



UNIVERSITI SAINS MALAYSIA



SOARING UPWARDS

MALAYSIAN HIGHER EDUCATION



2nd POSTGRADUATE RESEARCH DAY

PGRD

School of Dental Sciences, Universiti Sains Malaysia

Deciphering the Intricacies in Science

15th Students Scientific Conference

Date: 22nd February 2018

Venue: School of Dental Sciences, USM Health Campus

ABSTRACT BOOK

Co-Sponsors



DIRA RESOURCES



Organised by:
School of Dental Sciences, Universiti Sains Malaysia Health Campus

CONTENTS

2 nd PGRD/15 th SSC Organizing Committee	2
Welcome Messages	3-5
2 nd PGRD/15 th SSC Programme	6
15 th SSC Presentations Schedules	7-10
15 th SSC Abstracts	11-33

2nd PGRD /15th SSC Organizing Committee

Advisor I: Prof. Dr. Adam Husein
Advisor II: Dr. Azlina Ahmad
Chairperson: Dr Khairul Bariah binti Ahmad Amin Noordin
Secretary: Ms. Rizwana Md Rashid
Ms. Muji binti Abdullah
Treasurer: Ms. Noordini Ghazali
Sponsorship: Ms. Nor Shamsuria Omar
Ms. Asiah Abu Bakar

Secretariat:

Ms. Masdira Muhamad
Ms. Nur Hidayah Abd Halim
Ms. Sanita Hasan
Ms. Anis Syazreen Lokman
Ms. Wan Nor Azlin Wan Azlan
Ms. Sharifah Mastura Syed Mustafar
Ms. Nik Yang Majid
Mr. Sapizan Mohamad

Scientific:

PGRD

Dr. Norsila Abdul Wahab (Chairperson)
Assoc. Prof. Dr. Erry Mochamad Arief
Assoc. Prof. Dr. T.P Kannan
Dr. Norhayati Yusop
Dr. Yanti Johari
Dr. Siti Aishah Zainal
Mr. Nur Mohamad Mohd Makhtar
Ms. Haizan Hassan

SSC

Assoc. Prof. Dr. Wan Muhamad Amir bin
W Ahmad (Chairperson)
Dr. Azirrawani Ariffin
Dr. Masitah Hayati Harun
Dr. Mohamad Syahrizal Halim
Dr. Munirah Mohd Adnan
Dr. Norma Abd Rahman
Dr. Roselinda Ab. Rahman
Dr. Zurairah Berahim

Publishing:

Mr. Abdul Hakim Abdul Basir
Ms. Norliana Ghazali
Ms. Noraini Md. Zain
Mr. Mohd Nazif Saadon
Ms. Wan Emiy Sazalin Wan Yusoff

Protocol:

Dr. Nur Karyatee Kassim
Ms. Noor Baizura Ab. Ghani
Ms. Yanty Suarni Bustaman
Ms. Siti Nur Akhirah Hasmi

Prizes/Honorarium:

Dr. Fadzlinda Baharin
Ms. Safizaniah@Safiza Ismail

Food and Beverages:

Ms. Nurani Ahmad
Ms. Norleha Mohd. Noor

Hospitality:

Mr. Nur Mohamad Mohd Makhtar
Mr. Mohamad Hairie Sahabudin

Technical:

Mr. Mohamad Ezany bin Yusoff
Mr. Mohd Yusof Soon Abdullah
Mr. Mohamad Hairie Sahabudin
Mr. Azman Zulkifli
Mr. Shafie Mahmood
Mr. Abdul Rahim Awang
Mr. Mohd Nor Faiq Ahmad Nordin
Mr. Mohamad Fifi Rozee Mohd Sharif
Mr. Hamzi Hassan
Mr. Ahmad Shahir Che Mohd Ariffin
Mr. Rosmadi Mat Nor
Mr. Azaman Mohamed Yusoff
Mr. Khairul Aswad Zainal Abidin

Message from the Director of Health Campus



In the Name of Allah, the Most Gracious and the Most Merciful.

Universiti Sains Malaysia Health Campus (USM) and the organizing committee welcome you to the 2nd Postgraduate Research Day 2018 (PGRD 2018) in conjunction with 15th Annual Students' Scientific Conference 2018 (15th SSC). This event is a platform for both the undergraduates and postgraduates to impart their research findings. The main aim of this conference is to nurture research interest among our undergraduates besides to inculcate good research culture in all researchers including undergraduates, postgraduates as well as lecturers.

It is hoped that through this conference, the knowledge gained and the discoveries made would be shared openly among the participants so that the entire process would be one of learning experience that would be impactful on every participant academically.

The theme **Deciphering the Intricacies in Science** is relevant to future graduates and postgraduates. It has become imperative for all of us, to understand, explore and unfurl the applications of science and harnessing its potentials for our future generations.

I hope this event will be a very fruitful and memorable meeting for all the participants. Let us make this scientific conference as a platform to educate, inspire and connect not only among us in USM Health Campus but also with the scientific community throughout the world.

'Deciphering the Intricacies in Science'

Thank you.

Professor. Dato' Dr. Ahmad Sukari Halim
Director of Health Campus,
Universiti Sains Malaysia

Message from the Dean



Assalamualaikum warrahmatullah dan salam sejahtera.

The School of Dental Sciences, Universiti Sains Malaysia (USM) is proudly welcome all invited speakers, participants and everyone to our 2nd Postgraduate Research Day 2018 (PGRD 2018) which is held in conjunction with 15th Annual Student's Scientific Conference (15th SCC); the annual conference for the undergraduate students of School of Dental Sciences, USM

This annual conference is a platform for researchers to share with others all the innovations and discoveries which of benefits to the mankind. It is widely perceived that academic research and the scientific process is a key driver of innovation, economic growth and social development

The theme of this year's conference, '**Deciphering the Intricacies in Science**', encourages all researchers to succeed in understanding, interpreting, and identifying the qualities in Science. It is crucial that we also yield, develop or improve new findings and knowledge that would help and benefit the future generations to come.

This year marks the second year of 2nd Postgraduate Research Day 2018 which gives our postgraduates an opportunity to display their research and presentation skill besides sharing their knowledge with others. This event serves as a stepping stone for our postgraduates to educate, inspire and connect not only among us in School of Dental Sciences, but also with the world.

Hence, this is the moment to empower your knowledge, enduring collaborations, and utilise all your enthusiasms and proficiencies to advocate the beauty of sciences. As the Dean of the School of Dental Science, USM, I would like to take this opportunity to thank all the participants. On behalf of myself and my colleagues, I wish all our students have a great success in their academic and professional life.

Have a wonderful conference.

Professor Dr. Adam Husein
Advisor, 2nd PGRD/15th SSC
Dean, School of Dental Sciences, USM.

Message from the Chairperson



In the Name of Allah, the Most Gracious and the Most Merciful.

On behalf of the organising committee, it is my pleasure to welcome all of you to the Second Postgraduate Research Day 2018 (2nd PGRD 2018), held in conjunction with 15th Student Scientific Conference (15th SSC). The objectives of today's event are to nurture research interest among our undergraduates and to inculcate good research culture in all researchers including undergraduates, postgraduates as well as lecturers.

Every year, the SSC is a platform for our undergraduates to present their research elective project. Starting from last year, PPSG organised SSC together with PGRD so that both our undergraduates and postgraduates can showcase their respective research works. This year, there are 21 orals and 10 posters that will be presented by our postgraduates. As for the undergraduates, there will be 32 oral and 11 poster presentations. All the presentations will be conducted concurrently in parallel sessions at five venues.

As in previous years, this year we are honoured to have participants from Indonesia. On behalf of the Organising Committee, I welcome the Indonesian participants to this event, especially, and to Kelantan, generally. It is hoped that all the participants will acquire knowledge, experience and benefit from today's event.

Lastly, I would like to extend my gratitude to all the committee members for their excellent contributions and valuable time in making this event a success. Also, I would like to acknowledge our co-sponsors: Colgate, Dira Resources and ThermoFisher Scientific, for their continuous support and generosity.

“Deciphering the Intricacies in Science”
Thank you.

Dr Khairul Bariah binti Ahmad Amin Noordin
Chairperson, 2nd PGRD/15th SSC

2nd Postgraduate Research Day / 15th Students Scientific Conference
 School of Dental Sciences, Universiti Sains Malaysia
 22nd February 2018

Time	Programme	Venue
8.00 am	Registration	Corridor, 2 nd Floor
8.15 am	Short briefing to Judges	Dean's Meeting Room, 2 nd Floor
8.30 am	Ceremonial procession of VIPs	DK 1, 2 nd Floor
8.45 am	National Anthem /USM Song / Prayer recital	
8.50 am	Welcoming speech by Dean, School of Dental Sciences	
9.00 am	Officiating speech by USM Health Campus Director, Prof. Dato' Paduka Dr Ahmad Sukari Halim	
9.10 am	Multimedia presentation	
9.20 am	Break up session	
9.30 am	<u>Presentations</u> 15th SSC Oral (Basic Sciences) 15th SSC Oral (Clinical Sciences) 15th SSC Oral (Public Health) 2nd PGRD Oral 3-min pitching 15th SSC Poster, 2nd PGRD Poster *(Break for judges 11.00-11.30 am)	DK 1, 2 nd Floor DK 2, 2 nd Floor Conf. Room, 2 nd Floor Auditorium, Ground Floor Seminar Room, 2 nd Floor
1.00 pm	Lunch break	
2.00 pm	Talk by Colgate representative	DK 1, 2 nd Floor
2.30 pm	Talk by Invited Speaker: Prof. Dato' Paduka Dr Ahmad Sukari Halim	DK 1, 2 nd Floor
3.45 pm	Award presentation and closing ceremony	DK 1, 2 nd Floor

DK 1 (Dewan Kuliah 1/Lecture Hall 1)
 DK 2 (Dewan Kuliah 2/Lecture Hall 2)
 Conf. Room – Conference Room

**ORAL PRESENTATION
 BASIC SCIENCES**
Venue: Lecture Hall 1

Judges: Assoc. Prof. Dr. Aziah Ismail
 Assoc. Prof. Dr. TP Kannan

No.	Authors	Title	Time
BS 1	<u>Muhammad Faiz Aiman Bin Muhammad Asri</u> , Badr Abdullah At-Tayar, Azlina Ahmad, Masitah Hayati Binti Harun	Cytotoxicity of Areca Nut and Tobacco Aqueous Extracts on Mouse Fibroblast Cell Line	9.30
BS 2	<u>Pallavaraya Varman A/L Subramaniam</u> , Zaihan Ariffin, Fadhli Khamis, Ismail Abd. Rahman, Nazrul M.Yusoff, Yanti Johari	Influence of Kenaf Fibres on Flexural Strength of Polymethyl Methacrylate: A preliminary study	9.45
BS 3	<u>On Shi Hao</u> , Wafa' Zahari, Wan Nazatul Shima Shahidan, Khairul Bariah Binti Ahmad Amin Noordin	Detection of Cell Senescence in Stem Cells from Human Exfoliated Deciduous Teeth (SHED) and Oral Squamous Cell Carcinoma, HSC-2	10.00
BS 4	<u>Eric Lee Sher Xin</u> , Yanti Johari, Zaihan Bin Ariffin	Comparative Study of Flexural and Compressive Strength of Flexible Dentures	10.15
BS 5	<u>Lio Xing Ying</u> , Nor Farid Bin Mohd. Noor, Ramizu Bin Shaari	Antimicrobial Property of Nanotitania Extract Against <i>Streptococcus pneumonia</i> and <i>Pseudomonas aeruginosa</i>	10.30
BS 6	<u>Vick Niam A/L Eh Boon</u> , Wan Zariyah Wan Bakar, Mohamad Syahrizal Bin Halim	Evaluation of Microhardness and Surface Roughness of Four Different Composite Resins (CR) for Restoration of Posterior Teeth	10.45
BREAK 11.00 – 11.30			
BS 7	<u>Awatief Binti Zaid</u> , Ramizu Shaari, Nor Farid Mohd Noor	Antimicrobial Properties of Nanotitania Extract against <i>Klebsiella pneumonia</i> and <i>Hemophilus influenza</i>	11.30
BS 8	<u>Ooi Da Zhou</u> , TP Kannan, Azlina Ahmad, Nurul Hafizah Binti Mohd Noor, Zurairah Binti Berahim	Differentiation of Stem Cells from Human Exfoliated Deciduous Teeth (SHED) into Fibroblasts	11.45
BS 9	<u>Lo Szi You</u> , Raja Azman Bin Raja Awang, Noor Huda Binti Ismail	Vickers Hardness and SEM/EDS Microstructural Analyses of Experimental Zirconia Reinforced Nanohybrid Dental Composite from Rice Husk	12.00
BS 10	<u>Siti Nazira Binti Zubaidi</u> , Tuan Nadrah Naim Binti Tuan Ismail @ Tuan Manah	Antimicrobial Activity of <i>Cymbopogon Nardus</i> (Citronella Oil) Against <i>Propoiribacterium Acnes</i>	12.15

**ORAL PRESENTATION
 CLINICAL SCIENCES**
Venue: Lecture Hall 2

Judges: Prof. Dr. Rozita Hassan
 Assoc. Prof. Dr. Roskejura@Rosdan Salim

No.	Presenters	Title	Time
CS 1	<u>Nurul Huda Binti Mohd Shukor</u> , Mohd Zulkarnain Sinor, Akram Bin Hassan	Periodontal Parameters Changes of Patients after Non- Surgical Periodontal Therapy	9.30
CS 2	<u>Nurul Sharmeen Adlina Binti Mohammad</u> , Nurhayu Binti Ab. Rahman	Gorham's Disease of the Oral & Maxillofacial Region: A Review on Clinico-Pathologic Correlations	9.45
CS 3	<u>Ahmad Ilman Azfar Bin Mustafa Kamal</u> , Basaruddin Ahmad, Erry Mochamad Arief	Consistency of Basic Periodontal Examination and Periodontal Charting in Patients Attending Hospital Universiti Sains Malaysia	10.00
CS 4	<u>Sim Kar Sheng</u> , Rozita Hassan, Wan Muhamad Amir Wan Ahmad, Roselinda Bt. Ab. Rahman	A Study of Temporomandibular joint disorder (TMD) and Malocclusion – A preliminary study in School of Dental Science in HUSM	10.15
CS 5	<u>Shireen Haniza Binti Farid Patrick</u> , Fazal Shahid, Mohd Fadhli Bin Khamis	Sex Prediction Using Dental Arch Dimensions in Pakistani Populations	10.30
CS 6	<u>Yanishah A/P Kaliana Sundram</u> , Yanti Johari, Mohd Fadhli Khamis, Norma Abd Rahman, Azirrawani Binti Ariffin	2D Morphological Evaluation of Interocclusal Distance in Class II Division 2 Malocclusion	10.45
BREAK 11.00 – 11.30			
CS 7	<u>Galvin Sim Siang Lin</u> , Tahir Yusuf Noorani, Noor Huda Ismail, Nik Rozainah Binti Abdul Ghani	Fracture Resistance of the Permanent Restoration for the Endodontically Treated Premolars	11.30
CS 8	<u>Ginitha A/P Thiyagarajan</u> , Ismail Abdul Rahman, Siti Suraya Zulkifli, Hii Siew Ching, Norhayati Luddin	Comparative study of antimicrobial properties of conventional and nano HA – Silica – GIC: An In Vitro study	11.45
CS 9	<u>Nur Syahirah Bt Mohd Razi</u> , Mohamed Zahoor UI Huqh, Rozita Hassan	The Study of TMJ Morphology in Class I Bimaxillary and Class 2 Division 1 Malocclusion Patient Treated with Fixed Appliances	12.00
CS 10	<u>Muhamad Amiruddin Bin Rosdi</u> , Aimi Binti Kamarudin	Longevity of Posterior Restorations in Primary Teeth: Results from a Final Year Undergraduate Paediatrics Dental Clinic (USM)	12.15

**ORAL PRESENTATION
 PUBLIC HEALTH**
Venue: Conference Room

Judges: Assoc. Prof. Dr. Wan Mohd Zahiruddin Wan Mohammad
 Assoc. Prof. Dr. Sarimah Abdullah

No.	Presenters	Title	Time
PH 1	<u>Divhyia A/P Rajandran</u> , Fadzlinda Binti Baharin	Oral Health Knowledge, Attitude & Practice Among Parents with Medically Compromised Children Attending Hospital USM	9.30
PH 2	<u>Ang Jian Yong</u> , Norkhafizah Saddki, Noraini Binti Mohamad	Satisfaction with Dentist-Patient Interaction : Perception of Patients Attending Hospital USM Outpatient Dental Clinic	9.45
PH 3	<u>Tasnim Al-Ashraf Binti Amirul Al-Ashraf</u> , Wan Muhamad Amir Bin Wan Ahmad	Analysis of Oral Health Status Among Communities in Kampung To'Ku by Using Logistics Regression Model and Biplot Analysis : A Simulation Data Technique	10.00
PH 4	<u>Jasmine Lim Suk Wun</u> , Normastura binti Abd Rahman, Munirah binti Mohd Adnan	Knowledge, Attitude and Practices of Biomedical Waste Management among Dental Students in Clinical Years from School of Dental Sciences, USM	10.15
PH 5	<u>Ainaa Mardhiyah Binti Syed Mubarak</u> , Ramizu Shaari, Asilah Yusof	Prevalence and Patterns of Impacted Teeth in Kelantan, Malaysia using Orthopantomogram (OPG) and Cone Beam Computed Tomography (CBCT)	10.30
PH 6	<u>Yew Yun Qing</u> , Basaruddin Bin Ahmad	Trend of Periodontal Diseases in Malaysia	10.45
BREAK 11.00 – 11.30			
PH 7	<u>Koh Sze Hui</u> , Norhayati Yusop	Assessment of Attitude Towards Selecting Dental Healthcare Providers among Government Agencies Workers in Kota Bharu, Kelantan	11.30
PH 8	<u>Loi Tek Pej</u> , Normastura Abd Rahman, Muhammad Hafiz Hanafi, Nur Karyatee Binti Kassim	Caries Experience among Learning Disabled Children, Knowledge, Attitude, Practice and Problems Encountered by Their Caregivers during Tooth Brushing in Hospital USM	11.45
PH 9	<u>Cheryl Yip Ying Ling</u> , Normastura Bt Abd Rahman, Zainab Binti Mat Yudin @ Badrin	Depression, Anxiety and Stress Status and Dental Caries Experience Among Adult Patients Attending Outpatient Dental Clinic in Hospital USM	12.00
PH 10	<u>Lim Ching Ching</u> , Norkhafizah Saddki, Wan Syamimee Wan Ghazali, Wan Majdiah Binti WanMohamad	Oral Health Related Quality of Life among Rheumatoid Arthritis Patients	12.15
PH 11	<u>Muhammad Azim Syahmi Bin Kamaruddin</u> , Norsamsu Arni Binti Samsudin	The Oral Health Knowledge and Practices of Antenatal Mother in Hospital USM	12.30
PH 12	<u>Muhammad Danial Bin Kamal</u> , Haslina Taib, Basaruddin Ahmad, Siti Lailatul Akmar Binti Zainuddin	Prevalence of Diabetes Mellitus in Chronic Periodontitis Patients in Hospital USM	12.45

POSTER PRESENTATION
BASIC SCIENCES, CLINICAL SCIENCES, PUBLIC HEALTH

Venue: Seminar Room

Judges: Professor Nor Hayati Othman
 Assoc. Prof. Dr. Norhayati Luddin

No.	Presenters	Title	Time
POS 1	<u>Izyan Izzati Bt Mohd Raziff</u> , Munirah Mohd Adnan, Norzaliana Binti Zawawi	Practice of Infection Control in Oral Radiology Among Dental Students in Universiti Sains Malaysia (USM)	9.30
POS 2	<u>Wong Ying Kong</u> , Hanim Afzan Binti Ibrahim	Emotional Intelligence among Dental Undergraduates in USM	9.45
POS 3	<u>Nadirah Bt Mohd Noor</u> , Ruhaya Hasan, Nik Aloesnisa Binti Nik Mohd. Alwi	Perceived Sources of Stress among USM Dental Students	10.00
POS 4	<u>Miza Hazirah Binti Kamal</u> , Zuliani Mahmood, Norkhafizah Saddki, Ruhaya Binti Hasan	Association among Dental Caries, Parents/Guardians Socio-demographic Profile, Oral Hygiene Practice and Nutritional Status of Preschool Children Attending Hospital USM Dental Clinic	10.15
POS 5	<u>Goh Wan Theng</u> , Yanti Johari, Ismail Abd. Rahman, Nor Aidaniza Abd. Muttlib, Mohd Nazrulhuzaimi Md.Yusoff, Rabihah Binti Alawi	Mechanical Properties of Dental Composite Reinforced with Natural Fibers	10.30
POS 6	<u>Puteri Mardhiyah Binti Megat Mohamad</u> , Nur Izni Mohd Zaharri, Koh Chun Haw, Saidi Bin Jaafar	Serum Chemistry Analysis of Domesticated Macaques	10.45
BREAK 11.00 – 11.30			
POS 7	<u>Aimi Najwa Binti Abd Jalil</u> , Noor Huda Ismail, Raja Azman Raja Awang	Compressive Strength and Degree of Conversion (DC) Analyses of Experimental Zirconia Reinforced Nanohybrid Dental Composite from Rice Husk	11.30
POS 8	<u>Ng Wen Yun</u> , Mohamad Syahrizal Halim, Kasmawati@ Norhidayati Binti Mokhtar	Evaluation of Obturation Quality and Number of Visits Required by Undergraduate Students in PPSG, USM to Complete Root Canal Treatment Cases	11.45
POS 9	<u>Joanne Estrop</u> , Noor Huda Ismail, Adam Bin Husein	Survey of Cobalt Chrome Partial Denture Clasp Design in Universiti Sains Malaysia	12.00
POS 10	<u>Shazudin Bin Arshad</u> , Ramizu Shaari, Shaifulizan Bin Ab. Rahman	The Study Of Ligula Position On Panoramic Radiograph Of Malay Kelantanese Population	12.15
POS 11	<u>Nilufar Riazi Binti Mehdi</u> , Wan Muhd. Amir W. Ahmad, Tang Liszen	A Five-Year Retrospective Study on Zygomatic Complex Fracture at Hospital Universiti Sains Malaysia (Hospital USM), A Tertiary Teaching Hospital in Malaysia	12.30
POS 12	<u>Pani Matin Anugrah</u> , Putri Ayu Rismayanti, Winda Rahma, Dani Rizali Firman	Current update of miswak as an alternative plaque removal: A literature review	12.45

Abstracts

15th Students Scientific Conference (15th SSC)

Kota Bharu, Kelantan, Malaysia. 22nd February 2018

Oral Presentations – Basic Sciences

(BS 1) Cytotoxicity of Areca Nut and Tobacco Aqueous Extracts on Mouse Fibroblast Cell Line

Muhammad Faiz Aiman, Badr Abdullah At-Tayar, Ahmad Azlina, **Masitah Hayati Harun**

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

Introduction and objectives: The aim of this study was to assess the cytotoxicity of areca nut and tobacco aqueous extracts on mouse fibroblast cell line. **Method:** Aqueous extracts of areca nut and tobacco were prepared by homogenising with deionised water at a ratio of weight: volume, 1:2 and 1:10, respectively. Selected concentrations for areca nut (0.05 g/ml, 0.1 g/ml, 0.2 g/ml) and tobacco (0.25 g/ml, 0.5 g/ml, 1.0 g/ml) were used in the present study. Duplicates of the fibroblast cell line were treated with each extract for 24 hours, 48 hours, and 72 hours at 37°C in a humidified incubator delivering 5% carbon dioxide. The cytotoxicity analysis of areca nut and tobacco extracts was performed using MTT assay. **Results:** Both areca nut and tobacco extracts affected cell viability negatively whereby all concentrations significantly resulted in cell death in comparison to the control ($p < 0.05$). For areca nut extract treatment, cell viability decreased to below 60% for all concentrations at all timelines. There was no specific concentration that showed substantial effect on the cell viability. For tobacco extract, cell viability decreased to below 30% for all concentrations, at all incubation period. Concentration of 0.5g/ml affected cell viability the most (less than 10% at all timelines). Notably, 0.25g/ml concentration resulted in increased cell viability at 72 hours. **Conclusion:** These findings show that areca nut and tobacco aqueous extracts at the selected concentrations have cytotoxic effect on mouse fibroblast cell line.

(BS 2) Influence of Kenaf Fibres on Flexural Strength of Polymethyl Methacrylate: A Preliminary Study

Pallavaraya Varman Subramaniam, Zaihan Ariffin, Mohd Fadhli Khamis, Ismail Ab. Rahman, Nazrul M. Yusoff, **Yanti Johari**

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

Introduction: Conventional polymethyl methacrylate (PMMA) is currently the most commonly used material for denture base. However, its mechanical property namely flexural strength can be improved to reduce the rate of denture fracture during mishaps. **Objectives:** The aim of this study is to evaluate the flexural strength of conventional PMMA reinforced with Kenaf fibres. **Materials and Methods:** Ten specimens each with dimension of 65mmx10mmx3mm were prepared via flasking method for both groups; conventional PMMA acrylic resin and PMMA reinforced with Kenaf fibres. After processing, specimens were stored in distilled water at room temperature. Then, all specimens were subjected to flexural strength test using three-point bend test with Universal Testing Machine (Shimadzu, Japan). One specimen from each group was subjected to Scanning Electron Micrograph (SEM) to assess the fracture pattern. The results were analysed using independent t-test with level of significance was defined at $P < 0.05$. **Result:** There was a statistically significant difference between the two groups ($P < 0.05$) in regards to flexural strength values. Both demonstrated similar fracture pattern under SEM however there were fibres visible at the fracture site for PMMA reinforced with Kenaf fibres. **Conclusion:** Within the limitations of the study, PMMA reinforced with Kenaf fibres showed higher flexural strength than conventional PMMA.

(BS 3) Detection of Cell Senescence in Stem Cells from Human Exfoliated Deciduous Teeth (SHED) and Oral Squamous Cell Carcinoma, HSC-2

On Shi Hao, Wafa' binti Zahari, Wan Nazatul Shima Shahidan, **Khairul Bariah Ahmad Amin Noordin**

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

Introduction: Senescence-associated β -galactosidase (SA β -gal), regarded as a biomarker of cellular senescence, is a useful marker for detection of senescent cells *in vitro*. **Objectives:** This study aims to investigate cell senescence in early and late passages of stem cells from human exfoliated deciduous teeth (SHED) and an oral squamous cell carcinoma cell line, HSC-2, by histochemical detection of SA β -gal activity. **Method:** HSC-2 cell line was cultured to obtain passages 10, 15, 20 and 25, while SHED was cultured to obtain passages 13, 15, 20, and 23. A total of 100×10^3 cells were seeded in wells of 6-well plate prior to staining. In addition, as a positive control for senescence detection, cells of passage 14 from both cell types, were treated with hydrogen peroxide. Both cell types were stained with Senescence Cells Histochemical Staining Kit (Sigma Aldrich, USA) according to the manufacturer's protocols. The numbers of blue stained cells expressing SA β -gal within five randomly selected fields in each well were counted under an inverted microscope. The percentages of the SA β -gal were then calculated. **Results:** Our results showed the percentages of stained HSC-2 cell line were: Passage 10 (11.0%), Passage 15 (9.9%), Passage 20 (26.5%) and Passage 25 (24.7%). As for SHED: Passage 13 (5.3%), Passage 15 (11.0%), Passage 20 (17.2%) and Passage 23 (35.1%). **Conclusion:** There was a significant increment ($p < 0.05$) in the percentages of stained cells for both cell lines when early and late passages were compared. Our results support the theory where normal and cancerous cells experienced senescence after repeated cell division.

(BS 4) Comparative Study of Flexural and Compressive Strengths of Flexible Dentures

Eric Lee Sher Xin, Yanti Johari, **Zaihan Ariffin**

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

Introduction: Poly-methyl methacrylate (PMMA) has been long used as a denture base material despite having several downsides to it such as brittle, difficult insertion, possible source of allergen and so on. The continual striving for better base materials has led to the utilization of flexible nylon-based materials such as polyamide to construct denture bases recently. **Objectives:** The aim of this study was to evaluate and compare the flexural and compressive strengths of different types of flexible denture materials. **Method:** A silicone master mold was made according to ADA specification measuring 65mmx10mmx3mm for evaluation of flexural strength, whereas sprues of 4mm diameter were used to produce samples for compressive strength test. A total of 48 samples for flexible materials, 12 for each type and each test: Breflex (BredentTM, United Kingdom) and Flexifast (SabilexTM, Argentina) were fabricated using injection molded process. 24 samples of Implacryl (VertexTM-Dental, Netherlands) were also fabricated using compression molded process as control. Non-parametric test, Kruskal-Wallis test and Mann-Whitney U test were used to compare between the different groups. **Results:** Results showed that Flexifast and Breflex have similar flexural strengths ($p = 0.410 > 0.05$), whereas Implacryl has significantly higher strength ($p < 0.05$). The compressive strength test showed significantly different strengths ($p < 0.05$), with Flexifast being the lowest, followed by Breflex, Implacryl showed the highest compressive strength. **Conclusion:** In conclusion, the study showed that, Implacryl has the highest flexural strength and compressive strength. Flexifast and Breflex have similar flexural strengths but Flexifast has lower compressive strength than Breflex.

(BS 5) Antimicrobial Property of Nanotitania Extract against *Streptococcus pneumonia* and *Pseudomonas aeruginosa*

Lio Xing Ying, Nor Farid Bin Mohd Noor,
Ramizu Shaari

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

Introduction: *Streptococcus pneumonia* is a gram-positive bacterium, which commonly causes pneumonia or lung infection in human, whereas *Pseudomonas aeruginosa* is a gram-negative bacterium, causing a lethal infection in an immunocompromised patient. Titanium dioxide (TiO₂) is a potential antimicrobial agent which is currently being investigated against various bacteria. **Objectives:** To test new antibacterial material consists of nanotitania extract with combination of 0.03% silver which is developed from Universiti Malaysia Sabah (UMS) against both the growth of *Streptococcus pneumonia* and *Pseudomonas aeruginosa*.

Methodology: Using macrodilution method, we tested this nanotitania against the bacteria. We also prepared a positive control which contained the bacteria without nanotitania extract. After addition of the bacteria into multiple concentrations of nanotitania extract, the suspensions were incubated for 24 hours in the temperature of 37° C. After 24 hours, the suspensions were then being spread on Mueller Hinton Agar (for *Pseudomonas aeruginosa*) and Mueller Hinton Blood Agar (for *Streptococcus pneumonia*). **Results:** Our results suggested that minimum inhibitory concentration for nanotitania extract with 0.03% silver for *Streptococcus pneumonia* is 12.5mg/mL, however within the same concentration prepared; it did not inhibit the growth of *Pseudomonas aeruginosa*. The examination of toxicity of the nanotitania extract with 0.05% silver showed no cytotoxic effect in the growth inhibition test with L929 mouse except in 100mg/mL extract. **Conclusion:** The nanotitania extract tested contains antimicrobial property against *Streptococcus pneumonia* but not the *Pseudomonas aeruginosa* and is non-cytotoxic to the human.

(BS 6) Evaluation of Microhardness and Surface Roughness of 4 Different Composite Resins (CR) for Restoration of Posterior Teeth

Vick Niam Eh Boon, Wan Zaripah Wan
Bakar, **Mohamad Syahrizal Halim**

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

Introduction: The use of CR as posterior restoration is increasing in popularity nowadays due to their effectiveness and aesthetic. Thus, making the best selection of CR was important. **Objective:** This study aims to evaluate the microhardness and surface roughness of 4 different CR commonly used for posterior restorations.

Methodology: Four groups of 9 samples of different CR: Z250 (Group A), Z350 (Group B), Bulkfill (Group C) and P60 (Group D) were prepared and cured in plastic well measuring 5 mm in diameter and 2 mm thick. The samples were then polished using a series of four grades of Sof-Lex discs and subjected to thermocycling for 5000 cycles at 5-55°C. Microhardness test was performed using Vickers hardness tester (Fuel Instrument & Engineers PVT. LTD., India) while surface roughness was evaluated using stylus profilometer (Tokyo Seimitsu Co., LTD, Japan). **Results:** For the microhardness, there is significant difference between the 4 types of CR ($p < 0.05$) with the highest is Z250 and the lowest is Bulkfill. For surface roughness, there is no statistical significant different before polishing but it was statistically significant after polishing ($p < 0.05$). When comparing the surface roughness before and after polishing for each material, result showed that there are significant differences at $p < 0.05$. **Conclusion:** Within the limitation of this study, the hardest material is Z250 and the lowest is Bulkfill. All materials have acceptable surface roughness.

(BS 7) Antimicrobial Properties of Nanotitania Extract against *Klebsiella pneumonia* and *Hemophilus influenza*

Awatief Zaid, Ramizu Shaari, **Nor Farid Mohd Noor**

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

Introduction: Titanium dioxide (TiO₂) is a potential antimicrobial agent which is currently being investigated against multiple bacterias. *Klebsiella pneumonia* and *Hemophilus influenza* are two of the dangerous bacteria in the microbiology world. The purpose of the study is to test new antibacterial material consists of nanotitania extract with combination of 0.03% of silver which is developed from Universiti Malaysia Sabah (UMS) against *Klebsiella pneumonia* and *Hemophilus influenza*. **Methodology:** Using macrodilutional method, we tested the nanotitania extract with combination of 0.03% of silver against the bacteria. Then, we prepared a positive control which contains bacteria without nanotitania extract. After additional of bacteria into multiple concentration of nanotitania extract, the suspensions were incubated for 24 hours in temperature of 37°C. We spread the suspensions on Mueller Hinton Agar (*Klebsiella pneumonia*) and Chocolate blood agar (*Hemophilus influenza*), where the growth of bacteria was observed after 24 hours. **Results:** Nanotitania extract with combination of 0.03% of silver was proven that it has a potential antimicrobial agent as it is able to inhibit *Haemophilus influenza* in all concentrations. On the other hand, it also showed capable of inhibit *Klebsiella pneumonia* at concentration of 25 mg/ml and 50 mg/ml. **Conclusion:** The nanotitania extract tested shows antimicrobial properties against *Klebsiella pneumonia* and *Hemophilus influenza* using macrodilution method.

(BS 8) Differentiation of Stem Cells from Human Exfoliated Deciduous Teeth (SHED) into Fibroblasts

Ooi Da Zhou, TP Kannan, Azlina Ahmad, Nurul Hafizah Binti Mohd Noor, **Zurairah Binti Berahim**

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

Introduction: Stem cells from human exfoliated deciduous teeth (SHED) are a type of multipotent stem cells that are simple and convenient to obtain. SHED have been shown to differentiate into numerous cell types such as odontoblasts, chondroblasts, adipocytes as well as osteoblast-like cells. **Objectives:** The aim of this study is to investigate the potential of SHED to be induced into fibroblast-like cells. **Method:** Commercial SHED were cultured in alpha-minimum essential medium (α-MEM) supplemented media. SHED were treated with 20ng/ml of recombinant human connective tissue growth factor (CTGF) and 50 µg/ml of ascorbic acid for fibroblastic differentiation. SHED without CTGF were used as negative control and primary human gingival fibroblasts (HGF) were used as positive control for morphological comparison and immunofluorescence staining analysis. **Results:** There was no morphological difference between the differentiated fibroblasts and SHED. However, despite having similar appearance, the immunofluorescence staining demonstrated that the differentiated fibroblast culture was positively stained for fibroblast marker; heat shock protein 47 (HSP47) at 1, 5 and 7 days of incubation. The same expression pattern was found in HGF, respectively. SHED showed no signal, thus support the validity of the staining. **Conclusion:** Our data showed that SHED are able to be differentiated into fibroblast-like cells. This study is highly significant as it demonstrated the ability of SHED differentiation into fibroblasts which has never been discovered by far.

(BS 9) Vickers Hardness and SEM/EDS Microstructural Analyses of Experimental Zirconia Reinforced Nanohybrid Dental Composite from Rice Husk

Lo Szi You, Raja Azman Raja Awang,
Noor Huda Ismail

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

Introduction: School of Dental Sciences, USM is developing a zirconia reinforce nanohybrid dental composite using silica purified from rice husk as filler.

Objectives: To analyse the effects of zirconia reinforcement on the dental composite Vickers hardness, and microstructure using Scanning Electron microscopy (SEM) coupled to Energy Dispersive X-ray spectrometry (EDS).

Methodology: Ten disc specimens, with 5 mm diameter and 2 mm thickness, were prepared for each group. There were six groups with different percentage of zirconia reinforcement, and different zirconia mixing method: Negative control (0 wt %), Mixing method IA (3 wt %), Mixing method IB (5 wt %), Mixing method IIA (3 wt %), Mixing method IIB (5 wt %), and Positive control (Filtek Z250; 3M ESPE). The hardness was tested using Vickers hardness tester. One sample from each group, with the hardness value close to the mean was selected for SEM and EDS analysis. One-way ANOVA was used for multiple group comparison, followed by post-hoc Tukey's test.

Results: Vickers hardness number (VHN) values were found significantly increased with the proportion increment of zirconia reinforcement (3 wt % and 5 wt %) ($p < 0.001$). However, there were no significant differences of VHN values when two different zirconia mixing methods were compared. SEM/EDS analysis showed homogenous distribution of fillers such as zirconia and silica into organic matrix.

Conclusion: The data suggests that zirconia reinforcements (3 wt % and 5 wt %) increase the hardness of this experimental nanohybrid dental composite.

(BS 10) Antimicrobial Activity of *Cymbopogon Nardus* (Citronella Oil) Against *Propionibacterium Acnes*

Siti Nazira Binti Zubaidi, Tuan Nadrah
Naim Binti T Ismail @ T Manah

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

Introduction: Acne vulgaris is a very common skin disease and may cause psychological morbidities such as depression, anxiety, low self-esteem, and unemployment. Current treatments do not achieve the desired effects and are often associated with adverse effects. A natural product such as *Cymbopogon nardus* is an alternative treatment based on its antimicrobial activity reported. However, the study on its activity against *Propionibacterium acnes* is still lacked.

Objectives: To evaluate the antimicrobial activity of *Cymbopogon nardus* against *Propionibacterium acnes*. **Methodology:** *Propionibacterium acnes* were obtained from American Type Culture Collection, USA, while *Cymbopogon nardus* essential oil were purchased from Excellent Wisdom, Alor Gajah Malacca and benzyl peroxide were used as comparative antibiotics. **Results:** Agar well diffusion assay showed that zone of inhibition value of *Cymbopogon nardus* (22mm) was slightly lower than benzoyl peroxide (26mm). **Conclusion:** The antimicrobial activity of *Cymbopogon nardus* has been demonstrated and further clinical studies are needed to ascertain the use of *Cymbopogon nardus* as an alternative treatment for acne vulgaris.

Oral Presentations – Clinical Sciences

(CS 1) Periodontal Parameter Changes of Patients after Non-Surgical Periodontal Therapy

Nurul Huda Mohd Shukor, Mohd Zulkarnain Sinor, **Akram Hassan**

School of Dental Sciences, USM, 16150 Kubang Kerian, Kelantan, Malaysia.

Introduction: Periodontal disease is one of the two major dental diseases which have high prevalence rates worldwide; the other being caries. Scaling and root planing is the most common procedures for the treatment of periodontal diseases delivered to the patients attending the Hospital Universiti Sains Malaysia (HUSM) Dental Clinic. **Objectives:** To determine the changes in periodontal parameters of patients attending HUSM Dental Clinic after non-surgical periodontal therapy. **Method:** A cross sectional study of dental records from patients who visited HUSM Dental Clinic for scaling and root planing treatment from 1st January 2016 until 31st December 2016. Periodontal parameters recorded were plaque score, bleeding on probing and probing pocket depth of the patients during their first and second dental visits. Patient's personal details were also retrieved to find out whether there were other factors affecting the changes in periodontal parameters. **Results:** A total number of 36 dental records were used in this study in accordance to calculated sample size. Means and standard deviation (SD) at first and second visit for plaque score were 63.6 (26.71) and 36.4 (20.20), for bleeding on probing were 50.4 (30.64) and 22.5 (19.09) while for probing pocket depth were 18.6 (17.80) and 13.1 (19.48) respectively. Statistically significant reduction was observed in all periodontal parameters after scaling and root planing. Moreover, the changes in periodontal parameters were not influenced by other confounders ($p>0.05$). **Conclusion:** Non-surgical periodontal therapy were shown to be effective in reducing periodontal parameters and no other factors were associated with this reduction.

(CS 2) Gorham's Disease of The Oral and Maxillofacial Region: A Review on Clinico-Pathologic Correlations

Nurul Sharmeen Adlina Mohammad, **Nurhayu Abdul Rahman**

School of Dental Sciences, USM, 16150 Kubang Kerian, Kelantan, Malaysia.

Introduction: Gorham's disease (GD) is an extremely rare disorder mainly characterized by massive osteolysis of affected bone with an unknown aetiology, unpredictable prognosis and yet to be found definite standard treatment. **Objectives:** This review is to increase awareness of the existence of this rare bone disease, its clinical features and its common management. **Method:** A retrospective study was carried out which included review of 40 case reports mainly from PubMed and ScienceDirect. **Results:** Our results showed that there was nearly equal gender distribution for GD affecting the oral maxillofacial region with male, 55 percent and female, 45 percent. Sixty three percent of cases occurred in patient less than 40 years old. Only 15 percent of the cases were preceded by trauma. The most common clinical sign was tooth mobility (65 %) and for more than half of patient, pain was the presenting feature. Common histopathological findings include connective tissue replacement and presence of dilated capillary anastomosing vascular channel. Less than half of the patients undergone treatment which involved surgical resection (40%) and reconstruction (35%), bisphosphonates (25%), calcium carbonate and vitamin D replacement (12.5%). More than half of the patients (60%) reported improvement of the condition with time. **Conclusion:** Both male and female gender equally affected. Gorham's disease also found to be infrequently preceded by trauma. **Conclusion:** Although there is no definite treatment for GD, most patients undergo bone resection and reconstruction surgery. Prognosis for patient with GD was found to be favourable unless vital structures are involved.

(CS 3) Consistency of Basic Periodontal Examination and Periodontal Charting In Patients Attending Hospital Universiti Sains Malaysia

Ahmad Ilman Azfar Bin Mustafa Kamal @ Ahmad Azahari, Basaruddin Ahmad, Erry Mochamad Arief

School of Dental Sciences, USM, 16150 Kubang Kerian, Kelantan, Malaysia.

Introduction: Basic Periodontal Examination (BPE) as periodontal disease screening method has been commonly used. Together with periodontal charting, they act as one series of examination. So, the records of these two screening tools need to be accurate and agree to each other so that diagnosis and treatment plan can be made properly. **Objective:** To assess the level of agreement between BPE score and score derived from the periodontal pocket depth from the periodontal charting. **Method:** Selected samples size of 116 patients' records which consists of the BPE records and the full periodontal charting are obtained from the dental record from the Record Unit of HUSM. All the BPE score for each sextant of selected patients including the pocket depth measurements from the periodontal charting are recorded. New score will come out as derivative for the pocket depth measurement and later the scores will be put in comparison to the recorded BPE scores to assess the level of agreement. **Results:** Independent observation are done and the lowest Kappa value is $\kappa = 0.239$ for the sextant 2 (upper anterior). This low value which is the closest one to $\kappa = 0$ proves its low agreement compare to the highest Kappa value which belongs to sextant 3 (upper left posterior) with $\kappa = 0.384$. The value for all sextants combined is also interpreted as low ($\kappa = 0.326$) since it is close to 0. As for the distribution of periodontal diseases in patients attending HUSM, the BPE record score 3 and score 4 are the highest with 37.07 % and 50 % respectively while the periodontal charting record distribution of pocket depth of more than 6 mm is the highest with 47.41%. **Conclusion:** Most patients attending HUSM dental clinic are

having periodontal diseases according the results in the distribution of BPE score as well as the pocket depth in periodontal charting. On top of that, the agreement between BPE and periodontal charting appears to be low in HUSM dental practice.

(CS 4) A Study of Temporomandibular joint disorder (TMD) and Malocclusion: A preliminary study in School of Dental Science in HUSM

Sim Kar Sheng, Rozita Hassan, Wan Muhamad Amir W Ahmad, **Roselinda Ab. Rahman**

School of Dental Sciences, USM, 16150 Kubang Kerian, Kelantan, Malaysia.

Introduction: Malocclusion is considered one of the etiological factors of temporomandibular joint disorder. **Objectives:** To determine the association of temporomandibular disorder (TMD) with malocclusion among dental students. A total of 83 dental students participated in this study. **Method:** Data regarding the signs and symptoms of TMD and malocclusion were collected using a set of questionnaires and clinical examinations. The data was analysed using SPSS statistical software 12. **Results:** The result showed 43 dental students (52.4%) who had class 1 malocclusion associated with TMD followed by Class III malocclusion 18.3% followed by Class 2 div 1 and class 2 div 2 who both were 10.9%. Among the dental students who presented with TMD, females have higher prevalence in TMD. On the other hand, we noted there is a significant finding of TMD in 21 year old student (dental second year) compared to other age student. This is probably due to stress during the pre-clinical practice in School of Dental Science. **Conclusion:** There is association between type of malocclusion and TMD. However, it is not significant for malocclusion. However, we noted a significant finding among the age and the TMD. Further study need to be done which comprises a bigger sample size to confirm the association.

(CS 5) Sex Prediction Using Dental Arch Dimensions in Pakistani Populations

Shireen Haniza Farid Patrick, Fazal Shahid, **Mohd Fadhli Khamis**

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

Introduction and objectives: The objective of the study was to formulate sex prediction models using dental arch dimensions by the assistance of HIROX digital stereomicroscope with automated calibration system in a Pakistani population. Dental arch dimension can be a useful tool in forensic identification when only the skull is available. **Method:** Data from plaster models of 128 subjects, consisting of 64 males and 64 females from the Pakistani population of age ranging from 18 to 21 years were collected and examined for the study. The arch length, arch perimeter, inter-canine, inter-first premolar, inter-second premolar and inter-molar widths were measured and recorded separately for maxillary arch. Sex differences were assessed. **Results:** The study revealed that sexual differences in dental arch dimensions were statistically significant for both males and females ($p < 0.05$); where the overall pattern showed males had larger arch dimensions than females. Discriminant function analysis was used to formulate sex prediction models for maxillary arch. Stepwise discriminant analysis showed the variables exhibiting best discriminant power were found in the inter-second premolar width for the upper arch. This variable significantly contributed to the variance between males and females. The upper arch had 67.2% of original grouped cases correctly classified and 66.4% of cross-validated group cases correctly classified. **Conclusion:** It was concluded that the prediction model formulated for the maxillary arch was legitimate, moderately accurate, simple, quick, and cost effective for sex prediction in human identification.

(CS 6) 2D Morphological Evaluation of Interocclusal Distance in Class II Division 2 Malocclusion

Yanishshah Kaliana Sundram, Yanti Johari, Mohd Fadhli Khamis, Norma Abd Rahman, **Azirrawani Ariffin**

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

Introduction: Replacement of missing teeth in Class II Division 2 malocclusion is often clinically challenging due to the lack of interocclusal space observed. **Objectives:** The aim of this study is to determine and compare the interocclusal distance in Class II Division 2 and Class I malocclusions. **Method:** Study models of orthodontic patients with Class II Division 2 (test group, $n=10$) and Class 1 (control group, $n=10$) malocclusions who attended Orthodontic clinics in Hospital USM were retrieved from the archive according to the selection criteria. Digital stereo microscope system (HIROX KH7700, Japan) was used to measure the interocclusal distance of each occluding unit of upper and lower teeth from the dental casts to the nearest 0.1mm. Each measurement was repeated twice using the X-width, parallel measurement tool and autocalibrated system (ACS). The average reading of each tooth was recorded. **Results:** Data collected was analysed with SPSS V.22 and presented as mean and standard deviation while the interocclusal distance between the control and test groups were compared using independent t-test. P-value of less than 0.05 was considered statistically significant. **Conclusion:** There was no significant difference found in the interocclusal distance between the control and test group for all teeth except central incisor in which the difference was significant. In conclusion, the interocclusal space for central incisor was reduced while other teeth are similar in Class II Division 2.

(CS 7) Fracture Resistance of the Permanent Restoration for the Endodontically Treated Premolars

Galvin Sim Siang Lin, Tahir Yusuf Noorani, Noor Huda Ismail, **Nik Rozainah Nik Abdul Ghani**

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

Objective: To compare the fracture resistance, fracture pattern, types of fracture involved and area of fractured restoration among endodontically treated teeth restored with different restorative materials. **Methodology:** Sixty-nine mature human permanent lower premolars recently extracted for orthodontic, periodontal or other purposes were selected and divided into three groups. Groups 1 and 2 were endodontically treated. Standardized MOD cavities were then prepared in both groups 1 and 2. Group 1 was then restored with amalgam using Nayyar core technique, while group 2 with glass fiber post and composite resin core. Group 3 consisted of sound teeth and was used as control. All teeth were then tested under constant occlusal load until fracture occurred using Universal Testing Machine. Data analysis was carried out using Kruskal Wallis Test complemented by Mann Whitney test. **Results:** The mean values of load when fracture occurred were 388.05 N (± 158.09) for group 1, 588.90N (± 151.33) for group 2 and 803.05N (± 182.23) for group 3. The mean load required to fracture sound teeth was significantly higher than all restored teeth in both groups 1 ($p < 0.05$) and 2 ($p < 0.05$). Besides, the fracture load for teeth restored with glass fiber post and composite resin core was significantly higher as compared to teeth restored with Nayyar amalgam restoration ($p < 0.05$). Most fractures occurred within the anatomic crown and were considered restorable. **Conclusion:** Sound teeth demonstrated the highest fracture resistance. Teeth restored with fiber post and composite core showed higher fracture resistance than teeth restored with Nayyar core amalgam.

(CS 8) Comparative Study of Antibacterial Properties of Conventional and Nano HA-Silica-GIC: An In Vitro Study

Ginitha A/P Thiyagarajan, Ismail Abdul Rahman, Siti Suraya Zulkifli, Hii Siew Ching, **Norhayati Luddin**

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

Introduction and Objectives: This study aimed to evaluate the antibacterial effect of conventional and nanoHA-Silica-GIC on *Streptococcus mutans*, *Lactobacillus salivarius* and *Enterococcus faecalis* using agar diffusion test. **Methodology:** The tested materials were Fuji IX (GC Japan), Fuji II LC Capsule (GC Japan) and nanoHA-Silica GIC. Müller Hinton blood agar was used for *S. mutans*, *L. salivarius* and *E. faecalis*. Wells were formed by removing the agar at equidistant points, and the materials were placed in the well immediately after manipulation. The plates were left at room temperature for 30 minutes and then incubated at 37°C for day 1, 3, 5 and 7. The results were obtained by measuring the diameter of microbial inhibition zones (in millimetres) at three different points using callipers. The data were analyzed using one-way ANOVA and Mann-Whitney U test and level of significance was set at $P < 0.05$. **Results:** The results show that all materials inhibited the growth of *S. mutans*, *L. salivarius* and *E. faecalis*. No statistical difference in microbial inhibition zone was found between Fuji IX and nanoHA-Silica-GIC. However, Fuji II exhibits the largest inhibition zone among all the materials tested at all incubation time and the results were significant. **Conclusion:** In conclusion, nanoHA-Silica GIC has comparable antibacterial effects to Fuji IX when tested against *S. mutans*, *L. salivarius* and *E. faecalis*. Fuji II exhibits greater antibacterial property compared to nanoHA-Silica GIC and Fuji IX.

(CS 9) The Study of TMJ Morphology in Class 1 Bimaxillary and Class II Division 1 Malocclusion Patient Treated with Fixed Appliance

Nur Syahirah Binti Mohd Razi, Mohamed Zahoor UI Huqh, **Rozita Hassan**

School of Dental Sciences, USM, 16150 Kubang Kerian, Kelantan, Malaysia.

Introduction: There is a strong relationship between occlusion and temporomandibular joint (TMJ). **Objectives and method:** We evaluated the condylar morphological changes in class 1 bimaxillary and class 2 division 1 malocclusion subject's before and after fixed orthodontic appliances treatment using lateral cephalometric. 28 good quality lateral cephalometric images of orthodontic patients with no craniofacial abnormalities and not undergone orthodontic surgery from a chive of orthodontic specialist clinic, HUSM were involved in this study which 14 of them are class 1 bimaxillary malocclusion patients (4 males, 10 females) and another 14 are class 2 division 1 malocclusion patients (4 males, 10 females). Planmeca Romexis® Viewer Software was used to measure the width and height of condylar head, and superior, anterior and posterior joint space before and after fixed orthodontic appliances treatment. Paired t test was used for comparison between pre and post treatment condylar changes analysis using SPSS 22.0 software. **Results:** After fixed orthodontic appliances treatment in class 1 bimaxillary malocclusion patients, there is no significant difference in width and height of condylar head, and superior, anterior and posterior joint space ($P>0.05$). However, after fixed orthodontic appliances treatment in class 2 division 1 malocclusion patients, the height of condylar head and posterior joint space were difference significantly ($P<0.05$) while , there is no significant difference in width of condylar head, superior and anterior joint space ($P>0.05$). **Conclusion:** Therefore, some adaptive condylar morphological changes may occur due to alteration of occlusion by fixed orthodontic appliances treatment in class 2 division 1 malocclusion patients.

(CS 10) Longevity of Posterior Restorations in Primary Teeth: Results from A Final Year Undergrad Paediatric Dental Clinic (USM)

Muhamad Amiruddin Bin Rosdi, **Aimi Kamarudin**

School of Dental Sciences, USM, 16150 Kubang Kerian, Kelantan, Malaysia.

Introduction: Early childhood caries (ECC) is commonly presented with extensive involvement of multiple tooth surfaces and restoration of extensively demineralized carious teeth has always been a challenge to a dentist so an essential knowledge and training during pre-graduate study is very important to ensure that the dentist is competent enough to handle the problems in any clinical situation. Thus explains why this research is implicated on final year undergrad students of Universiti Sains Malaysia which consists of 57 students to identify whether they follow the correct guideline in planning a treatment for paediatric patients. **Objectives:** To evaluate the longevity of restorations in the primary teeth of children attending to a final year undergrad paediatric dental clinic and to study the factors associated with failures. **Method:** A retrospective study, of which, 405 samples of restored teeth from 57 final year dental undergraduate students were taken from interview, logbook & folder checking to compare the success & failure rate of each restoration which includes Preventive Resin Restoration (PRR), Amalgam, Composite Resin (CR)/Compomer, Stainless Steel Crown (SSC) & GIC/RMGIC. **Results:** SPSS version 25.0 was chosen to analyse the data & it was found that PRR & Amalgam show the highest rate of success (100%), followed by Stainless Steel Crown (SSC) (96.11%), CR/Compomer (88.89%) and lastly, GIC/RMGIC (68.8%). Thus, making that GIC/RMGIC has the highest rate of failure compared to other restorations which is about 31.2% compared to CR/Compomer (11.11%) and SSC (3.89%). **Conclusion:** Instead of SSC, other restorations such as PRR & Amalgam also show the higher rates of success while GIC/RMGIC shows the highest rate of failure which follows the expected outcome of this research.

Oral Presentations – Public Health

(PH 1) Oral Health Knowledge, Attitude and Practice among Parents with medically compromised children attending Hospital Universiti Sains Malaysia (HUSM)

Divhya Rajandran, Fadzlinda Baharin

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

Introduction and Objectives: This is a cross-sectional study in a representative sample of 120 parents (60 medically compromised children, 60 healthy children) attending Hospital Universiti Sains Malaysia (HUSM) at Kubang Kerian, Kelantan. **Method:** Data on the parents' oral health knowledge, attitude and practice were obtained through interview with the parents using validated questionnaire. The answer were scored using Likert scale and calculated for each question for both groups. **Results:** There is no significant difference in oral health knowledge, attitude and practice between the two groups of parents for all the questions. Both groups reported that tooth brushing is the most challenging task for parents. **Conclusion:** In conclusion, the level of KAP among parents with medically compromised children is comparable to the parents with healthy children. Tooth brushing is perceived as the greatest challenge for parents in taking care of their children oral health.

(PH 2) Satisfaction with Dentist-Patient Interaction: Perception of Patients Attending Hospital Universiti Sains Malaysia Outpatient Dental Clinic

Ang Jian Yong, Norkhafizah Saddki, Noraini Mohamad

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

Introduction: Patient satisfaction is an important and commonly used indicator to measure the quality of health care. Satisfaction with dentist-patient interaction can ensure continuity of care and improve patients' attitudes and compliance toward treatment, which in turn can result in favourable treatment outcomes. **Objectives and Method:** This cross sectional study aimed to investigate satisfaction with dentist-patient interaction among patients attending Hospital Universiti Sains Malaysia (USM) Outpatient Dental Clinic. Factors associated with patient satisfaction were also determined. The *Skala Kepuasan Interaksi Perubatan-11* (SKIP-11) questionnaire was used to assess satisfaction with dentist-patient interaction. The 11 items were arranged in 3 domains: distress relief (4 items), rapport/confidence (4 items) and interaction outcome (3 items). **Results:** A total of 229 patients completed the self-administered questionnaire. In general, more than half (64.6%) of patients were satisfied with their dentist-patient interaction. Specifically, 60.7% of patients were satisfied with the distress relief domain, 56.8% with the rapport domain and 53.7% with the interaction outcome domain. Satisfaction with dentist-patient interaction was significantly associated with the patients' medical diagnosis and dentists' characteristics (age, sex, years of service). **Conclusion:** In conclusion, just more than half of patients who attended Hospital USM Outpatient Dental Clinic were satisfied with the dentist-patient interaction, and this was influenced by their medical diagnosis and characteristics of dentists. Efforts to improve patient-dentist interaction are recommended to ensure delivery of good quality oral health care.

(PH 3) Analysis of Oral Health Status among Communities in Kampung To'Ku by Using Logistic Regression and Biplot Analysis: A Simulation Data Technique

Tasnim Al-Ashraf Bt Amirul Al-Ashraf,
Wan Muhamad Amir Bin W Ahmad

School of Dental Sciences, USM, 16150
Kubang Kerian, Kelantan, Malaysia.

Introduction: A cross-sectional study was carried out by house to house survey in Kampung To'ku. For this study, we take a small sample data and generated using Statistical Analysis Software (SAS) based on bootstrapping method (programming based) and achieved 303 observations. This method also known as random resampling technique or bootstrapping method. The data which is obtained from random resampling technique are equivalent to the real data by considering inclusion criteria and exclusion criteria.

Objectives: To assess the oral health status and to determine the association of the factors with the probability of having a tooth or oral problems by using logistic regression model and biplot analysis. Through this study, we are able to graphically view groups with similar profile and to see the relationship between two types of variables, independent variables and dependent variables. **Method:** Data from bootstrapping technique was taken as sample statistics and were analyzed by using logistic regression model and biplot analysis. **Results and conclusion:** The results from logistic regression model shows that for all possible cases (both male and female), wearing denture (-1.584, 95% CL: 0.11, 0.39, p -value 0.000) and gargle/brush teeth after eating (-0.465, 95% CL: 0.44, 0.90, p -value 0.011) is the factor that contributing to having tooth/oral problems. Meanwhile based on gender, gargle/brush teeth after eating (-0.873, 95% CL: 0.26, 0.68, p -value 0.000) is the factor that contributing to having tooth/oral problems among males. For female, the results shows that wearing denture (-2.600, 95% CL: 0.02, 0.68, p -value 0.000) is the factor that contributing to having tooth/oral problems. For Biplot Analysis, we want to determine the relationship between the

frequencies of brushing teeth with the frequencies of a dental visit. Based on the biplot analysis model, we can say that those who brushes their teeth twice a day, visit the dentist only when necessary and once in six months. While those who brushes their teeth once a day, visit the dentist once a year and those who brushes their teeth only when necessary, never visit the dentist.

(PH 4) Knowledge, Attitude and Practices of Biomedical Waste Management among Dental Students in Clinical Years from School of Dental Sciences, Universiti Sains Malaysia

Jasmine Lim Suk Wun, Normastura Abd
Rahman, **Munirah Mohd Adnan**

School of Dental Sciences, USM, 16150
Kubang Kerian, Kelantan, Malaysia.

Introduction: Dental clinics generate a great amount of hazardous wastes that need a proper management by dental personnel. **Objective:** To assess the knowledge, attitude, and practices (KAP) of biomedical waste management among the dental students in clinical years from Universiti Sains Malaysia (USM). **Methodology:** A cross-sectional study was conducted among Year 3, 4 and 5 dental students from the School of Dental Sciences, USM (n=146). A self-administered questionnaire with a total of 20 questions of knowledge, attitude, and practices regarding biomedical waste management was used. Data were entered and analysed using SPSS version 24.0. ANOVA test was used to compare the mean knowledge; attitude and practices score between the academic year. **Results:** All the Year 3, 4 and 5 dental students (n=146) participated in the study (response rate =100.0%). The mean (SD) knowledge, attitude and practices scores for Year 3 were 4.8 (1.32), 3.0 (0.70) and 7.5 (1.21), Year 4 were 5.5 (1.16), 3.1 (0.64) and 7.7 (1.22) and Year 5 were 5.2(1.24), 3.3 (0.70) and 7.5 (1.04) respectively with maximum scores of 7, 4 and 9. There was a significant difference in the knowledge between Year 3 and Year 4 students ($p=0.029$). The other

comparisons did not show significant differences ($p>0.05$). **Conclusion:** The KAP regarding biomedical waste management of the dental students was still not at excellent level with the knowledge of the Year 3 students was significantly lower than the Year 4. Thus, more training regarding biomedical waste management among dental students is highly needed.

(PH 5) Prevalence and Patterns of Impacted Teeth in Kelantan, Malaysia Using Orthopantomogram and Cone Beam Computed Tomography

Ainaa Mardhiyah Syed Mubarak, Ramizu Shaari, Asilah Yusof

School of Dental Sciences, USM, 16150 Kubang Kerian, Kelantan, Malaysia.

Introduction and Objectives: The aim of this study was to determine the prevalence and patterns of impacted teeth of patients at Hospital Universiti Sains Malaysia (HUSM), Kelantan, Malaysia using orthopantomogram (OPG) and cone beam computed tomography (CBCT) images. **Method:** One thousand two hundred OPG and 500 CBCT images of 18 to 40 years old patients were examined to determine the prevalence of impacted tooth. CBCT images were further utilised to determine the patterns of impaction which include the type of angulations and depth of impactions. Planmeca Promax 3D and Planmeca Romexis 2.9.2 software (Planmeca Oy, Helsinki, Finland) were used to obtain images and performed measurements respectively. **Results:** Results were analysed with Pearson's Chi-squared test. 29.7% ($n=360$) of OPGs showed at least one impacted teeth. The prevalence of impaction was significantly higher ($p<0.05$) in the mandible ($154/356 = 43.3\%$) than in the maxilla ($40/356 = 11.2\%$). 45.5% ($n=162$) showed impaction in both arches with significantly higher prevalence ($p<0.05$) in females (65.4%) than males (34.6%). 24.6% ($n=72$) of the impacted teeth were lower right third molars with mesioangular impaction and depth of impaction of level B which are been described when most coronal aspect

of the mandibular third molar was located between the cemento-enamel junction (CEJ) and occlusal surface of the mandibular second molar, being the most common. **Conclusion:** The prevalence of impacted teeth was high in Kelantan with predilection for impacted third molars in the mandible. This could be due to patients with impacted tooth were the ones who required radiographic investigation. CBCTs has the added advantage of facilitating accurate analysis of the patterns of impaction which will greatly aid clinicians in the management of impacted teeth.

(PH 6) Trend of Periodontal Disease in Malaysia

Yew Yun Qing, Basaruddin Bin Ahmad

School of Dental Sciences, USM, 16150 Kubang Kerian, Kelantan, Malaysia.

Introduction: Periodontal disease is a growing concern in public health due the high prevalence across the globe. **Objectives:** In this study, we examine and describe the trend of prevalence of periodontal disease in Malaysia from 1990 to 2010 and review the possible factors contributing to the trend from the literature. In Malaysia, oral health monitoring is carried out by the Ministry of Health through the National Oral Health Survey conducted every ten years since 1990 to monitor the growth or progress of oral disease and the overall efficacy of its oral healthcare delivery system. **Method:** In this study, we reviewed the National Oral Health Survey for 1990, 2000, and 2010 because they have reported periodontal disease using the same parameters which are CPI and CPITN. **Results:** We found that the overall trend of periodontal disease from year 1990 to 2010 for CPI and CPITN for gender, location, education level, age group, and ethnic group are similar in which they all follow an unhealthy trend. This may be due 51.2% of the subjects only visit the dentist when there is something wrong. Besides, majority of these subjects (73.8%) cited 'no problem' and 'problem not serious enough' as the main reasons for not visiting a dentist.

(PH 7) Assessment of Attitude towards Selecting Dental Healthcare Providers among Government Agencies Workers in Kota Bharu, Kelantan

Koh Sze Hui, Norhayati Yusop

School of Dental Sciences, USM, 16150 Kubang Kerian, Kelantan, Malaysia.

Introduction: The public face a wide range of choices among oral care services and facilities provided by the government and private sectors. In fact, the responsibility to combat trend of visiting unregistered dental practice lies heavily on future generations of dental healthcare professionals. **Objectives:** To evaluate the public's attitude towards the selection of oral healthcare providers and further assess the public's perception towards dental professionals. **Method:** A cross-sectional, online self-administered questionnaire was distributed to the workers in government agencies in Kota Bharu, aged between 18-60 years old from July to October 2017. Questions were primarily close-ended and consisted of 25 questions on demographics, assessment of attitude and perceptions towards dental professions in Likert-scale format. **Results:** Out of the 575 sent individual emails, 236 voluntarily responses were retrieved which recorded a response rate of 41.0%. The mean age was 34 ± 1.0 years and of the respondents, 45.8% were male and 54.2% were female. The most important factor that affects the respondents' selection of dental care providers is facilities and equipment in a dental clinic (86%), followed by dentist reputation and working experience (85.1%), and technical competency of a dentist (83.9%). The average attitude score of respondents was higher among the high-income group compared with that of the low-income group. Regarding dental professions, 86.5% of respondents perceived that qualified dentists perform dental procedures for the improvement of health and aesthetic values. **Conclusion:** Overall, the respondents in the study showed a moderate positive attitude toward the dental professions. Addressing

the valuable factors in promoting dental healthcare services by the government and private sectors is essential to develop an efficient oral health care system.

(PH 8) Caries Experience Among Learning Disabled Children, Knowledge, Attitude, Practice and Problems Encountered by Their Caregivers during Tooth Brushing in Hospital USM

Loi Tek Pei¹, Normastura Abd Rahman¹, Muhammad Hafiz B Hanafi², Nur Karyatee binti Kassim¹

¹ School of Dental Sciences, ² School of Medical Sciences, Universiti Sains Malaysia, USM Health Campus, 16150 Kubang Kerian, Kelantan, Malaysia.

Introduction: Dental caries affects learning disabled (LD) children and oral health awareness among their caregivers is vital to maintain optimal oral health. **Objective:** To determine caries experience of LD children and, oral health knowledge, attitude, practice (KAP) and problems encountered by caregivers during tooth brushing. **Methodology:** A cross-sectional study was conducted on 65 caregivers and their LD children aged between 6 to 12 years old in Hospital USM. Caries experience for permanent and deciduous teeth of LD children was determined through decayed missing filled teeth (DMFT) and dft indices. Oral health KAP and problems encountered by caregivers were assessed using validated questionnaires. **Results:** Most LD children were Malay (90.8%) male (84.6%), with mean (SD) age of 9.2(2.17) years, while mean (SD) age of their caregivers was 40.6 (6.38) years. Median DMFT was 1.5 (4.75) and dft was 1.0 (6.00). Majority (>50%) caregivers had satisfactory knowledge on causes (68.9%), signs (61.2%) and prevention (84.2%) of caries and periodontal disease. All caregivers agreed regular tooth brushing aided in caries prevention. 50.8% of caregivers thought their children's oral health was good but only 8% practiced regular dental visit. Most LD children (84.6%) brushed on their own, using children's toothbrush and fluoridated toothpaste (89.2%). Amongst

41.5% caregivers that experienced difficulties during tooth brushing of LD children, 23.1% reported their child liked to close mouth and 13.8% turned head away. **Conclusion:** Caries experience among LD children was relatively low. Caregivers' oral health knowledge and attitude was found to be satisfactory compared to inadequate oral health practices.

(PH 9) Depression, Anxiety and Stress Status and Dental Caries Experience Among Adult Patients Attending Outpatient Dental Clinic In Hospital Universiti Sains Malaysia

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

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

Introduction: Poor oral health is common amongst people with severe mental illness and remains as a largely forgotten problem in the community. **Objectives:** To evaluate mental health status and dental caries experience among adult patients attending outpatient dental clinic in Hospital Universiti Sains Malaysia. **Method:** This was a cross-sectional study involving 106 adult patients who attended the outpatient dental clinic. Sociodemographic profiles were obtained and mental health status was evaluated using the Depression, Anxiety and Stress Scales (DASS-21) questionnaire. Clinical oral examination was conducted to determine the caries experience using the decayed, missing and filled teeth (DMFT) index. Data was analyzed in SPSS ver. 24. The comparison of caries experience in different severity symptoms of DAS was analyzed by Mann-Whitney test. **Results:** The p-value was set as significant at $p < 0.05$. Majority of the patients were Malay (92.5%), female (60.4%) and young adults (73.0%). The prevalence of moderate to extremely severe symptoms of depression, anxiety and stress was found in 5.6% (95% CI: 1.2-10.1), 19.8% (95% CI: 12.1-27.5) and 6.6% (95% CI: 1.8-11.4) of the patients respectively. The

median (IQR) of the caries experience was 7.0 (IQR=7). There was significantly higher caries experience in normal/mild (9.0) compared to moderate/severe/extremely severe (5.0) group of anxiety symptoms (p -value=0.029). However, there were no difference of caries experience between the group of depression symptoms (p -value=0.099) and stress symptoms (p -value=0.452). **Conclusion:** The prevalence of symptoms of depression, anxiety and stress among the patients were low with high dental caries experience. Even though screening of mental health is not warranted in primary dental setting but it would be beneficial to check on oral health status in mental health clinic setting.

(PH 10) Oral Health Related Quality of Life among Rheumatoid Arthritis Patients

Lim Ching Ching¹, Norkhafizah Saddki¹, Wan Syamimee Wan Ghazali², **Wan Majdiah Wan Mohamad**¹

¹School of Dental Sciences, ²School of Medical Sciences, Universiti Sains Malaysia, 16150 Kubang Kerian, Kelantan, Malaysia.

Introduction and Objectives: The aim of this study was to assess oral health related quality of life (OHRQoL) and its association with self-reported oral health problem among rheumatoid arthritis (RA) patients. **Method:** A cross sectional study was conducted at the Rheumatology Clinic, Hospital Universiti Sains Malaysia. A total of 67 RA patients were included in this study. The OHRQoL was determined using the Malay version of Short Oral Health Impact Profile [S-OHIP (M)] questionnaire. **Results:** Most patients perceived their oral health status as good or very good (70.2%) although some reported having at least one oral health problem (40.3%). Common oral health problems include cavitation (16.4%), swollen gums (16.4%), bad breath (14.9%), and bleeding gums (13.4%). Some patients have lost all upper teeth (32.8%) and 28.4% have lost all lower

teeth. The mean S-OHIP (M) score was 4.1 (SD 4.49). With regard to mean item score, item discomfort due to food getting stuck, under the psychological discomfort domain, has the highest score of 1.0 (SD 1.07). No significant association was found between mean S-OHIP (M) score and self-reported oral health problem among RA patients ($p=0.07$), but a significant association was found between mean S-OHIP (M) score and perceived oral health status ($p=0.013$). **Conclusion:** In conclusion, findings from this study suggested that oral health problems were common in RA patients and impacts of the problems on the patients' oral health perceptions were apparent.

(PH 11) The Oral Health Knowledge and Practices of Antenatal Mother in Hospital Universiti Sains Malaysia

Muhammad Azim Syahmi Bin Kamaruddin, Norsamsu Arni Binti Samsudin

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

Introduction: Current evidence highlights the importance of oral health during pregnancy. However, little is known about the oral health of pregnant women in Hospital Universiti Sains Malaysia, Kelantan. The aim of this study was to report the oral status, knowledge and practices of pregnant mothers in Hospital Universiti Sains Malaysia, Kelantan. **Methods:** A cross-sectional survey of 76 pregnant women attending Obstetrics & Gynaecology specialist clinic in Hospital USM. **Results:** More than a third (51.3%) reported dental problems during pregnancy, where (34.2%) reported cavities (coronal decay) and tooth sensitivity (23.7%). Less than half (35.3%) saw a dentist in the last six months. Time constraints (60.5%) and safety concerns regarding dental treatment during pregnancy (30.3%) were the main barriers to seeking dental care. However, majority of pregnant women (98.7%) noted that their oral health was important/extremely important compared to their overall health.

Many of pregnant women still unaware (>70%) the potential impact of poor maternal oral health on pregnancy and infant outcomes. **Conclusions:** The participants reported significant barriers to obtaining dental care including time constrains and lack of awareness about the importance of oral health. The findings suggest that the need for preventive strategies involving dentist and antenatal care providers to improve maternal oral health in Hospital Universiti Sains Malaysia, Kelantan.

(PH 12) Prevalence of Diabetes Mellitus in Chronic Periodontitis Patients in HUSM

Muhammad Danial bin Kamal, Haslina Taib, Basaruddin Ahmad, Siti Lailatul Akmar Zainuddin

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

Introduction: Epidemiological studies demonstrated associations between periodontal disease and diabetes, and diabetic patients with poor glycemic control are at an increased risk for periodontitis can complicate periodontal treatment outcomes. **Objectives and method:** This study was conducted to determine the prevalence of diabetes mellitus in patients with chronic periodontitis attending dental clinic from the Record Unit HUSM in 2015 and 2016. The dental record of patients was reviewed from the Record Unit in HUSM to obtain the periodontal parameters and their diabetic status. **Results:** There were 110 diabetic patients out of 180 data collected. There were 94 male patients and 86 female patients, with age mean of 52.39 years old for male and 52.98 years old for female. There were 162 malay patients, 14 chinese patients and 4 siamese patients. **Conclusion:** The result showed high numbers of chronic periodontitis with known case of diabetic mellitus which is 61.11%. As the conclusion, there is high prevalence of chronic periodontitis patients present with Diabetes Mellitus in HUSM patients.

Poster Presentations

(POS 1) Practice of Infection Control in Oral Radiology among Dental Students in Universiti Sains Malaysia

Izyan Izzati bt Mohd Raziff, Munirah bt Mohd Adnan, **Norzaliana bt Zawawi**

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

Introduction and Objectives: This research aimed to study the practice regarding infection control in Oral Radiology among dental students in Universiti Sains Malaysia (USM). A cross sectional study was conducted among all 146 dental students in year 3, 4 and, 5 batches (2016/2017) in School of Dental Sciences, USM. **Method:** They were given a self-administered questionnaire which evaluates infection control practices and the frequency for the practices. The data was collected and analysed using SPSS 22. In term of infection control practices only gloves wearing among respondents show good practice (100%). While others such as disinfection of the control panel, exposure button and, intraoral projection operatory before and after each procedure show poor practices (73.3%, 67.1% and 94.5% respectively). Assessment of frequency for the practice of infection control show poor practices. However, the practices for the use of procedure gloves are the highest (91.1%) and the lowest is the use of protective goggles (30.1%). **Results:** Based on the ANOVA test analysis, the post hoc test shows year 5 dental students who have 2 years of clinical experiences have better practices than year 3 who just entered clinical years and with the mean (SD) score of 38.12 (SD 6.75) and 21.12 (SD 6.34) respectively and (p-value = 0.009). **Conclusion:** As a conclusion, the practice regarding infection control in oral radiology among dental students in clinical years in USM is still not satisfactory and need to be improved so that cross infection in dental clinic can be prevented.

(POS 2) Emotional Intelligence among Dental Undergraduates in Universiti Sains Malaysia (USM)

Wong Ying Kong, **Hanim Afzan Ibrahim**

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

Introduction: Emotional intelligence (EQ) is the capability of individuals to recognize their own, and other people's emotions, to discern between different feelings and label them appropriately, to use emotional information to guide thinking and behavior, and to manage and adjust emotions to adapt environments or achieve one's goal. The seven domains of EQ are emotional control, emotional maturity, emotional conscientiousness, emotional awareness, emotional commitment, emotional fortitude and emotional expression. **Objectives:** To determine the EQ level among USM dental undergraduate students in terms of emotional control, emotional maturity, emotional conscientiousness, emotional awareness, emotional commitment, emotional fortitude and emotional expression and their comparison based on gender, race and academic year. **Methodology:** A cross-sectional study was conducted among 251 dental undergraduate students from year 1 to year 5 to assess their EQ levels. USMEQ-I was used as a research tool measure EQ. **Results:** The USM dental undergraduate students have high level of emotional maturity, emotional conscientiousness, emotional awareness, emotional fortitude and emotional expression whereas average level in term of emotional control and emotional commitment. There is an association between EQ scores and years of study. The results showed mean EQ levels were the highest for the students belonging to third year of education. However, there is no significant difference in the EQ level when comparing year 3 students with year 1, year 2, year 4 students respectively. There is significant difference in the EI level between year 3 and year 5 students with year 3 students have higher EQ level than year 5. Races demonstrated no

significant association with EQ. There is a significant association between gender and level of EQ. Male students have a higher EQ score than female students. **Conclusion:** Years of study and gender are the main associated factor of emotional intelligence. The USM dental undergraduate students have high level of emotional maturity, emotional conscientiousness, emotional awareness, emotional fortitude and emotional expression.

(POS 3) Perceived Sources of Stress among Universiti Sains Malaysia Dental Students

Nadirah binti Mohd Noor, Ruhaya Hasan,
Nik Aloesnisa Nik Mohd Alwi

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

Introduction: Dental education can be a significant source of stress among dental students. Hence it is crucial to have a better understanding of students' perceived stress factors which could contribute to build a positive and effective learning environment. **Objectives:** To identify the factors of stress and coping strategies among dental students in Universiti Sains Malaysia from third year to fifth year, academic session 2016/2017. **Method:** This was a cross sectional study involving dental students from year three to year five in Universiti Sains Malaysia. This study was approved by the Jawatankuasa Etika Penyelidikan (Manusia), USM (JEPeM). Dental Environmental Stress (DES) and Brief COPE questionnaire were used as data collecting tools in this study. Data collected were analysed using T test and ANOVA by SPSS version 2.2. Total of 147 participated in this studies. **Results:** The main sources of stress were found to be completion of clinical requirements followed by amount of assigned work and fear of failing course of the year. However, they were the least stressed about necessity to postpone having children. Most students cope with their stress by distraction, planning, acceptance and religion. There was no statistical significant

difference in the average of stress score between girl and boy students.

Conclusion: This study shows that dental students encounter a moderate level of stress. It is recommended to include stress management strategies in dental education to produce excellent dentist in the future.

(POS 4) Association among Dental Caries, Parents/Guardians Socio-demographic Profile, Oral Hygiene Practice and Nutritional Status of Preschool Children Attending Hospital Universiti Sains Malaysia Dental Clinic

Miza Hazirah Kamal, Zuliani Mahmood,
Norkhafizah Saddki, **Ruhaya Hasan**

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

Introduction: Dental caries is the most prevalent oral health problem in children, particularly among preschool children of developing countries. **Objectives:** This study investigated the association among sociodemographic profile of parents/guardian, oral hygiene practice, nutritional status and dental caries status (dmft) of preschool children aged less than 6 years old attending Hospital Universiti Sains Malaysia (USM) Dental Clinic. Information on sociodemographic profile and oral hygiene practice of the children were obtained from their parents/guardians using an interviewer-administered questionnaire. **Method:** Anthropometric measurements (height and weight) were taken and body mass index (BMI) was calculated. Intraoral examination was performed to assess dental caries status using the decayed, missing, and filled teeth (dmft) index and oral hygiene status using the Silness-Löe Plaque Index. A total of 46 children-parents/guardians participated. **Results:** The prevalence of dental caries among the children was 95.7% with a mean dmft of 9.7(SD 5.19), and most of them (73.9%) have high caries experience (dmft \geq 7). About one-third of the children (32.6%) had their teeth cleaned only once daily or less, and several (14.6%) have poor oral hygiene. Most children have normal

weight-for-age (82.6%), height-for-age (87.0%) and BMI-for-age (52.2%) nutritional status. Caries experience (mean dmft) of the children was associated with parents'/guardians' education level and monthly household income. The influence of toothbrushing frequency, weight-for-age, height-for-age and BMI-for-age on the children's dmft score was not apparent. **Conclusion:** In conclusion, dental caries prevalence and experience of preschool children attending Hospital USM Dental Clinic were high, and caries experience of the children was associated with parents'/guardians' sociodemographic characteristics.

(POS 5) Mechanical Properties of Dental Composite Reinforced with Natural Fibres

Goh Wan Theng, Yanti Johari, Ismail Ab. Rahman, Nor Aidaniza Abdul Muttlib, Mohd Nazrulhuzaimi Md.Yusoff, **Rabihah Alawi**

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

Introduction: The aim of this study is to compare flexural and compressive strength of the experimental composite reinforced with kenaf fibres with commercially available fibre reinforced composite. **Materials and Methods:** Four groups of samples were prepared (N=10) for flexural strength (FS) and compressive strength (CS) test using SDR sureFill composite incorporated with kenaf fibres at ratio of 1wt% and 2wt%, SDR sureFill composite (DENTSPLY, USA) and Ever-X posterior composites (GC Corporation, Tokyo, Japan). Instron Universal Testing Machine (Shimadzu, COUNTRY) was used to measure FS and CS. One sample from each kenaf fibre incorporated composite group was subjected to Scanning Electron Micrograph (SEM) (FEI Quanta FEG 450, USA) to analyse the surface characteristic at fracture site. Results were analysed using one way ANOVA and the level of significant was set at $P < 0.05$. **Results:** There was a statistically significant difference among

four groups tested ($P < 0.05$). Bonferroni post-hoc test showed Ever-X Posterior composites group has significantly higher FS and CS than the other groups. There was no significant difference in FS and CS values between 1%wt and 2%wt kenaf fibre groups ($p = 1.0$). Both groups of composite incorporated with Kenaf fibres demonstrated presence of gaps and voids between the composite resin and fibres under SEM analysis. **Conclusion:** Incorporation of kenaf fibre at ratio of 1wt% and 2wt% do not increase the FS and CS of the composite resin. This is possibly due to insufficient surface treatment of kenaf fibres to achieve bonding between fibres and composite hence further work is required to improve the bonding.

(POS 6) Serum Chemistry Analysis of Domesticated Macaques

Puteri Mardhiyah Megat Mohamad Mentah¹, Nur Izni Mohd Zaharri¹, Koh Chun Haw², **Saidi Jaafar**¹

¹School of Dental Sciences, ²Animal Research and Service Centre, Universiti Sains Malaysia, 16150, Kubang Kerian, Kelantan.

Introduction: Macaques is any monkey of the genus *Macaca*, chiefly of Asia, characterised by having a sturdy build including some short-tailed or tailless form. This nonhuman primate considered as a key animal model for biomedical research because of their close phylogenetic and physiologic similarities to human. Their health status especially the stress level when in captivity is very important to be established simply because it may interfere with the study conducted on them as a model animal. **Objectives:** This current study aims to evaluate serum chemistry parameters in domesticated macaques undergoing captivity process and to determine whether there are any changes in blood parameters in these macaques. **Method:** In this study, 9 individual (8-36 months old) domesticated macaques were housed in captivity for three days. Blood collection was done twice (upon arrival and during captivity) for the serums to be compared.

Results: Results showed high level of cortisol with normal calcium to indicate prolong stress in this group of animals. Furthermore, muscle enzymes (alanine transaminase, ALT and aspartate transaminase, AST) were normal showing the stress was not attributed from physical capture in the restraint cage. Other serum chemistry values (low in albumin, chloride, phosphorus, urea and high in creatinine as well as uric acid) clearly indicate the animals were malnourished. **Conclusion:** In conclusion, domesticated macaque is not a good model to study the level of stress of animals induced by captivity/restrain process.

(POS 7) Compressive Strength and Degree of Conversion (DC) Analyses of Experimental Zirconia Reinforced Nanohybrid Dental Composite from Rice Husk

Aimi Najwa Abd Jalil, Noor Huda Ismail,
Raja Azman Raja Awang

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

Objective: School of Dental Sciences, USM is developing a zirconia reinforce nanohybrid dental composite using silica purified from rice husk as filler. This study aims to analyse the effects of zirconia reinforcement on the dental composite compressive strength and degree of conversion. **Methodology:** Ten cylinder specimens (4 mm diameter x 6 mm thickness) were prepared for each group for the compressive strength test. There were six groups with different percentage of zirconia reinforcement, and different zirconia mixing method: Negative control (0 wt %), Mixing method IA (3 wt %), Mixing method IB (5 wt %), Mixing method IIA (3 wt %), Mixing method IIB (5 wt %), and Positive control (Filtek Z250; 3M ESPE). Compressive strength was measured with a universal testing machine. DC was calculated by the measurement of the peak absorbance height of the uncured and cured materials at the wavenumbers of 1637 cm⁻¹ and 1608 cm⁻¹ respectively, and was carried

out using Fourier transform infrared (FTIR) spectroscopy. One-way ANOVA was used for multiple group comparison, followed by post-hoc Tukey's test. **Results:** The result showed that there were pattern of increased compressive strength with the increment of zirconia reinforcement (3 wt % and 5 wt %). However, this increased compressive strength were found to be statistically not significant ($p > 0.05$), except only for group Mixing method IA ($p < 0.05$). No significant differences of DC were observed between groups ($p > 0.05$). **Conclusion:** The data may suggest that zirconia reinforcements (3 wt % and 5 wt %) increase the compressive strength of this experimental nanohybrid dental composite.

(POS 8) Evaluation of Obturation Quality and Number of Visits Required by Undergraduate Students in PPSG, USM to Complete Root Canal Treatment Cases

Ng Wen Yun, Mohamad Syahrizal Halim,
Kasmawati @ Norhidayati Mokhtar

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

Introduction: The aim of this study was to evaluate the obturation quality and number of visits required by undergraduate students in PPSG, USM to complete root canal treatment cases in a retrospective review. **Materials and Methods:** All of the root canal treatment cases performed by forth year undergraduate dental students in year 2016/17 and final year undergraduate dental students in the year 2015/16 were included in this study, with a total of 258 teeth. Both digital radiographs and conventional radiographs of all treated teeth were assessed. Evaluations of the obturations quality are classified based on the length and density of root-fillings (i.e. acceptable and unacceptable). Besides, the numbers of visits required by undergraduate dental students to complete each of the root canal treatment

were also recorded. **Results:** Out of total 258 teeth, 63.5% were maxillary teeth and 36.4% were mandibular teeth which included 53.5% anterior teeth, 14.7% premolars and 31.8% molars. Results showed that the overall acceptable obturation quality of the examined teeth was 71.3%. Of these teeth, acceptable length and density were reported in 87.2% and 79.1%, respectively. Anterior teeth had a better obturation quality (81.9%) than other tooth types based on radiographic obturation length and density. Molar teeth required more visits (5 visits or more) than anterior and premolars (mostly 3 visits). **Conclusion:** The obturation quality of the root canal treatments performed by these students was comparable to other studies.

(POS 9) Survey of Cobalt Chrome Partial Denture Clasp Design in Universiti Sains Malaysia

Joanne Estrop, Noor Huda Ismail, Adam Bin Husein

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

Introduction: Removable partial denture consists of many components including the clasp and rest. **Objectives:** The aims of this research were to investigate whether the clasp design of partial dentures constructed at Hospital Universiti Sains Malaysia, fulfill the design statement "A clasp should always be supported by a rest, a retentive clasp should be at least 15mm in length and occlusally-approaching retentive clasp should be restricted to molar teeth if constructed in cast cobalt chromium alloy" and to determine whether the design statement affects the success of the dentures.

Method: This is a retrospective clinical study, which involved 26 patients. The observation and evaluation of Co-Cr partial denture clasp design according to the design statement, was done and the length of the retentive clasp was measured using a thread and a ruler and a questionnaire was asked to the patient.

Results: 93 clasps from both upper and

lower partial dentures of 26 patients were examined. Rests supported 100% of the clasps. 62.9% of occlusally approaching clasps were found on molars ($p=0.042$), which indicate that it is statistically significant. Retentive clasps, which have at least 15mm in length, were 28.0% ($p=0.014$) whereas the rest of the clasp length was less than 15mm. The mean and standard deviation were 12.01 and 3.191 respectively. Hence, the result is statistically significance. These results were found not to affect the success of treatment as reported by the patients. **Conclusion:** Within the limitations of this study, it can be concluded that the statement on clasp and rest was followed, but the statements on clasp length and occlusally approaching clasp should be on molars were not followed. However, the results did not affect the success of the treatment.

(POS 10) The Study of Lingula Position on Panoramic Radiograph in Malay Kelantanese Population

Shazudin Arshad, Ramizu Shaari, Saifulizan Abdul Rahman

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

Introduction: The purpose of this study is to assess the position of the lingula to the occlusal plane on the panoramic radiograph as a landmark for injection of inferior alveolar nerve block in adult aged 18 year-old and above considering the age and gender between male and female in Malay Kelantanese population.

Objectives and method: The location of lingula was measured in 385 radiographs bilaterally on subject with normal occlusion and at least 2 molars in each quadrant of the mandible and no mesial displacement of the reference teeth due to early loss of the adjacent teeth. The location of the lingula in relation to the mandibular landmarks and the mandibular second molar was investigated. The measurement included the distances from the lingula to anterior border of the mandibular ramus, posterior border of the

mandibular ramus, mandibular notch, distal surface of the mandibular second molar and occlusal plane of the molars.

Results: The result shows that almost 90% of the lingula in subject is located above the occlusal plane of the molar and the lingula was located at 12.70 mm and 12.82 mm for right and left anterior border of the mandibular ramus, 27.82 mm and 27.11 mm to the distal surface of the mandibular second molar (right and left).

Conclusion: In conclusion, there were some differences in position of lingula between right and left mandible for male and female of Malay Kelantanese. This will result in the non-working of inferior alveolar nerve block during lower molar extraction and these factors need to be considered during injection of local anaesthesia.

(POS 11) A Five-Year Retrospective Study on Zygomatic Complex Fracture at Hospital Universiti Sains Malaysia (Hospital USM), a Tertiary Teaching Hospital in Malaysia

Nilufar Riazi binti Mehdi, Wan Muhammad Amir bin W Ahmad, **Tang Liszen**

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

Introduction: Zygomatic complex fractures are midface fractures that involve the fractures of three or four major processes that include infraorbital rim, zygomaticomaxillary buttress, zygomatic arch and frontozygomatic suture. The lack of knowledge and information in Hospital Universiti Sains Malaysia (HUSM) regarding this fracture is the main focus.

Objectives and method: Therefore, this retrospective study was aimed to determine the prevalence, age and gender distribution, distribution of other maxillofacial fractures that occur concomitantly with zygomatic complex fractures and the treatment approaches conducted at Hospital Universiti Sains Malaysia from 1st January 2012 to 31st December 2016. The hospital records of patients sustaining these fractures were analyzed through frequency analysis using SPSS version 22.0. **Results:** A total

of 218 patients were found to have suffered this type of fracture with 80.7% being male and 19.3% female. The fractures occur most commonly (36.2%) in patients with age range between 11-20 years old, with motor vehicle accidents (74.8%) being the most common cause. Isolated injuries were recorded in 13.3% patients, whereas 86.7% patients sustained injuries associated with other maxillofacial fractures. With regard to the latter, orbital fractures showed the highest percentage (70.6%), followed by skull fractures (34.9%), nasal fractures (28.4%), Le Fort fractures (27.1%), mandible fractures (21.1%), dentoalveolar fractures (15.6%), palatal fracture (10.1%) and nasoorbitoethmoidal fractures (2.3%). In terms of treatment options, 45.0% of patients were surgically treated, 39.4% were treated conservatively, 14.7% had refused treatment and 0.9% has done the surgery elsewhere. **Conclusion:** Therefore, it can be concluded that zygomatic complex fractures commonly occurred in males between the ages of 11-20 years old as a result of motor vehicle accidents, and injuries associated with maxillofacial fractures commonly involved orbital fractures. Surgery was the most common treatment for zygomatic complex fractures.

(POS 12) Current update of miswak as an alternative plaque removal: A literature review

Pani Matin Anugrah, Putri Ayu Rismayanti, Winda Rahma, **Dani Rizali Firman**

Faculty of Dentistry, Universitas Padjadjaran, West Java, Indonesia.

Introduction: Miswak or *Salvadora persica* is firstly used in the Babylonians and already well known in the Middle East as a traditional toothbrush since 3500 BC. However, very limited evidence available regarding its effectiveness compare to manual tooth brushing technique. Although there were several literature reviews questioning the effectiveness of miswak as tooth cleansing or plaque

removal up until now, but there are other publications that were not included on the latest review. Hence, recent literature review is needed. **Objectives:** The aim of this current literature based study is to compare between miswak and conventional toothbrush in their function as plaque removal or tooth cleansing. **Methods:** This literature based study by reviewing the publication from Google Scholar and Scopus database with keywords “miswak” OR “*Salvadora persica*” AND “toothbrush” AND “plaque removal” OR “plaque control” OR “tooth cleaning” AND “human” during the up until recent date in 2018. **Results and Conclusions:** Most of the publications stated that miswak has the same effectiveness or higher in some cases compared with conventional toothbrush, and it can be alternative way to clean dental plaque. Using inclusion and exclusion criteria by Prisma Method, according to the preliminary electronic search, 8 journal publications were found. All the publications were analysed with descriptive thematic analysis review.