: [ovi.sutardi@gmail.com](mailto:ovi.sutardi@gmail.com), [ovi\\_ummy@yahoo.com](mailto:ovi_ummy@yahoo.com)

Dental caries is prone to occur on mixed dentition period children age 9-10 years old. Education media lesson schedule SOGI is used to improve oral health status on student age 9-10 years old in SD Negeri Ngebel Gede I Sleman Yogyakarta. **Objective:** To know the difference plaque index before and after dental health education using media lesson schedule SOGI on students age 9-10 years in SD Negeri Ngebel Gede I Sleman Yogyakarta. **Methods:** This research is quasi experimental with pre-test and post-test group design. The samples on this research are 37 students on SD Negeri Ngebel Gede I Sleman Yogyakarta determined by purposive sampling. The results analysed using paired sample t test. **Results:** The results obtained significance value 0.000 ( $p < 0.05$ ) which means there is a significant difference plaque index before and after dental health educational media of lesson schedule SOGI. **Conclusion:** There are differences plaque index before and after of dental health education using media lesson schedule SOGI on students ages 9-10 years in SD Negeri Ngebel Gede I Sleman Yogyakarta.

## O-09

### Use of 10,600 nm Carbon Dioxide Lasers in Dentistry

**Kenneth Luk<sup>1</sup>, Irene S Zhao<sup>2</sup>, Norbert Gutknecht<sup>3</sup>, C H Chu<sup>1</sup>**

<sup>1</sup>Faculty of Dentistry, the University of Hong Kong, <sup>2</sup>Department of Operative Dentistry, RWTH Aachen University, <sup>3</sup>Department of Operative Dentistry, RWTH Aachen University

Email: [drkluk@mac.com](mailto:drkluk@mac.com)

Carbon dioxide laser has been used clinically in medicine and dentistry for over two decades. The optical property of carbon dioxide laser to water makes it the fitting wavelength for soft tissue surgery. The 10,600 nm carbon dioxide laser is readily available dental lasers in the market. It provides bloodless surgical procedure and also reduces post-operative discomfort in soft tissue dental surgery. **Objective:** This review aims to discuss the production of 10,600 nm carbon dioxide lasers, its technological advancement, optical properties, and laser parameters in relations to its clinical applications in dentistry. **Methods:** Carbon dioxide laser with short pulse duration and high peak power is available with the advancement of technology. This new-parameter carbon dioxide laser causes less collateral thermal damage to soft tissue than the conventional one with continuous wave mode. Recent advancement allows transversely-excited atmospheric-pressure carbon dioxide laser to be delivered in few microsecond pulse, high frequency and low fluence; and enables it to vaporise dental hard tissue without carbonisation and pulpal damage. Recently, the 9,300 nm carbon dioxide wavelength in hard dental tissue removal has been introduced for clinical use. **Conclusion:** The recent developments and advancement of carbon dioxide laser enables it a fitting laser for dental hard tissue preparation.

## O-10

### Prevalence and Aetiological Risk Factors of Tooth Wear in Adult Population in Kuala Lumpur, Malaysia

Bilal Zuhair Alani<sup>1</sup>, Wan Zaripah Wan Bakar<sup>1</sup>, Norasmatul Akma Ahmad<sup>2</sup>,  
Noor Huda Ismail<sup>1</sup>

<sup>1</sup>School of Dental Sciences, Universiti Sains Malaysia, 16150 Kubang Kerian, Kelantan, Malaysia, <sup>2</sup>Faculty of Dentistry, University of Malaya, 50603 Lembah Pantai, Kuala Lumpur, Malaysia.

Email: [bilalusm88@yahoo.com](mailto:bilalusm88@yahoo.com), [wzaripah@usm.my](mailto:wzaripah@usm.my), [akma@um.edu.my](mailto:akma@um.edu.my), [noorhuda@usm.my](mailto:noorhuda@usm.my)

Tooth wear of all pattern whatever erosion, abrasion and/or attrition be made of a problem of growing concern amongst dentist and community. Generally, the prevalence of tooth wear amongst all age group young adults, adult and elderly has significantly increased in the recent years. **Objectives:** To determine the prevalence of each type of tooth wear, to evaluate the associated aetiological risk factors for such condition, and to detect the severity of tooth wear in a group of participants who were seeking treatment in dental hospital, University of Malaya, Kuala Lumpur, Malaysia. **Methodology:** 384 individuals who visited dental hospital, University of Malaya for seeking treatment were involved in this study with age ranged from 20 to 65 years old of both males and females. The researcher used previously validated questionnaire and examination sheet that based on Smith and Knight Tooth Wear Index 1984 to collect data. SPSS program was used in aim of data analysis. **Results:** The prevalence of tooth wear was high (95%) and the most prevalent type was dental attrition (82%), followed by dental erosion (52%), while dental abrasion was the lowest prevalent type (43%). Moreover, age was significantly related to tooth wear ( $p < 0.001$ ). Alcohol consumption and tobacco smoking were significantly affected dental tissue and increasing the incidence of tooth wear ( $p < 0.05$ ). Oral hygiene practice was highly related to dental abrasion ( $p < 0.05$ ). Additionally, bruxism showed significant relationship with dental attrition ( $p < 0.05$ ). Furthermore, the result showed that majority of affected tooth surfaces scored grade one in Smith and Knight Tooth Wear Index (71%). And the remaining (26%) were under grade two. While grade 3 and 4 were showed a neglected prevalence. **Conclusion:** Tooth wear prevalence can start from young age and threaten tooth longevity. More awareness of this phenomenon should be distributed amongst people as well amongst dentist.

## O-11

### Medical Model in Caries Management

**Madeline Jun Yu Yon<sup>1</sup>, Sherry Shiqian Gao<sup>1</sup>, Edward Chin Man Lo<sup>1</sup>, Chun Hung Chu<sup>1</sup>**

<sup>1</sup>Faculty of Dentistry, The University of Hong Kong, Hong Kong, China.

Email: [yonjunyu@hku.hk](mailto:yonjunyu@hku.hk); [chchu@hku.hk](mailto:chchu@hku.hk); [gao1204@hku.hk](mailto:gao1204@hku.hk); [hrdplcm@hku.hk](mailto:hrdplcm@hku.hk)

Dental decay (caries) is demineralisation of dental hard tissues by acids of bacterial origin when periodically exposed to fermentable carbohydrates and is associated with bacteria cariogenicity, frequent sugar consumption, lack of protective factors including saliva and inadequate oral hygiene. Caries is associated with pain and mortality caused by the disease itself even more so, its treatment. The current mode of dental healthcare provision involves mainly irreversible surgical treatment of caries signs and symptoms with improving dental materials and technologies. **Objective:** This presentation aims to discuss a medical model for dental caries management. **Methods:** The discussion redefines a medical model towards elimination of the disease through tackling its causes and risk factors to address current and future caries initiation to the lifelong benefit of the population's dental health. The medical model of caries management is a philosophy that steers sustainable caries management through controlling bacterial infection, reduction of risk levels, remineralisation of teeth and long term follow-up. Its goal is to prevent new and recurrent caries, arrest ongoing caries process by alteration of the cariogenic environment, and to support the healing of remineralisable enamel and dentine, rather than drilling and patching cavities. The mechanism involves dietary counselling and plaque control, placement of dental sealants, administration of fluoride agents and chemotherapeutic medications and use of chewing gum. **Conclusion:** This paradigm shift from a surgical to a medical model of caries management pursues the ultimate intention of maintaining a caries-free dentition and is anticipated to promote true oral health-related quality of life.

## O-12

### Effect of Metal Artefact from Metallic Fixed Orthodontics Auxiliary Appliances in Craniofacial Anatomical Computed Tomography (CT) Images

**Mahmud Mohammed<sup>1</sup>, Norma Ab. Rahman<sup>1</sup>,  
Ahmad Hadif Zaidin Samsudin<sup>2</sup>**

<sup>1</sup>School of Dental Sciences, <sup>2</sup>School of Medical Sciences, Universiti Sains Malaysia, Health Campus, 16150 Kota Bharu, Kelantan, Malaysia.

Email: [mahmudmohammed@student.usm.my](mailto:mahmudmohammed@student.usm.my), [drnorma@usm.my](mailto:drnorma@usm.my), [hadif@usm.my](mailto:hadif@usm.my)

Craniofacial CT scan performed during orthodontics treatment comprised of fixed metal auxiliaries may produce an artefact in the CT images which may hamper the overall diagnosis. **Objectives:** The aim of the study was to assess and quantify the artefact from different types of metallic fixed orthodontics auxiliary appliances in conventional craniofacial anatomical CT images. **Methodology:** This is a prospective in-vitro cross-sectional study. Six different types of metallic fixed orthodontics auxiliary appliances which is most commonly used by the orthodontists during the fixed orthodontic treatment were consecutively placed into a cadaveric skull head in combination with the orthodontic brackets. All scan was performed by a single operator using the same CT machine (TOSHIBA CCGT-032A) with a standard scanning protocol (kvp-120, exposure time-500, x-ray tube-200, slice thickness 1mm). Artefact score for all data sets was quantified by calculating the standard deviation (SD) of the grey values within the dataset according to the method described by Pauwel *et. al.* (2007). The mean artefact score for all the data sets was presented in percentage of maximum standard deviation. A higher percentage indicating a high artefact score. One-way ANOVA Bonferroni test was used for the data analysis. The level of significance (*p*) was set at 0.05. **Result:** The mean values of the artefact score for different types of metallic fixed orthodontics auxiliary appliances were (7.444) for expansion screw, transpalatal arch (6.946), lingual arch (6.849), nance button (6.719), quadhelix (6.652) and anterior bite plane (6.647) respectively. Expansion screw produced significantly higher ( $p<0.001$ ) artefact compared to other types of metallic fixed auxiliary appliance. **Conclusion:** A difference in artefact scores were observed depending on the types of the fixed auxiliary appliance. Artefact produced by expansion screw was superior compared to the other types of metallic fixed orthodontic auxiliary appliances.

## O-13

### Perceived Soft Tissue Facial Profile Attractiveness in 3-Dimensional Photographs of Orthognathic Patients and Laypersons

**Tan SK<sup>1,2</sup>, Tang ATH<sup>3</sup>, Leung WK<sup>4</sup>, Zwahlen RA<sup>2</sup>**

<sup>1</sup>Center of Oral and Maxillofacial Surgery Studies, Faculty of Dentistry, Universiti Teknologi MARA, Malaysia; <sup>2</sup>Discipline of Oral and Maxillofacial Surgery, Faculty of Dentistry, The University of Hong Kong, Hong Kong; <sup>3</sup>Orthodontist in Private Practice, Hong Kong; <sup>4</sup>Discipline of Periodontology, Faculty of Dentistry, The University of Hong Kong, Hong Kong

Email: [drtansukeng@gmail.com](mailto:drtansukeng@gmail.com), [athtang@hotmail.com](mailto:athtang@hotmail.com), [ewkleung@hku.hk](mailto:ewkleung@hku.hk), [rozwahleng@gmail.com](mailto:rozwahleng@gmail.com)

**Objectives:** To assess and compare the aesthetic perception of attractive male and female facial profiles in 3-dimensional (3-D) photographs among laypersons and orthognathic patients. **Methods:** The 3-D photographs obtained from a male and a female model were each transformed into another six 3-D photographs with different facial profiles, i.e. bimaxillary protrusion, maxillary protrusion, mandibular protrusion, maxillary protrusion, bimaxillary protrusion and mandibular protrusion. The panel of judges was recruited from patients who have attended Orthognathic Clinic, and Reception and Primary Clinic. Sub-group analyses were performed on orthognathic versus non-orthognathic judges, and dento-skeletal class II versus class III orthognathic judges. Each judge rated all 14 photographs based on a 100mm visual analog scale from 0 (very unattractive) to 100 (very attractive). **Results:** 60 orthognathic patients (age: 27.1±6.1) and 101 laypersons (age: 28.9±6.2) were recruited as judges for this study. In the overall analysis, the dento-skeletal class I facial profile was rated as most attractive, while mandibular protrusion was considered the least attractive profile for both genders. Sub-group analyses revealed that the bimaxillary protrusive female profile was rated as more attractive by orthognathic judges ( $p=0.006$ ). Although all other sub-groups have ranked mandibular protrusion profile as the least attractive facial profile for both genders, orthognathic female judges have selected retrusive maxilla. Regarding orthognathic judges, the dento-skeletal class II sub-group judges have selected protrusive mandible while dento-skeletal class III sub-group judges have voted retrusive mandible as the least attractive facial profile. Kendall's  $W$  analysis revealed that the degree of association among the sub-group judges for the ranking of male and female profiles was only low to moderate ( $W=0.27-0.63$ ), but this raters' agreement improved drastically when the analyses were only focused on the most and least attractive facial profiles ( $W=0.65-1.00$ ),  $p<0.001$ . **Conclusions:** There were differences in perceived attractive facial profile between orthognathic versus layperson judges.



## O-14

### Root Canal Morphology of Mandibular Anteriors in Malaysians Using New Classification System: A CBCT Study

**MI Karobari<sup>1</sup>, TY Noorani<sup>1</sup>, MS Halim<sup>1</sup>, HMA Ahmed<sup>2</sup>**

<sup>1</sup>School of Dental Sciences, Universiti Sains Malaysia, Kubang Kerian 16150, Kelantan, Malaysia. <sup>2</sup>Department of Restorative Dentistry, Faculty of Dentistry, University of Malaya, Kuala Lumpur, Malaysia.

Email: [dr.isaq@gmail.com](mailto:dr.isaq@gmail.com); [tahir@usm.my](mailto:tahir@usm.my), [drsyah@usm.my](mailto:drsyah@usm.my),  
[hany\\_endodontist@hotmail.com](mailto:hany_endodontist@hotmail.com)

Adequate knowledge of root canal anatomical variations in different populations is essential to ensure successful endodontic treatment outcome. **Objectives:** This study aimed to evaluate the root and canal morphology in permanent mandibular anteriors (MA) in Malaysian subpopulation using cone beam computed tomography (CBCT) interpreted with two classification systems. The effect of age, sex and ethnicity on the complexity of the root canal morphology was also examined. **Methods:** CBCT images of 856 patients were used in this study with a mean age of ranging from 14 to 70 years. A total of 5101 mandibular anteriors were analysed using Romexis software in sagittal, axial and coronal views. The number of roots and canal configuration types were examined and classified using two classification systems (the new system compared to Vertucci). Pearson Chi-square/Fisher's exact tests were used for statistical analysis ( $P=0.05$ ). **Results:** According to the new system and Vertucci's classification, code <sup>1</sup>MA<sup>1</sup> and Type I were the most common in central incisors (64.7%) and canines (90.5%), whereas code <sup>1</sup>MA<sup>1-2-1</sup> and Type III were the most common in lateral incisors (51%) respectively. A number of Vertucci's non-classifiable variations were identified which were classified using the new system. These include codes <sup>1</sup>MA<sup>2-1-2-1</sup> (2.1%), and <sup>1</sup>MA<sup>2-1-2-1-2-1</sup> (0.1%). The prevalence of root canal variations was higher in males for incisors ( $P<0.001$ ), Malay followed by Chinese and Indians ( $P<0.001$ ), and in 20-30 age group compared to other age groups ( $P<0.001$ ). Two-rooted canines were identified in six samples. **Conclusion:** The root canal configuration types in mandibular anteriors show a wide range of anatomical variations in Malaysian subpopulation. Sex, ethnicity and age play a significant role in the complexity of root canal configuration. Both classification systems are able to define common root canal configurations. However, the new system provides more accurate presentation to complex anatomical variations compared to Vertucci.

## O-15

### Chronic Periodontitis in Obese and Non-Obese Patients

**Usman Rashid<sup>1,2</sup>, Siti Lailatul Akmar Zainuddin<sup>1,2</sup>, Zurairah Berahim<sup>1,2</sup>,  
Ahmad Azlina<sup>1</sup>, Basaruddin Ahmad<sup>1,2</sup>**

<sup>1</sup>School of Dental Sciences, USM Health Campus, 16150 Kubang Kerian, Kelantan.

<sup>2</sup>Hospital University Sains Malaysia, USM Health Campus, 16150 Kubang Kerian, Kelantan.

Email: [lailatul@usm.my](mailto:lailatul@usm.my), [usmanrashid2012@hotmail.com](mailto:usmanrashid2012@hotmail.com), [zurairah@usm.my](mailto:zurairah@usm.my),  
[azlinakb@usm.my](mailto:azlinakb@usm.my), [basaruddin@usm.my](mailto:basaruddin@usm.my)

Obesity is the multisystem condition that may develop due to the various reasons such as excessive energy intake, physical inactivity and genetic susceptibility. According to the World Health Organization an adult with body mass index (BMI) more than 30 is considered as obese. An increased in BMI index has been suggested to increase susceptibility of periodontitis. Periodontitis is a chronic inflammatory disease of tooth supporting tissues. The severity of the disease can be measure by specific parameters such as periodontal pocket depth (PPD), clinical attachment level (CAL), gingivitis score, and plaque score. **Objectives:** The objective of this study was to compare the periodontal status between obese and non-obese adults aged 25 to 65 years old having chronic periodontitis at Dental Clinic Hospital Universiti Sains Malaysia (HUSM). **Methods:** A total of 60 patients were selected and equally divided into two groups; 1. The **test group** which included obese patients with BMI  $\geq 30$  and diagnosed with chronic periodontitis and 2. **control group** which consisted of normal weight patients with BMI  $\leq 25$  and diagnosed with chronic periodontitis. Periodontal parameters such as PPD, CAL, gingivitis and plaque score were measured and recorded in both test and control groups. **Results:** The subjects comprised 50% male and 50% females. The test group had significantly greater PPD  $5.32 \pm 0.80$  as compared to control group  $4.58 \pm 0.71$ . Similarly, CAL was high  $5.21 \pm 0.95$  in test group than that of control group  $4.66 \pm 0.31$  ( $p < 0.05$ ). The gingivitis and plaque score in test group  $35.96 \pm 24.13$ ,  $37.85 \pm 24.13$  were not different as compared to control group  $35.97 \pm 27.03$ ,  $42.90 \pm 25.49$  ( $p > 0.05$ ). **Conclusions:** Obese patients had worse clinical periodontal condition despite similar oral hygiene status. These findings also suggest that there is an association between obesity and periodontitis among Malaysian adult attending dental clinic HUSM.

## O-16

### Malay Version of IDAF-4C+: A New Reliable Tools to Measure Dental Anxiety and Fear?

**Izyan Hazwani B<sup>1</sup>, Arifin WN<sup>2</sup>, Kueh YC<sup>2</sup>, Normastura AR<sup>3</sup>**

<sup>1</sup>Faculty of Dentistry, Universiti Teknologi MARA Selangor Campus, Sungai Buloh, Selangor, Malaysia; <sup>2</sup> Unit of Biostatistics and Research Methodology, School of Medical Sciences, Universiti Sains Malaysia, Kubang Kerian, Kelantan, Malaysia; <sup>3</sup> Dental Public Health Unit, School of Dental Sciences, Universiti Sains Malaysia, Kubang Kerian, Kelantan, Malaysia

Email: [izyan9192@uitm.edu.my](mailto:izyan9192@uitm.edu.my), [wnarifin@gmail.com](mailto:wnarifin@gmail.com), [yckueh@usm.my](mailto:yckueh@usm.my), [normastura@usm.my](mailto:normastura@usm.my)

**Objectives:** The objective of this cross-sectional study was to adapt and determine the validity and reliability of the Malay adapted version of the Index of Dental Anxiety and Fear Scale (IDAF-4C+) among Malaysian secondary School Children. **Methods:** All three modules of the English IDAF-4C+ questionnaire was translated into Malay. Content validation and face validation were performed. A total of 616 questionnaires were distributed by cluster random sampling in three stages: (1) exploratory factor analysis (EFA), (2) confirmatory factor analysis (CFA), and (3) stability. Principal axis factoring (PAF) was used as extraction method in EFA. CFA used the bootstrapped maximum likelihood method where model was fixed to one factor model and modifications were made based on factor loading, standardized residuals and modification indices. Intraclass correlation of two-way mixed model with absolute agreement, single measure (Case 3 ICC (A, 1)) and kappa analysis were used to check the stability of the modules. **Results:** The response rate was 74.8% for EFA, 86.5% for CFA and 76.9% for stability. From EFA, one factor was extracted with factor loading ranged from 0.732 to 0.853. Internal consistency by Cronbach's alpha was 0.929. The final CFA model yield a reliability estimate of 0.921, obtained via Raykov's procedure. All modules were proven to be stable over time. **Conclusions:** The Malay version of the Index of Dental Anxiety and Fear (IDAF-4C+) is valid and reliable to measure the anxiety and fear among secondary school student.

## O-17

### **Viability and Attachment of Dental Pulp Stem Cell Seeded on Irrigated Radicular Dentin Treated with Intracanal Medicaments**

**Samiya Riaz, Ahmad Azlina, Zuliani Mahmood, Aung Thu Htun**

School of Dental Sciences, Universiti Sains Malaysia Health Campus, 16150 Kubang Kerian, Kelantan, Malaysia

E-mail: [dr\\_samiya80@yahoo.com](mailto:dr_samiya80@yahoo.com), [azlinakb@usm.my](mailto:azlinakb@usm.my)

Regenerative endodontics procedures (REPs) have emerged with promising outcomes as successful root maturation and apex closure for the immature necrotic permanent teeth. Chemical irrigation and intracanal medicaments used in REPs should be biocompatible for the ingress of stem cells and complete root maturation. Different protocols have given variable outcomes of REPs. American Association of Endodontics (AAE) has set guidelines for RE to standardise the procedure. **Objective:** To investigate the viability and attachment of dental pulp stem cells (DPSC) when seeded on irrigated radicular dentin treated for one-month with intracanal medicaments; either Calcium hydroxide (Ca(OH)<sub>2</sub>) or Triple antibiotic paste (TAP). **Methodology:** Thirty-six dental chips (4x4mm) were irrigated according to the guidelines by AAE before treating with Ca(OH)<sub>2</sub> or TAP. Group1; dental chips (n=12) treated with TAP 1mg/ml, Group2 (n=12); treated with commercial Ca(OH)<sub>2</sub>, Group3 (n=12); were treated with saline only. After 4 weeks of incubation, the samples were rinsed with normal saline and 17% EDTA. DPSC from passage 7-9 were seeded onto the samples. Presto blue viability assay and SEM imaging was performed on day 1, 3 and 7. Immunofluorescence staining with DAPI was performed on day3. The experiment was run in triplicates (n=3). Data were analysed with the Kruskal-Wallis test for stem cell viability. **Results and Discussion:** Group2 DPSCs showed significantly lower viability as compared to the other groups ( $p<0.05$ ). Group1 showed no significant difference in DPSC viability as compared to the control group ( $p>0.05$ ). Immunofluorescence staining were consistent with our findings of the viability assay. SEM images showed more flattened fibroblast-like or spindle shaped DPSCs with filopodia in Group 1 and 3 as compared to Group2. Exposure to high concentration of Ca(OH)<sub>2</sub> for a long-term limits its ability to demineralise the radicular dentin. **Conclusion:** Results implied that irrigated radicular dentin treated with TAP provides better microenvironment for the DPSCs in comparison to those treated with Ca(OH)<sub>2</sub>.

## O-18

### Effects of NSPT on Periodontal Parameters in Pre-Dialysis Chronic Kidney Disease Patients with Chronic Periodontitis.

**Ahmed Chaudhry<sup>1,4</sup>, Siti Lailatul Akmar Zainuddin<sup>1,4</sup>, Nur Karyatee Kassim<sup>2,4</sup>,  
Azreen Syazril Adnan<sup>3,4</sup>, Hanim Afzan Ibrahim<sup>2,4</sup>, Basaruddin Ahmad<sup>1,4</sup>**

<sup>1</sup>School of Dental Sciences, Universiti Sains Malaysia, Kampus Kesihatan; <sup>2</sup>Chemical Pathology Department, School of Medical Sciences, Universiti Sains Malaysia, Kampus Kesihatan; <sup>3</sup>Chronic Kidney Disease Resource Center, School of Medical Sciences, Universiti Sains Malaysia, Kampus Kesihatan; <sup>4</sup>Hospital Universiti Sains Malaysia, 16150 Kubang Kerian, Kelantan, Malaysia

Email: [ahmedthedentist@gmail.com](mailto:ahmedthedentist@gmail.com), [lailatul@usm.my](mailto:lailatul@usm.my), [karyatee@usm.my](mailto:karyatee@usm.my),  
[drazreenadnan@gmail.com](mailto:drazreenadnan@gmail.com), [afzankk@usm.my](mailto:afzankk@usm.my), [basaruddin@usm.my](mailto:basaruddin@usm.my)

Chronic kidney disease (CKD) is associated with periodontal disease due to the hyperinflammatory state in both conditions. Hence periodontal disease has emerged as a non-traditional risk factor for CKD. Non-surgical periodontal therapy (NSPT) is a standard treatment for periodontitis. However, limited is known about the effect of NSPT on periodontal parameters in pre-dialysis CKD patients with chronic periodontitis (CP) in our local population. **Objectives:** To determine and compare the effects of NSPT on the clinical periodontal parameters in CKD patients with CP and CP only patients. **Methods:** A total of 66 patients which consist of 33 pre-dialysis CKD stage III and IV patients with chronic periodontitis (Group 1) and 33 chronic periodontitis patients with no medical illness (Group 2) were enrolled. Clinical periodontal parameters including periodontal pocket depth (PPD), clinical attachment loss (CAL), gingival bleeding index (GBI) and plaque score (PS) were evaluated during the first visit and six weeks following NSPT (second visit). **Results:** Majority of patients were Malay (89%), male (65%) with the mean age of (52.57±10.50). Group 1 showed a greater severity of periodontitis as there is significant increase of tooth loss (mean difference:4.84) ( $p<0.001$ ) and CAL measurement (mean difference: 0.55 mm) ( $p=0.001$ ) compared to group 2. All periodontal parameters showed significant improvement post NSPT for both groups ( $p<0.001$ ). Interestingly the mean changes were higher in group 1 compare to group 2 (PPD: 1.98, 1.79 mm; CAL 2.07, 1.58 mm; PS 42.26, 40.11%; GBI 32.82, 33.09%) respectively. **Conclusion:** This study demonstrated a greater severity of chronic periodontitis among CKD patients and significant improvement of periodontal parameter following NSPT. Thus, the periodontal health of CKD patients' needs to be monitored and screened for early dental interventions. Future studies with multicentre and larger sample size are warranted to explore the effects of this treatment.

## O-19

### Identification of the Predominant Bacteria Causing Pericoronitis and their Virulence Factors

Ainaa Liyana A<sup>1</sup>, Siti Noor Adnaliza A<sup>2</sup>, Ahmad Dzulfikar S<sup>3</sup>, Rohazila MH<sup>2</sup>,  
Azmiza Syawani J<sup>4</sup>, John Chong KH<sup>3</sup>

<sup>1</sup>Faculty of Dentistry, Universiti Sains Islam Malaysia; <sup>2</sup>Department of Basic Science & Oral Biology, Faculty of Dentistry, Universiti Sains Islam Malaysia; <sup>3</sup>Department of Oral & Maxillofacial Surgery, Pathology and Medicine, Faculty of Dentistry, Universiti Sains Islam Malaysia; <sup>4</sup>Faculty Of Medicine and Health Sciences, Universiti Putra Malaysia.

Email: [ainazemi29@gmail.com](mailto:ainazemi29@gmail.com), [drads0521@usim.edu.my](mailto:drads0521@usim.edu.my), [rohazila@usim.edu.my](mailto:rohazila@usim.edu.my)

**Objectives:** This study was carried out to determine the virulence factors of the infectious bacteria causing pericoronitis among young adult patients to increase our understanding on the role of different pathogens causing pericoronitis, thus provide new insight into the clinical management of patients and as prevention of its recurrence. **Methods:** Clinical samples were obtained from USIM Dental Polyclinic. Subgingival plaque from pericoronal pockets of lower wisdom teeth from 25 diagnosed pericoronitis patients, aged between 18 to 40 were sampled and subjected to microbiologic analysis. 25 subjects with no pericoronitis symptoms were included as control. The microbiologic analysis carried out were bacteria cultivation, bacteria identification; which involved the standard microbiological method and polymerase chain reaction (PCR). Whole genome sequencing was carried out to determine the virulence factor of pericoronitis. The predicted proteins for each genome sequenced were screened using the virulence factor data base (VFDB). **Results:** A total of 97 microorganisms were isolated from 25 cultured samples. Bacteria identification using PCR and sequencing analysis using BLAST sequencing analysis, showed the highest incidence of *Streptococcus gordonii*, 11 (11.34%), *Streptococcus mitis*, 10 (10.3%) and *Streptococcus anginosus*, 8 (8.24%). This study also confirmed that facultative anaerobes were the predominant group causing pericoronitis (73%), followed by strictly anaerobes (15%) and aerobic bacteria (12%). Virulence factors of bacteria causing pericoronitis were identified by whole genome sequencing followed by genome sequence screening using the virulence factor data base (NCBI BLAST+ version 2.2.31). The results demonstrated that the virulence factor of pericoronitis includes capsular polysaccharide, enterobactin, afimbrial adhesin, hyaluronidase and lipopolysaccharide biosynthesis protein (LPS). These predicted virulence proteins were found in the pericoronitis samples and not found in the control group samples. **Conclusions:** Accumulation of the complex oral microbiome around the pericoronal pockets of lower wisdom teeth are the contributing factor to pericoronitis. The virulence factors to the pathogenesis of pericoronitis are capsular polysaccharide, enterobactin, afimbrial adhesion, hyaluronidase and lipopolysaccharide biosynthesis protein (LPS).



## O-20

### Local Anaesthesia Simulator Kit (LASK) as A Training Kit for Inferior Alveolar Nerve Block (IANB)

**Syafiq Zulhady Z<sup>1</sup>, Mohd Hanif MR<sup>1</sup>, Tengku Intan Baizura TJ<sup>2</sup>, Hazmyr AW<sup>2</sup>,  
Andrean H<sup>2</sup>, Shahrul Azam A<sup>1</sup>**

<sup>1</sup>Faculty of Mechanical Engineering, Universiti Teknologi Mara; <sup>2</sup>Centre of Oral & Maxillofacial Surgery Studies, Faculty of Dentistry, Universiti Teknologi Mara;

Email: [syafiqzulhady1994@gmail.com](mailto:syafiqzulhady1994@gmail.com), [haniframli@uitm.edu.my](mailto:haniframli@uitm.edu.my),  
[intanbaizura3124@salam.uitm.edu.my](mailto:intanbaizura3124@salam.uitm.edu.my), [hazmyr@salam.uitm.edu.my](mailto:hazmyr@salam.uitm.edu.my),  
[andrean@salam.uitm.edu.my](mailto:andrean@salam.uitm.edu.my), [shahrulazam@salam.uitm.edu.my](mailto:shahrulazam@salam.uitm.edu.my)

**Objectives:** This multi-disciplinary collaboration aimed to design and develop a simulation-based training and assessment tool for dental students in term of administration of inferior alveolar nerve block (IANB) before proceeding to clinical training. **Methods:** A mandibular model was printed by three dimensional (3D) printing as the physical model to introduce real-life training session. A mandibular 3D model was obtained through Digital Imaging and Communications in Medicine (DICOM) data via dental Cone Beam Computed Tomography (CBCT) on a patient volunteer. The 3D model was further refined to facilitate the integration of electronic circuit by utilisation of a commercial computer-aided design (CAD) software package. Sensing mechanism was integrated to provide real-time feedback data during local anaesthesia administration training. User interface was designed to show feedback from the sensing mechanism in order to provide digital environment of the feedback. **Results:** The Local Anaesthesia Simulator Kit (LASK) was able to give real-time feedback in trainee and trainer interfaces independently, based on the position of injection during training. Users were able to obtain number of successful injections in comparison to performed attempts. **Conclusions:** LASK was able to give real-time feedback based on the sensing mechanism and written algorithm. Further refinement of the software and database management system will provide more realistic features for the simulator kit to be implemented in pre-clinical training in the dental curriculum as an educational platform tool.



## O-21

### Dental Caries and Vitamin D Deficiency in Children: A Systematic Review and Meta-analysis

**Mohd Sapawi N<sup>1</sup>, Rohazak AA<sup>1</sup>, Hussein AS<sup>2</sup>, Mohd Yusof MYP<sup>3</sup>**

<sup>1</sup>Faculty of Dentistry, Universiti Teknologi MARA; <sup>2</sup>Centre of Paediatric Dentistry and Orthodontics, Faculty of Dentistry, Universiti Teknologi MARA; <sup>3</sup>Centre of Oral & Maxillofacial Diagnostics and Medicine Studies, Faculty of Dentistry, Universiti Teknologi MARA

Email: [farrahsapawi@gmail.com](mailto:farrahsapawi@gmail.com), [azie\\_akmal95@yahoo.com.my](mailto:azie_akmal95@yahoo.com.my), [alaa@salam.uitm.edu.my](mailto:alaa@salam.uitm.edu.my), [yusmiaidil@salam.uitm.edu.my](mailto:yusmiaidil@salam.uitm.edu.my)

**Objectives:** The relationship between dental caries and vitamin D deficiency in children is controversial. This meta-analysis aimed to systematically evaluate published evidence on the association between dental caries and vitamin D deficiency in children. **Methods:** Science Direct, PubMed/Medline and Scopus databases were searched up to Jan 2018 for relevant studies using search terms including “vitamin D”; “dental caries” and “children”. Case-control and cross-sectional studies investigation the relationship between dental caries and vitamin D deficiency in children were included. Meta-analysis was done using RStudio version 0.97.551-2009-2012 RStudio, Inc. software. Odds ratios (ORs) with 95% confidence intervals (CIs) were pooled using random effect models. Heterogeneity was assessed by calculating I-square ( $I^2$ ). **Results:** Five studies met the inclusion criteria. There was no significant association between vitamin D deficiency and dental caries in children, the overall OR and 95% CL was 0.99 (0.82-1.17) with a Chi-Square ( $\chi^2$ ) statistic for heterogeneity of 2.09 and four degree of freedom ( $P > 0.05$ ). The heterogeneity across studies was not significant ( $I^2 = 0.01\%$ ). Funnel plot and the Egger regression test revealed the absence of a publication bias. **Conclusions:** This meta-analysis indicated that dental caries is not associated with vitamin D deficiency in children. Further studies are required to assess such association in the future.

## O-22

### Fibroblastic Differentiation of Stem Cells from Human Exfoliated Deciduous Teeth

**Nurul Hafizah Mohd Nor<sup>1</sup>, Zurairah Berahim<sup>1</sup>, Ahmad Azlina<sup>1</sup>,  
Khairani Idah Mokhtar@Makhtar<sup>2</sup>, Thirumulu Ponnuraj Kannan<sup>1,3</sup>**

<sup>1</sup>School of Dental Sciences, Universiti Sains Malaysia, 16150 Kubang Kerian, Kelantan, Malaysia, <sup>2</sup>Kulliyyah of Dentistry, International Islamic University Malaysia, Jalan Sultan Ahmad Shah, Bandar Indera Mahkota, 25200 Kuantan, Pahang, <sup>3</sup>Human Genome Centre, Universiti Sains Malaysia, 16150 Kubang Kerian, Kelantan, Malaysia

Email: [nurulhafizahmohdnor@gmail.com](mailto:nurulhafizahmohdnor@gmail.com), [zurairah@usm.my](mailto:zurairah@usm.my), [azlinakb@usm.my](mailto:azlinakb@usm.my),  
[kannan@usm.my](mailto:kannan@usm.my)

Fibroblasts are an essential component of connective tissues. The use of fibroblasts is very prominent in dental research especially in *in vitro* dental tissue regeneration studies, where these cells are highly needed. Although fibroblasts could be obtained and generated from many sources, however there is a dearth of studies reported on the differentiation of fibroblasts from stem cells from human exfoliated deciduous teeth (SHED). **Objectives:** The objectives of this study were to differentiate and characterize fibroblast-like cells from SHED. **Methods:** The fibroblastic differentiation of SHED was performed using specific human recombinant connective tissue growth factor (CTGF). The characterization of the induced cells was done by morphological changes, proliferation rate, gene expression analysis using quantitative reverse transcription-polymerase chain reaction (qRT-PCR), flow cytometry and immunofluorescence staining. The commercial primary human gingival fibroblasts served as positive control in this study. **Results:** This study demonstrated the inductive effect of CTGF for fibroblastic differentiation of SHED. The results from characterization analysis were compared with that of commercial cells to ensure that the differentiated cells were fibroblast-like cells. SHED derived-fibroblasts were successfully characterized in spite of having similar morphological appearance, in which (a) significant proliferation rate between SHED and fibroblast-like cells, (b) high expression of fibroblast-associated markers in qRT-PCR analysis and (c) positive staining against FSP-1, COL1A1 and TE-7 in flow cytometry analysis and immunofluorescence staining. The same expression patterns were observed in primary human gingival fibroblasts, respectively. SHED as negative control indicated no signal or lower expression, therefore confirming that the differentiated cells were fibroblast-like cells. **Conclusions:** The protocol used in this study proposes CTGF to be the most suitable inducer in the fibroblastic differentiation of SHED.

## O-23

### Assessment of Periodontal Parameters and Evaluation of Oral Health Impact Profile During Pregnancy

**Sarmad Saif<sup>1,3</sup>, Siti Lailatul Akmar Zainuddin<sup>1,3</sup>, Fauziah Jummaat<sup>2,3</sup>, Haslina Taib<sup>1,3</sup>, Nur Karyatee Kassim<sup>1,3</sup>, Azlina Ahmad<sup>1,3</sup>, Basaruddin Ahmad<sup>1,3</sup>, Nur Nadirah Ilyana<sup>1,3</sup>**

<sup>1</sup>School of Dental Sciences, USM Health Campus, 16150 Kubang Kerian, Kelantan; <sup>2</sup>School of Medical Sciences, USM Health Campus, 16150 Kubang Kerian, Kelantan; <sup>3</sup>Hospital University Sains Malaysia, USM Health Campus, 16150 Kubang Kerian, Kelantan.

Email: [sarmad\\_saif1@yahoo.com](mailto:sarmad_saif1@yahoo.com), [lailatul@usm.my](mailto:lailatul@usm.my), [drfauziah@usm.my](mailto:drfauziah@usm.my), [haslinakk@usm.my](mailto:haslinakk@usm.my), [karyatee@usm.my](mailto:karyatee@usm.my), [azlinakb@usm.my](mailto:azlinakb@usm.my), [basaruddin@usm.my](mailto:basaruddin@usm.my), [nadirahilyana96@gmail.com](mailto:nadirahilyana96@gmail.com)

The oral health may get affected by hormonal variations in pregnancy and presents transient and irreversible modifications that are considered pathological. Periodontal disease usually occurs as a result of poor oral hygiene and inflammatory response due to presence of local irritants, which often exaggerate due to hormonal and vascular changes during pregnancy. Early diagnosis and treatment can be vital in improving prenatal outcome and maternal or foetal oral health. **Objectives:** The purpose of the study was to determine the prevalence of periodontal status among 2nd and 3rd trimester pregnant women attending the Obstetrics & Gynaecology (O&G) Clinic, Hospital Universiti Sains Malaysia (HUSM) and the association between the oral health-related quality of life with them. **Methods:** Total of 81 subjects at 2nd and 3rd trimester of pregnancy were recruited and evaluated for clinical periodontal parameters including periodontal pocket depth (PPD), Gingival bleeding index (GBI) and Plaque score (PS). A questionnaire, Oral Health Impact Profile (OHIP)-14, was also filled by the participating subjects. **Results:** The mean PPD was 4.12 (0.15), mean of sites with PPD  $\geq$  4 mm was 38.6 (22.51) and mean percentage of sites of PPD  $\geq$  4 mm 23.45 (13.03). The mean PS and GS were 49.25% (16.92) and 31.34% (18.04) respectively. The mean no. of sites of PS and GS were 54.69 (18.98) and 34.46 (19.40) respectively. The prevalence of women who reported any oral health problem impact measured by the OHIP-14 was higher in the 3rd trimester group. However, there was no difference existed between the different trimesters, for both periodontal examination and OHIP-14 questionnaire. **Conclusion:** This study demonstrates high prevalence of periodontal disease during different phases of pregnancy. These findings may help in designing different programs to educate the pregnant women on the necessity of maintaining a healthy periodontal status during pregnancy.

## O-24

### Antimicrobial Effects of Vitamin D<sub>3</sub> on *Streptococcus mutans*: An *In-vitro* Study

Nazli SA<sup>1</sup>, Nor Effandy NAE<sup>1</sup>, Hussein AS<sup>2</sup>, Al-Talib H<sup>3</sup>

<sup>1</sup>Faculty of Dentistry, Universiti Teknologi MARA; <sup>2</sup>Centre of Paediatric Dentistry and Orthodontics Studies, Faculty of Dentistry, Universiti Teknologi MARA; <sup>3</sup>Medical Microbiology and Parasitology Department, Faculty of Medicine, Universiti Teknologi MARA

Email: [arisyanazli@gmail.com](mailto:arisyanazli@gmail.com), [ainaeffandy@yahoo.com](mailto:ainaeffandy@yahoo.com), [alaa@salam.uitm.edu.my](mailto:alaa@salam.uitm.edu.my), [hassanain@salam.uitm.edu.my](mailto:hassanain@salam.uitm.edu.my)

**Objective:** This study aimed to evaluate the antimicrobial effects of vitamin D<sub>3</sub> against *Streptococcus mutans* (*S. mutans*) that considers the main causative bacteria in dental caries development. **Methods:** In this study, the antimicrobial effects of vitamin D<sub>3</sub> were evaluated using agar well diffusion method following the guideline by Clinical Laboratory Standards Institute (CLSI). Broth microdilution method was used to determine the minimum inhibitory concentration (MIC) and minimum bactericidal concentration (MBC). Moreover, scanning electron microscope (SEM) was performed to assess the possible changes in the morphology of *S. mutans* cells following the application to vitamin D<sub>3</sub> with different concentrations. **Results:** Vitamin D<sub>3</sub> showed excellent inhibitory effects on *S. mutans* with inhibition zone of 15 mm at 6.25 mg/ml, in comparison with chlorhexidine (0.12%) as a positive control. The MIC of vitamin D<sub>3</sub> was 250 µg/ml while the MBC was 500 µg/ml. There were significant changes in the treated cells with vitamin D<sub>3</sub> compared to the non-treated control cells. **Conclusions:** These findings suggested that vitamin D<sub>3</sub> has excellent antimicrobial effects against *S. mutans* and may be considered as a useful compound in the prevention of dental caries in the future. Further research is recommended to elucidate the mechanism of vitamin D<sub>3</sub> on *S. mutans*

## O-25

### The Effect of Different Restorative Techniques on the Fracture Resistance of Endodontically Treated Teeth: An *in vitro* Study

**Mera Christina Michael<sup>1</sup>, Nik Rozainah Nik Ghani<sup>1</sup>,  
Noor Huda Ismail<sup>2</sup>, Adam Husein<sup>2</sup>**

<sup>1</sup>Department of Conservative Dentistry, School of Dental Sciences, Universiti Sains Malaysia; <sup>2</sup>Department of Prosthodontics, School of Dental Sciences, University Sains Malaysia

Email: [merachristina@yahoo.com](mailto:merachristina@yahoo.com), [rozainah@usm.my](mailto:rozainah@usm.my), [noorhuda@usm.my](mailto:noorhuda@usm.my)

Endodontically treated teeth are generally weaker than sound tooth structure due to loss of large amount of tooth structure. The success of endodontic therapy depends on the final restoration. Placement of a post has been recommended but there are still controversies on its use for endodontically treated teeth. **Objectives:** The objective of this study compared fracture resistance of endodontically treated teeth restored with different restorative techniques. **Methods:** Seventy human maxillary central incisors were selected with standardized size and quality and divided into five groups (n=14). The first group (A) was left as control and the other groups was endodontically treated followed by restorations using different restorative techniques; B) composite, C) composite and crown, D) post and composite, and E) post, composite and crown. All specimens underwent thermocycling at 6000cycles in bath temperatures of 5°C, 37°C and 55°C with dwelling time of 30 seconds and transfer time of 10 seconds. They were loaded until fracture by a universal testing machine at a static force of 1.0mm/min at 135° to the long axis of the root. **Results:** The means and standard deviations of the maximum load to fracture for groups: A, B, C, D and E were 1157.64N (350.68N), 754.79N (193.09N), 595.76N (175.12N), 826.95N (187.70N) and 805.04N (231.43N) respectively. One way ANOVA showed that there were statistical significant differences between groups ( $p < 0.001$ ). The fracture resistance of specimens restored with different restorative technique was statistically lower than the natural teeth ( $p < 0.05$ ). There was no significant differences among restorative groups ( $p > 0.05$ ). **Conclusions:** Composite followed by crown restorations without any post showed lowest fracture resistance values. The presence of post did increase the fracture resistance of the endodontically treated teeth, but the results were not statistically significant.

## O-26

### Effects of Antihypertensive Drugs on Alveolar Bone Loss in Patients with Chronic Periodontitis: Retrospective Study

**Khairuddin NAI<sup>1</sup>, William C<sup>1</sup>, Ibrahim OE<sup>1</sup>, Al-Bayaty FH<sup>2</sup>**

<sup>1</sup>Center of Preclinical Science Studies, Faculty of Dentistry, Universiti Teknologi MARA

<sup>2</sup>Center of Periodontology Studies, Faculty of Dentistry, Universiti Teknologi MARA

Email: [aimanishtaifa@gmail.com](mailto:aimanishtaifa@gmail.com), [dromar@salam.uitm.edu.my](mailto:dromar@salam.uitm.edu.my), [christabel.lw95@gmail.com](mailto:christabel.lw95@gmail.com), [fouad@salam.uitm.edu.my](mailto:fouad@salam.uitm.edu.my)

**Objective:** This retrospective study aims to evaluate the possible effects of antihypertensive drugs on alveolar bone loss in patients with chronic periodontitis. **Methods:** 50 patients on antihypertensive drugs selected as the experimental group and 50 patients with chronic periodontitis with no known systemic illnesses as control group were randomly selected as the study samples. Orthopantomographs (OPG) were obtained, calibration and assessment of alveolar bone loss (ABL) was performed by using the computer software program available in the faculty, through radiographic linear measurement procedure. Premolars, first and second molars were measured from the most apical point to the cemento-enamel junction (CEJ) for mesial and distal aspects in the form of millimetres and percentile of the root length. Data was statistically analysed using independent t-test and ANCOVA in SPSS V23 with significance at  $p < 0.05$ . **Results:** A total of 2428 sites were measured. Analysis has shown that there is significant difference in alveolar bone loss in experimental group and control group ( $p = 0.002$ ). Bone loss in the experimental group was less ( $16.28 \pm 9.48$ ) compared to the control group ( $22.66 \pm 12.58$ ). Within the experimental group, there was no significant difference for the duration of antihypertensive drug intake. However, the bone loss was more among the males ( $19.71 \pm 11.22$ ) than the females ( $12.99 \pm 5.99$ ). **Conclusion:** Antihypertensive drugs appear to have a positive effect on alveolar bone loss progression. Patients under these drugs exhibit lower levels of bone loss compared to those who are not.

## O-27

### Sense of Coherence and Self-Directed Learning Readiness Among Dental Students in Malaysia

**Siddiqui Fawaz<sup>1</sup>, Nerali Jayashri<sup>1</sup>, Telang Lahari<sup>2</sup>**

<sup>1</sup>Department of Paediatric Dentistry, Penang International Dental College, Malaysia

<sup>2</sup>Department of Oral Medicine & Radiology, Penang International Dental college, Malaysia

Email: [fawaz@pidc.edu.my](mailto:fawaz@pidc.edu.my), [jnerali@pidc.edu.my](mailto:jnerali@pidc.edu.my), [lahari@pidc.edu.my](mailto:lahari@pidc.edu.my)

**Objectives:** Malaysian dental students have high stress levels. The stressors negatively impact their academic and personal life. The objective of this study was to determine the stress coping ability of the dental students and its relation to their Self-Directed Learning Readiness (SDLR) in Penang International Dental College, Malaysia. **Methods:** A validated questionnaire on Sense of Coherence (SOC) with 13 items (Cronbach's alpha=0.76) and on SDLR with 29 item (Cronbach's alpha=0.846) was used to collect the data. The response was recorded on a 5 point Likert Scale. The data was analysed for gender and ethnic determinants. **Results:** A total of 210 students participated in the study (32.4% males and 67.6% females) from Year 3,4 and 5 of the BDS program. The median SOC score was 50 (55% on a scale of 13 to 91). Male students had higher SOC score, which was significantly higher in the sub-scale of Comprehension ( $p=0.025$ ). SOC score was highest among Chinese followed by Malay, followed by the Indian students. The Manageability sub-scale of SOC was significantly higher among Chinese as compared to Indian students ( $p=0.013$ ). For SDLR, median score was 109 (75% on a scale of 29 to 145). Female students had higher SDLR score. SDLR among Indian students was highest followed by Chinese, followed by Malay students. SOC and SDLR scores were found to be directly proportional ( $r=+0.27$ ;  $p<0.001$ ). **Conclusions:** The study found that the sense of coherence was low among the Malaysian students and there was gender and ethnic differences in the way students coped with stress. Even though the self-directed learning readiness was high, lack of sense of coherence may be restrictive of the student's ability to perform. Since SOC and SDLR were positively correlated, early identification and timely implementation of suitable intervention for students with low SOC can help improve their SDLR.



## O-28

### Patient Satisfaction Towards Dental Services in Faculty of Dentistry, Universiti Teknologi MARA (UiTM)

Abu Kassim A, Maruan MI, NM Rosdy NMM

Faculty of Dentistry, Universiti Teknologi MARA

Email: [irfan.maruan@gmail.com](mailto:irfan.maruan@gmail.com), [nikmohd@uitm.edu.my](mailto:nikmohd@uitm.edu.my), [aimanabukassim@gmail.com](mailto:aimanabukassim@gmail.com)

**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. **Methods:** 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 were Malay. Most of the subjects had at least two visits (43.4%) in the past. There were seven subscales were studied based on the questionnaires: General Satisfaction; Technical Quality; Interpersonal Manner; Communication; Financial Aspects; Time Spent with Doctor; Accessibility and Convenience. 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 subscales of the questionnaires were 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. **Conclusions:** Generally, patients were satisfied with the dental services provided in Faculty of Dentistry Universiti Teknologi MARA (UiTM) however some aspects of service need to be improved.

## O-29

### The Impact of Fixed Prosthodontic Education Kit to Measure Patient's Awareness and Knowledge in Universiti Teknologi MARA (UiTM)

**Rosli NN<sup>1</sup>, Mohd SH<sup>1</sup>, Nik Zulkifeli NR<sup>2</sup>, Nik Mahmood NZ<sup>2</sup>**

<sup>1</sup>Faculty of Dentistry, Universiti Teknologi MARA, Malaysia. <sup>2</sup> Comprehensive Care Centre of Studies, Fakulti Pergigian Universiti Teknologi MARA

Email: [nurnabila.rosli@gmail.com](mailto:nurnabila.rosli@gmail.com), [nikrahayyu7877@salam.uitm.edu.my](mailto:nikrahayyu7877@salam.uitm.edu.my), [drnikzarina@salam.uitm.edu.my](mailto:drnikzarina@salam.uitm.edu.my)

Fixed Prosthodontic Education Kit (FPEK) is an 'All in One' prototype consist of the various model representing the various types of fixed prosthodontic treatment. **Objectives:** The study aimed to measure the patient's awareness and knowledge on fixed prosthodontic treatment options using FPEK and to evaluate the patient's knowledge in advantages and disadvantages of each type of prosthesis. **Materials and Methods:** This is a cross-sectional study and divided into 2 phases; construction of FPEK and questionnaire distribution to patients. A comprehensive FPEK consists of a kit with various fixed prosthesis models, a short video and flashcards. A qualitative study using a validated self-administered questionnaire was randomly distributed to the outpatient in Faculty of Dentistry UiTM. The participants were divided into 2 groups; Group 1, assisted with FPEK and Group 2, assisted by verbal explanation. The participants were invited to answer a 5-points likert scale, nine items questionnaire with 2 domains: knowledge and awareness. The data were recorded in SPSS ver. 25. An Independent t-test was used for analysis and  $p < 0.05$  was set to be statistically significant. **Result:** The response rate for this questionnaire is 78% (268 participants). Higher significant difference was observed in Group 1 compared to Group 2 ( $p < 0.05$ ). Patient's also has higher knowledge in advantages and disadvantages of each type of prosthesis when analysed using Independent t-test ( $p = 0.00$ ). **Conclusion:** A Fixed Prosthodontic Kit is a useful education tool to provide knowledge and create awareness to patients. It facilitates dental practitioners and provides higher impact in giving information before a decision-making of the treatment prescribed.

## O-30

### Conical-shaped of Permanent Maxillary Lateral Incisor

**Abdul Kuddus AY<sup>1</sup>, Abu Bakar N<sup>2</sup>**

<sup>1</sup>Faculty of Dentistry, Universiti Teknologi MARA, Malaysia; <sup>2</sup>Centre of Studies for Paediatric Dentistry and Orthodontics, Faculty of Dentistry, University Technology MARA (UiTM) Sungai Buloh Campus, 47000 Sungai Buloh, Selangor, Malaysia

Email: [yusribinkuddus@gmail.com](mailto:yusribinkuddus@gmail.com), [dr\\_ashikin@yahoo.com](mailto:dr_ashikin@yahoo.com)

In term of morphology, maxillary lateral incisor can be variable. As microdontia could be like normal teeth or frequently manifests in different crown shapes such as peg-shaped, cone-shaped, barrel-shaped and canine-shaped. It has been postulated that lateral incisor variants are intermediate in form between normal and congenitally missing teeth. **Case report:** A 10-year-old Malay girl came to the clinic presented with abnormal morphology of upper lateral incisor. The intra-oral examination revealed a conical-shaped of tooth 22 which left the tooth prone to caries attack. In the current case, fissure sealant is opted as preventive measures. **Conclusion:** The patient presented with a rare abnormal tooth morphology which is lateral conical-shaped over the occlusal of permanent maxillary tooth of 22. The treatment plan is to restore the tooth with fissure sealant to prevent the attack of caries. Periodic dental follow up with a regular preventive measures are essential in order to make sure the tooth in a good condition.

## O-31

### Comparison of Bimaxillary Protrusion Occlusion Morphology: A Geometric Morphometric Analysis

**Yunos S<sup>1</sup>, Che Aziz NFA<sup>1</sup>, Alias A<sup>2</sup>, Yusof MYPM<sup>3</sup>, Norman NH<sup>4</sup>**

<sup>1</sup>Faculty of Dentistry, Universiti Teknologi MARA, Sungai Buloh Campus; <sup>2</sup>Department of Medical Sciences, Faculty of Dentistry, Universiti Sains Islam Malaysia; <sup>3</sup>Centre of Oral & Maxillofacial Diagnostics & Medicine Studies, Faculty of Dentistry Universiti Teknologi MARA; <sup>4</sup>Department of Orthodontics Studies, Faculty of Dentistry Universiti Teknologi MARA

Email: [safiyyahyunos@gmail.com](mailto:safiyyahyunos@gmail.com)

**Objectives:** To compare the craniofacial shape and size in bimaxillary protrusion morphology according to its severity by application of geometric morphometric technique. **Methods:** Lateral cephalometric radiographs of 92 bimaxillary protrusion patients (24 males, 68 female) aged between 21±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 differences of skeletal and dental components of bimaxillary protrusion occlusion can be classified into its severity of craniofacial morphology (mild, moderate or severe). 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. However, it can be seen that 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±10% within the classification of bimaxillary occlusions upon cross validation which demonstrates the accuracy in classifying these groups. **Conclusions:** 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.

## O-32

### An Urdu language Version of the Child Oral Impacts on Daily Performances Index Assessing Validity and Reliability

**Khaliqa-Tul-Zahra<sup>1</sup>, Zamros Yuzadi Mohd Yusof<sup>1</sup>, Marhazlinda Jamaluddin<sup>1</sup>**

Department of Community Oral Health and Clinical Prevention, Faculty of Dentistry,  
University of Malaya, Malaysia.

Email: [khaliqatulzahra@gmail.com](mailto:khaliqatulzahra@gmail.com), [zamros@um.edu.my](mailto:zamros@um.edu.my), [marhazlinda@um.edu.my](mailto:marhazlinda@um.edu.my)

**Objectives:** The objectives of this study were to undertake a cross-cultural adaptation of the Child Oral Impacts on Daily Performance (Child-OIDP) index into an Urdu language version and to investigate its psychometric properties in terms of validity and reliability. **Methods:** The English Child-OIDP index was translated into an Urdu language version through a forward-back translation process. The psychometric properties of the Urdu Child-OIDP index were tested by distributing it to a convenient sample of 264, 11-12 year old schoolchildren in Lahore, Pakistan. The index was re-distributed to a sub-sample of 54 children one week later. The psychometric properties of the Urdu Child-OIDP index were assessed by evaluating its reliability (internal consistency and test-retest reliability) and validity (face, content, criterion, and construct validity). Internal consistency reliability was measured by using inter-item correlation, corrected item-total correlation and Cronbach alpha coefficient. Test-retest reliability was measured by Weighted Kappa and intraclass correlation coefficient. Moreover, criterion and construct validity were measured by Kruskal Wallis and Mann-Whitney U tests. **Results:** The face and content validity of the Urdu Child-OIDP index have been verified by the expert committee and during the pilot test among 11-12 year old children. The Cronbach's alpha was 0.77 and the weighted Kappa was 0.94 (intraclass correlation value was 0.98). Significant associations were observed between Urdu Child-OIDP scores and subjective outcomes perceived by children. Children with high Child-OIDP scores were the ones who perceived treatment needs ( $p<0.001$ ), were less satisfied with their oral health ( $p<0.001$ ), perceived high oral impacts ( $p<0.001$ ) and had a history of dental diseases ( $p<0.001$ ). Similarly, children with dental caries had significantly higher OIDP scores than children who were caries free ( $p<0.001$ ). **Conclusions:** The study indicates that the Urdu Child-OIDP index is a valid and reliable tool to measure the impacts of oral diseases and conditions on daily performances of 11-12 year old schoolchildren in Lahore, Pakistan.

## O-33

### A Pilot Study: The Efficacy of the Maxillofacial Suturing Kit in Assessing Undergraduate Skill Performance

Abdul Bari N, Firdaus MS, Hamuddin S, MD Sabri BA

Center for Oral & Maxillofacial surgery Studies, Faculty of Dentistry, Universiti Teknologi MARA

Email: [naquib1026@gmail.com](mailto:naquib1026@gmail.com), [sakinah\\_hamuddin@yahoo.com](mailto:sakinah_hamuddin@yahoo.com),  
[shawal@salam.uitm.edu.my](mailto:shawal@salam.uitm.edu.my), [budiaslinie@salam.uitm.edu.my](mailto:budiaslinie@salam.uitm.edu.my)

**Objectives:** To evaluate the impact of the maxillofacial suturing kit on undergraduates' competence and confidence level on performing basic suturing. **Materials and methods:** This pilot study was both qualitative and quantitative research based on five point and two point rating scale questionnaire, also two point rating scale evaluation form. The study sample included 45 students from Year 4 Bachelor of Dental Surgery (BDS) (2018/2019). Prior to the distribution of suturing kits, a questionnaire was given out to subjects, assessing their baseline knowledge and confidence in suturing. The students then performed suturing exercises under specialist's supervision for 10 minutes and were evaluated. Then the students were given the suturing kit with instructions to utilize it for one week after which the students were asked to complete a post exposure questionnaire. Then, a post exposure suturing exercise and evaluation was conducted. The study data was entered using SPSS (Version 25) and analysed using paired T-test analysis. **Result:** A significant improvement between pre (5.82) and post (16.51) intervention score was observed ( $P < 0.001$ ) showing that students' competency in performing basic sutures improved after exposure to the kit. An increase in students' confidence in suturing was also seen where the pre-intervention score (19.18) increased to 25.82 post intervention. ( $P < 0.001$ ) **Conclusion:** Increased undergraduates' knowledge, competence and confidence level is observed with the exposure to the maxillofacial suturing kit.

## O-34

### A 3D Geometric Morphometric Analysis of Lip Morphology in Class II Division 1 Malocclusion

**Meyyappan D<sup>1</sup>, Marizan Nor M<sup>1</sup>, Ashar A<sup>2</sup>, Mohamed AM<sup>1</sup>, Pritam HH<sup>3</sup>**

<sup>1</sup>Discipline of Orthodontics, Centre for Family Oral Health, Universiti Kebangsaan Malaysia;

<sup>2</sup>Centre for Craniofacial Diagnostics and Biosciences, Universiti Kebangsaan Malaysia;

<sup>3</sup>School of Health Sciences, Universiti Sains Malaysia

Email: [darsha412@gmail.com](mailto:darsha412@gmail.com), [murshida@ukm.edu.my](mailto:murshida@ukm.edu.my), [atika.ashar@ukm.edu.my](mailto:atika.ashar@ukm.edu.my),  
[alizaemarny@gmail.com](mailto:alizaemarny@gmail.com), [helmi\\_mhp@usm.my](mailto:helmi_mhp@usm.my)

Today, patients seek orthodontic treatment with hopes of improving their facial attractiveness. Clinicians of modern orthodontics have begun to place more emphasis on facial soft tissue aesthetics, predominantly in the lips. **Objectives:** The objective of this longitudinal cohort study is to identify the link between orthodontic treatment and lip morphology in Class II Division 1 malocclusion. **Methods:** Three-dimensional facial scans were taken on 29 orthodontic patients with a mean age of  $18.4 \pm 3.9$  at six different time frames (T1 – before fixed appliance, T2- Immediately after fixed appliance, T3- 3 months after fixed appliance, T4- 6 months after fixed appliance, T5- 12 months after fixed appliance, T6 – after removal of appliance). Nine landmarks were selected on the lip region. The X, Y and Z coordinates obtained were analysed using Geometric Morphometric (GMM) analysis to identify and visualize the morphological changes of the lips in orthodontic patients. **Results:** The key morphological features were identified using principle component (PC) analysis. PC1 to PC4 described 73% of the total variance in the lip morphology amongst all 29 patients. In the transverse plane, the lips acquired its widest width at 12 months. In the vertical plane, the incompetence of the lips reduced gradually until the completion of orthodontic treatment. Antero-posteriorly, the lip prominence reduced significantly only at 12 months and remained the same until the removal of appliance. The entire perioral region except for the superior border of the Cupid's bow moved backward at the end of treatment. **Conclusions:** There are variations in lip morphology in all the 29 patients prior to orthodontic treatment. There is also a demonstrable pattern of shape differentiation in lip morphology during orthodontic treatment. This can be depicted using Geometric Morphometric Analysis which allows us to obtain shape data irrespective of the linear differences between landmarks.



## O-35

### Awareness of Sugar and Nutrition Information on Food Labels

**Norashikin Y<sup>1</sup>, Budi Aslinie MS<sup>1</sup>, Nor Hamimah R<sup>2</sup>, Nur Fatihah Y<sup>2</sup>**

<sup>1</sup>Centre of Population Oral Health and Clinical Prevention Studies, Faculty of Dentistry, Universiti Teknologi MARA, Kampus Sungai Buloh, <sup>2</sup>Faculty of Dentistry, Universiti Teknologi MARA, Kampus Sungai Buloh

Email: [nyshikin@gmail.com](mailto:nyshikin@gmail.com)

Food labels play an important function in communicating nutrition information to the consumers who purchase food products and this influence their food choices and dietary behaviour. Ideally consumers should be able to locate, read, interpret and understand the food labels for them to make informed choices of the purchased food product. **Objectives:** To assess the usage of food labels among local consumers and their attitude towards sugars in their food. **Materials and methods:** A cross sectional study was carried out in an urban and rural setting in Malaysia. A validated questionnaire was used to assess the usage of food labels among local consumers and consumers' attitude towards sugars in their food. Data was collected from 282 consumers through convenience sampling. **Results:** Six out of the 14 nutritional information tested had been seen by more than 50% of the respondents. The most looked for information when shopping for personal use is 'Low Fat' claim, and 'Reduced Sugar' claim when shopping for the family. The proportion of urban respondents and those with high education background and those with high income who looked for health claims, ingredient list, and reduced sugar information were significantly higher ( $p < 0.05$ ) as compared to rural respondents, those with lower education and low income respectively. Correspondingly, the proportion of urban, high income and high education respondents who consume low sugar in their drinks were also higher as compared to the other groups respectively. **Conclusion:** Education, urbanity and income impacts on how labels are being used by consumers. Consumers' predilection in reading labels is reflected in their sugar consumption behaviour.

## O-36

**From Science to Practice:  
Does Novel Anisotropic Hydrogel Tissue Expander Induces Inflammation?**

**Kholoud Mohamed Ali Salim<sup>1</sup>, Siti Mazlipah Ismail<sup>2</sup>, Zamri Radzi<sup>2</sup>,  
Mohammad Tariqur Rahman<sup>2</sup>**

<sup>1</sup>Department Of Oro- Maxillofacial Surgical And Medical Sciences, Faculty Of Dentistry, University Of Malaya; <sup>2</sup>Department of Oral and Maxillofacial Clinical Sciences, Faculty of Dentistry, University Of Malaya; <sup>3</sup>department of children's dentistry and orthodontics, faculty of dentistry, university of Malaya; <sup>4</sup>faculty of dentistry, university of Malaya.

Email: [kholoud2016kholoud@gmail.com](mailto:kholoud2016kholoud@gmail.com), [sitimazlipah@ummc.edu.my](mailto:sitimazlipah@ummc.edu.my), [zamrir@um.edu.my](mailto:zamrir@um.edu.my), [tarique@um.edu.my](mailto:tarique@um.edu.my)

**Objective:** To determine whether if anisotropic hydrogel tissue expander promote subclinical inflammatory response. **Material and Methods:** 8 weeks old spargue dawley rats, Weight - 300g  $\pm$  50g were used as models. The rats were randomly divided in to two groups: control group and expanded group. The expander was placed subcutaneous in the forehead, the expander then removed after four weeks. The rats sacrificed and skin the samples were taken and placed in formaldehyde and fixed in formalin and embedded on paraffin wax for histological investigation. Hematoxylin and eosin stain was performed to detect the histological changes between the two groups and to detect the inflammatory response in the expanded samples. Moreover, the expression level of pro- inflammatory cytokines IL-1, TNF- $\alpha$ , IL-8, IL-6 were determine by immunohistochemistry. Tissue section were dehydrated through serial graded alcohols and subjected to heat induced antigen retrieval using 10mM sodium citrate buffer solution at pH 6.0. Sections washed with PBS and blocked with 5% BSA. Slides were incubated with primary Rabbit antibody; IL-1 (ab124962 at dilution 1:100), TNF- $\alpha$  (ab6671 at dilution 1:50), IL-6 (ab208113 at dilution 1:100), IL-8 (ab7747 at dilution 1:100) for overnight and secondary HRB (Horse raddish peroxidase) antibody (ab6721 at dilution 1:500) for two hours, then stained with DAB (3,39-diaminobenzidine tetrahy- drochloride) and counter stained with Hematoxylin. **Results:** This study is the first in-vivo macromolecular analysis of biological response to anisotropic hydrogel tissue expansion. There was no significantly difference on cytokines production level between the expanded and control samples (p =0.071). Histological analysis showed no inflammatory response was involved in expanded tissue. **Conclusion:** The in-vivo experiment reveals an absents of inflammatory response to anisotropic self-inflating hydrogel tissue expander.

## O-37

### Polymicrobial Interactions Affect Interleukin-2 and Interleukin-10 Expression of Normal and Oral Cancer Cell Lines.

**Mohd Hafiz Arzmi<sup>1</sup>, Stuart Dashper<sup>2</sup>, Nicola Cirillo<sup>2</sup>, Neil O'brien-Simpson<sup>2</sup>,  
Michael Mccullough<sup>2</sup>**

<sup>1</sup>Department of Fundamental Dental and Medical Sciences, Kulliyah of Dentistry, International Islamic University Malaysia, Kuantan Campus, Malaysia, <sup>2</sup>Melbourne Dental School, The University of Melbourne, Victoria, Australia

Email: [hafizarzmi@iium.edu.my](mailto:hafizarzmi@iium.edu.my)

**Objectives:** To determine the effect of mono-culture and polymicrobial biofilms effluent from *C. albicans*, *Streptococcus mutans* and *Actinomyces naeslundii* on the expression of Interleukin-2 (IL-2) and Interleukin-10 (IL-10) from normal and oral squamous cell carcinoma (OSCC) cell lines. **Methods:** OKF6 cell line isolated from healthy oral cavity was grown to 80% confluent in 12-well plate and incubated with 80% (v/v) serum free medium (SFM) containing biofilm effluent from mono-culture of *C. albicans* (ALC3), *S. mutans* (SM), *A. naeslundii* (AN) or polymicrobial (TRI) for 2 h and 24 h. Incubation of the cell line with 100% SFM (NE) was conducted to represent the negative control. To quantify the amount of IL-2 and IL-10 secreted by epithelial cells in response to biofilm effluent, the conditioned medium was collected and analysed using Bio-Plex protein array system and Bio-Rad cytokine multi-plex panel. Similar protocol was repeated with H357 cell line that was isolated from patient with OSCC. **Results:** OKF6 cell line that was incubated with SM had significant increase of IL-2 expression when compared to NE after 2 h incubation ( $P<0.05$ ). The incubation of H357 with AN and SM effluent exhibited significant increase of IL-2 and IL-10 expression after 2 h incubation, whereas significant increases of the similar cytokines were observed when incubated with ALC3, AN and TRI effluent after 24 h in comparison to NE ( $P<0.05$ ). **Conclusions:** *C. albicans*, *Streptococcus mutans* and *Actinomyces naeslundii* promotes malignant phenotype of OSCC cell line in mono-culture and polymicrobial infections *in vitro*.

## O-38

### Effect of Curing Light Distance on the Cure of Bulk-Fill Composite Resins

**Diab RA<sup>1</sup>, Yahya NA<sup>1</sup>, Gonzalez MAG<sup>1</sup>, Yap AU<sup>1,2</sup>**

<sup>1</sup>Department of Restorative Dentistry, Faculty Dentistry, University of Malaya; <sup>2</sup>Department of Dentistry, Ng Teng Fong General Hospital, National University Health System, Singapore.

Email: [ranabasetdiab@hotmail.com](mailto:ranabasetdiab@hotmail.com), [nazlin@um.edu.my](mailto:nazlin@um.edu.my), [gonzalez@um.edu.my](mailto:gonzalez@um.edu.my), [aujyaprd@gmail.com](mailto:aujyaprd@gmail.com)

**Objectives:** This study investigated the effect of curing light distance on the surface micro-hardness (SMH) and degree of conversion (DC) of bulk-fill resin based composites (RBCs). **Methods:** Two bulk-fill RBCs (Tetric N-Ceram Bulk Fill [TN] and Filtek Bulk Fill [FK]) were evaluated. Cylindrical specimens of 5 mm diameter and 4 mm height were fabricated using Teflon split molds, cured at different distances and stored for 24 hours in 100% relative humidity at 37°C. The SMH (n=12) and DC (n=6) of the top and bottom surfaces of the specimens were assessed using a Knoop micro-hardness tester (KHN) and fourier transform infrared spectroscopy respectively. Data were computed and analysed using ANOVA/Tukey test post hoc test (p<0.05). **Results:** Mean bottom:top hardness ratios (HR) ranged from 0.27 to 0.46 for TNC and 0.68 to 0.79 for FK for the various curing distances. For TN curing at 8mm resulted in significantly lower HR than the other curing distances. Mean DC of TN ranged from 54.84% to 62.62% and 35.30% to 43.63% for the top and bottom surfaces. For FK, DC ranged from 62.25% to 68.89% for the top surface and 44.85% to 55.04% for the bottom. For all curing distances, FK had higher HR and DC than TN. **Conclusions:** HR and DC were material and curing distance dependent. HR of TN was substantially lower than the ideal of 0.8. As there is a general trend toward lower HR with increasing curing distance, light curing tips should be positioned as close to bulk-fill RBCs as possible.

## O-39

### Wounded Football Player: A Journey of an Oral Maxillofacial Surgery and Prosthetic Rehabilitation

Azmeel Mazlee A<sup>1</sup>, Rostam Iffendi I<sup>2</sup>, Tengku Fazrina TMA<sup>2</sup>

<sup>1</sup>Centre of Oral and Maxillofacial Surgery Studies, Faculty of Dentistry, University Teknologi MARA, <sup>2</sup>Centre for Restorative Dentistry Studies, Faculty of Dentistry, University Teknologi MARA

Email: [azmeel1978@gmail.com](mailto:azmeel1978@gmail.com), [rostamiffendi@gmail.com](mailto:rostamiffendi@gmail.com), [fazrina@yahoo.com](mailto:fazrina@yahoo.com)

**Objectives:** This is a case report of maxillofacial injury secondary to sports trauma and prosthetic rehabilitation stage of professional import football player (JDT Football Club) that leads to earlier recovery towards his routine football training activities. **Methods:** Patient was referred by Emergency Department for facial injury secondary to football match trauma due to collision between him and two opponent players that lead to nasal bone fracture, left lower orbital rim fracture and soft tissue injury (STI). Surgical procedure of open reduction and internal fixation (ORIF) of facial fractures was successfully performed. To boost the recovery and performance, facial protective mask and mouth protective guard were issued 3 weeks post-surgery. **Results:** Surgery was uneventful and patient recovered well. Due to the demand from the higher management of the football club where they requested him to play over the next football match, a facial protective mask and mouth protective guard were arranged. Facial and oral impression were taken with reversible hydrocolloid material for these prostheses. Carbon fibre reinforced material was used for construction of protective face mask according to Federation Internationale de Football Association (FIFA) regulations and flexible thermoplastic protective mouthguard were issued to the patient as a protective gear for patient during football match. These types of materials were chosen because of economical, light, strong, easy to construct and adapted well to individual facial profile compared to other preformed materials available in the market. Patient wore these prostheses during training session and the semi-final match of Malaysia Cup 2018. **Conclusion:** The surgical procedure helps in stabilizing the fractures and the prostheses aids in protective towards the surgical sites during training and match day. By providing these prostheses, patient is able to return to his regular football training and match earlier than normal fracture recovery period (6 weeks).

## O-40

### Evaluation of Water Sorption, Solubility and Surface Characteristics of Flowable Resin Composite from Agricultural Biowaste in Different Immersion Media

Alrawas M, Husein A, Johari Y, Mohamad D

School of Dental Sciences, Universiti Sains Malaysia, 16150 Kubang Kerian, Kelantan, Malaysia

Email: [matheel87@gmail.com](mailto:matheel87@gmail.com), [adamkck@usm.my](mailto:adamkck@usm.my), [yjohari@usm.my](mailto:yjohari@usm.my), [dasmawati@usm.my](mailto:dasmawati@usm.my)

Water sorption and solubility of the flowable resin composite after exposure to the oral environment is major issue that affects the longevity and performance of the established filling. **Objectives:** The aim of this study is to evaluate water sorption and solubility of flowable resin composite made from agricultural bio-waste (Rice husk) in different immersion media and to investigate the effects of these acidic media on surface characteristics of the composite. **Methodology:** Flowable resin composite specimens (two experimental products and Revolution formula 2®) were prepared in a stainless-steel mold of 1 mm thickness and 15 mm diameter (n = 5) followed by light-cured. All samples were dried at 37°C and weighted until constant mass reached prior to immersion in different media (distilled water, sports drink, orange juice and lactic acid) at 37 °C and weighed at suitable time intervals (15, 45, 90, 180, 360, 720, 1440 minutes) until 40 days of immersion. Then all samples were dried again until constant mass achieved. Water sorption and solubility (µg/mm<sup>3</sup>) were calculated based on BS EN ISO 4049:2000. Scanning electron microscope (SEM) was used to study the surface topography of the samples. Data for water sorption and solubility were analysed with One-Way ANOVA and post hoc Scheffe test at p = 0.05. **Discussion:** The water sorption of both experimental flowables were significantly increased after immersion (p < 0.05) in all media when compared to Revolution formula 2. Meanwhile for water solubility, both experimental flowable showed an increase in solubility when immersed in all media compared to that of Revolution formula 2 (p < 0.05). Field emission scanning electron microscope showed different surface characteristics between experimental and commercial products. **Conclusions:** The exposure of resin flowable composites to acidic liquids can cause a raise in water sorption and solubility values which may fasten the degradation process with an end point of reduction of the life span of the restoration. Therefore, further work is required to improve the properties of water sorption and solubility of the experimental flowable composite.

## O-41

### The Relationship between Body Mass Index (BMI), Dental Development and Chronological Age in 10-16-Year-Old Patients

**Tan CG<sup>1</sup>, Lau YT<sup>1</sup>, Roziana MR<sup>2</sup>**

<sup>1</sup>Faculty of Dentistry, University of Malaya, Kuala Lumpur, Malaysia; <sup>2</sup>Department of Paediatric Dentistry and Orthodontics, Faculty of Dentistry, University of Malaya, Kuala Lumpur, Malaysia

Email: [chin\\_guan321@hotmail.com](mailto:chin_guan321@hotmail.com), [lauyingtian95@hotmail.com](mailto:lauyingtian95@hotmail.com), [rozirazi@um.edu.my](mailto:rozirazi@um.edu.my)

**Objectives:** 1) To determine the difference in BMI, dental development (DA) and chronological age (CA) between males and females in 10-16-year-old Malaysian Malay and Chinese patients; 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. **Methods:** 637 patients' records were screened, 73 met the inclusion and exclusion criteria. 49 patients gave their consent. BMI was calculated then classified using 2007 WHO BMI classification. Pilot study was conducted. Two assessors were calibrated with a gold standard clinician. CA was calculated by subtracting the date of birth from date of dental panoramic tomography taken. DA was determined using Demirjian's 7-tooth model for Malay and Chaillet & Demirjian's 8-tooth model for Chinese. Dental developmental stage of each tooth was determined and scored. Total score obtained was used to determine the DA, using 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 0.436yr higher than mean DA ( $p<0.001$ ), mean CA of overweight and obese patients was 0.432yr 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 in obtaining DA 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 years old Malaysian Malay and Chinese patients. The formulae derived from this study can act as an assisting tool for clinician to formulate a comprehensive treatment plan for growing orthodontic and paediatric patients.



## O-42

### The Distribution of Malaysian Dental Practitioners in Relation to the Population: A Geographic Information System Study

**Rizal S<sup>1</sup>, Azahari AA<sup>1</sup>, Md Bohari NF<sup>2</sup>, Ashar A<sup>3</sup>**

<sup>1</sup>Faculty Of Dentistry, University Teknologi MARA, <sup>2</sup>Centre of Population Oral Health and Clinical Prevention Studies, Faculty of Dentistry Universiti Teknologi MARA, <sup>3</sup>Centre for Craniofacial Diagnostics and Biosciences, Universiti Kebangsaan Malaysia

Email: [sahhrizal00@gmail.com](mailto:sahhrizal00@gmail.com), [norfaezah6843@uitm.edu.my](mailto:norfaezah6843@uitm.edu.my)

**Objective:** The aim of this 2018 study was to analyse the distribution of dental practitioners in relation to the population in Klang Valley and Borneo Island, to prove the hypothesis that an uneven distribution of dental practitioners in Malaysia. **Methods:** All dental practitioners in four selected states; W.P Kuala Lumpur, Selangor (Klang Valley), Sabah and Sarawak (Borneo Island) were located and mapped against the population, using Geographic Information Systems (GIS) tools. The practicing address for each dental practitioner was gathered from Dental Practitioners' Information Management System (DPIMS) and population data were obtained from the Population and Housing Census of Malaysia 2010. All data for analysis were extracted from the integrated database in QGIS into Microsoft Excel. The de-identified data for each dental practitioner including date of registration to Malaysian Dental Council (MDC), practice type (government or private) and qualification were also analysed. **Results:** A total of 1,181 and 1,831 dental practitioners practiced in W.P Kuala Lumpur and Selangor respectively. 437 dental practitioners practiced in Sabah and 532 in Sarawak. The highest dental practitioner to population (DPtP) ratio found in this study was in Sabah with a ratio of 1:6,555. Beluran district in Sabah had the highest DPtP ratio which was 1: 52,242 while Sabak Bernam district in Selangor had the lowest DPtP ratio of 1: 1,159. **Conclusion:** Dental practitioners were distributed relative to high population density, were unevenly distributed across Malaysia, and the majority of people that has the most inaccessibility to a dental practitioner, reside in Sabah.

## O-43

### Parental Acceptance of Behaviour Management Used in Pre-school Children during Dental Treatment

**Nur Fatin Faqhira Jalani<sup>1</sup>, Nur Amirah Hamid<sup>1</sup>, Izyan Hazwani Baharuddin<sup>1</sup>,  
Ilham Wan Mokhtar<sup>2</sup>**

<sup>1</sup>Faculty of Dentistry, Universiti Teknologi MARA, <sup>2</sup>Center of Studies for Comprehensive Care, Faculty of Dentistry, Universiti Teknologi MARA

Email: [nurfatinfaghira96@gmail.com](mailto:nurfatinfaghira96@gmail.com), [amirah\\_laseradial@yahoo.com](mailto:amirah_laseradial@yahoo.com),  
[ilham@salam.uitm.edu.my](mailto:ilham@salam.uitm.edu.my), [izyan9192@uitm.edu.my](mailto:izyan9192@uitm.edu.my)

**Objective:** To evaluate parents' acceptance towards passive restraint (PR), active restraint (AR), parents' separation (PS), voice-control (VC), tell-show-do (TSD), conscious sedation (CS) and general anaesthesia (GA) on their pre-school children during dental treatment as one of behaviour management techniques (BMT) in dentistry. **Methods:** A 11-items questionnaires constructed in two (2) domains; demographic and acceptance. Seven set videos of selected BMTs were showed for assessment. Acceptance of each technique is measured using a 100mm horizontal visual analogue scale. Data were analysed using SPSS version 25. A repeated measure ANOVA within group analysis was used to compare the acceptability of parents towards each technique, which was followed by pairwise comparison with Bonferroni adjustment. One-way ANOVA was used to evaluate the association of each BMT assessed with selected demographic parameters. Post-hoc analysis with Bonferroni adjustment were applied. **Results:** Fifty-five parents with children age between 3 – 5 years old were recruited. 98% of the parents are married and only 2% are single parents. Most of the parents are degree holder which contributes 31%. There is a significant difference in the score between TSD with PS, PR, CS, AR and GA. There is also significant difference between VC with GA. Tell-Show-Do is the most accepted technique whereas general anaesthesia is the least accepted. **Conclusion:** Parents' acceptance of studied BMT is above average. Proper explanation and clarification of the techniques will improve acceptance and lessen the parents' concern about their children dental treatment.