

Faculty of
DENTISTRY
Review 11/12

FACULTY OF
DENTISTRY

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FACULTY OF DENTISTRY

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DEAN'S MESSAGE

The major milestone in AY2011 was the re-structuring to a one-department Faculty. This streamlining will allow faculty members to focus on academic and scholarly pursuits. In addition, the organizational structure will allow for nimbleness as we pursue the challenges in education research and clinical services.

The recruitment and retention of academics and scientists will always be a priority. We continue to modestly increase in critical mass. In 2011, our main success was growing the Paediatric Dentistry team from one full-time staff to 4 full-time paediatric dentists, with two more in training. Our first steps in developing Geriatric and Special Needs Dentistry have begun, Dr Tay Chong Meng has returned from training and the Faculty will continue to grow this branch of dentistry, through sending staff for training and recruitment.

Our students continue to excel not only academically, but in their involvement in research and community work. Our students bagged the NUS Outstanding Undergraduate Research Prize (group category) and also won 1st prize in the APDSA, 39th Conference. More students are participating in outreach programmes both locally and overseas. It is heartening to see our students make time to help out the less fortunate in spite of their busy schedules and studies.

Our alumni continues to support the Faculty generously in sharing their time and talent to come back to teach and mentor our students. In addition, our alumni have donated generously to the Faculty. Alumni donations increased from 28% of all donations in 2010, to 57% in 2011. This is indeed encouraging.

Buildings and organizational charts are just structures, most important are the people who make this Faculty a place where enquiry, learning and caring thrive. In this issue, our annual report, highlights our faculty members, students and researchers and celebrate their achievements.

Associate Professor
Grace Ong



VISION

To be a dental institution of international distinction.

MISSION

Improve oral health through academic excellence, high impact research and quality clinical service.



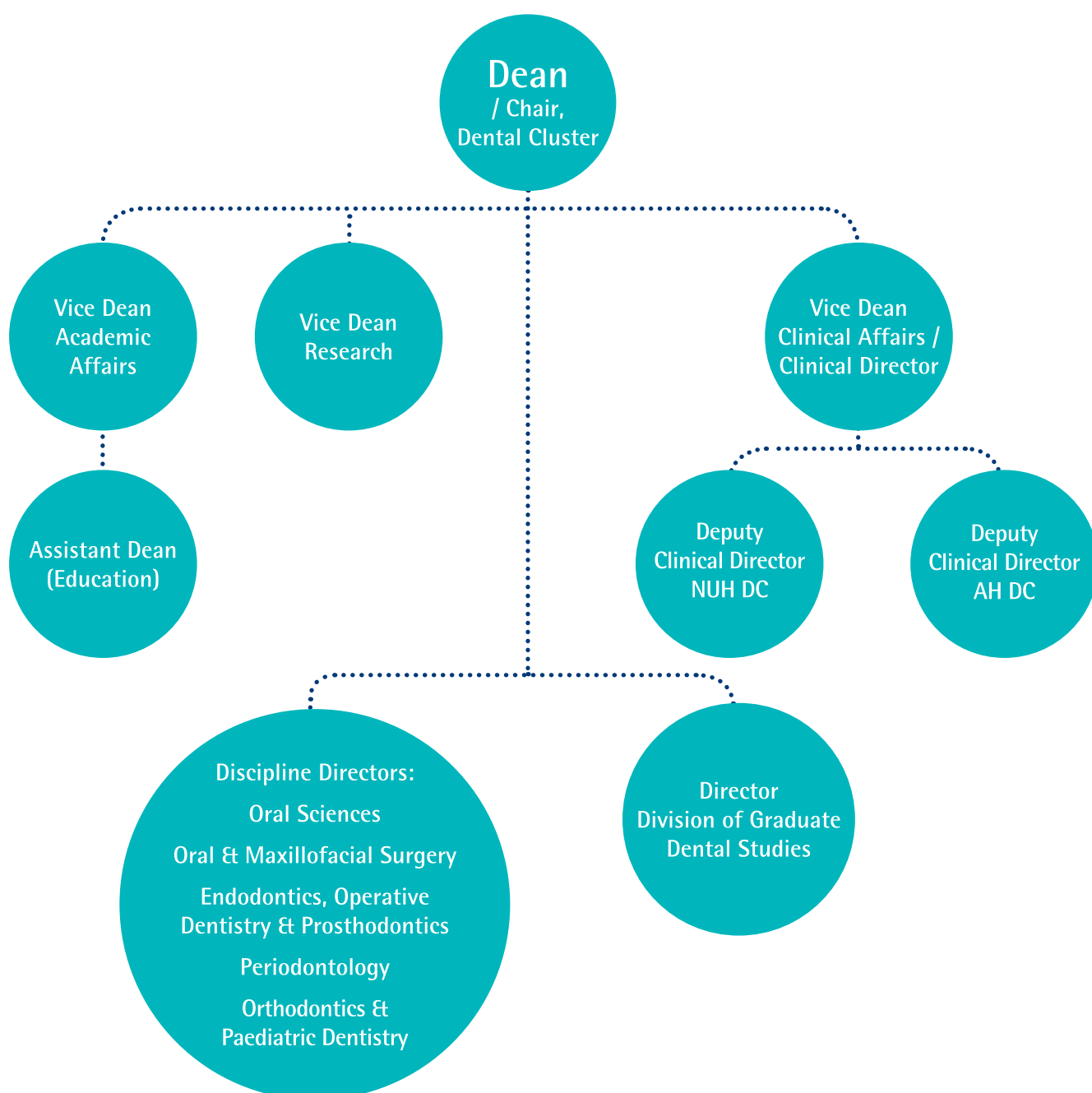


HIGHLIGHTS OF **THE YEAR**

ONE-DEPARTMENT STRUCTURE

With effect from 1 October 2011, the Faculty converted to a one-department organization structure. The new structure allows for better streamlining of processes in curriculum, research and budget.

Each discipline is headed by a Director who is responsible for operational matters in education, research, clinical, HR and other professional matters. Discipline Directors, Vice Deans and Dean are members of the Faculty Board. The Faculty Board continues to oversee strategic directions, budget, policy matters in education, research and clinical services.



CLINICS



Returning Postgraduate from abroad

Dr Tay Chong Meng

on developing Geriatric Dentistry

Dr Tay Chong Meng completed his BDS (Singapore) in 2002 and worked 2 years in private practice before returning to National University Hospital (NUH). In 2009 he went on a Ministry of Health (MOH) Postgraduate Training Scholarship to pursue a Geriatric Dentistry program at the University of Melbourne.

An active believer in community work, he continues to do volunteer dental work at the Bethany Nursing Home at Chua Chu Kang, an interest which was ignited during his undergraduate days when he went on various overseas dental missions.



Special Needs Dentistry is that part of dentistry concerned with the oral health of persons adversely affected by their intellectual disability, physical, behavioral, psychological, or complex medical issues. It is also known as Special Care Dentistry (SCD).

We manage patients with the following

1. Physical disabilities such as cerebral palsy,
2. Behavioural issues such as autism spectrum disorders,
3. Psychiatric issues such as schizophrenia,
4. Complex medical issues such as HIV, cancers, haemophilia and organ transplant,
5. Intellectual disability as a result of congenital or acquired issues.

As the elderly population tends to present with chronic medical conditions and the cumulative effects of events such as strokes and heart attacks, they are also vulnerable to age-related issues like Alzheimer's disease, which also forms a subset of the patients with special needs.

Some of the highlights of my course include:

1. Going out on domiciliary dental service during the first year of the postgraduate course. For example, my team had to put a patient with dementia on the hairdresser's chair (within the patient's nursing home) to get her comfortable enough to undergo dental extraction.
2. The challenges of building rapport with patients with special needs and getting them to subscribe to your treatment plan. One has to learn the idiosyncrasies of each patient for e.g. with autism spectrum disorders we need to take time to build rapport in order to improve their cooperation.

Why did you choose this course?

Q

A

I suppose, just seeing the patient smile in gratitude and being able to make sure that the patient does not need to suffer additional pain from the oral source is something that touches my chord more than anything. As part of the healthcare team, "I believe that we all have a heart to do good. With this, I hope that my colleagues, both current and future ones, will be more empowered to reach out to these patients."

PAEDIATRIC DENTISTRY: Vision Forward in Education and Research

Dr Catherine Hong

The past year has brought many changes within the Faculty and especially in Paediatric Dentistry with an increase in the number of full time staff from one to four, solidifying the schools commitment to furthering excellence in clinical teaching, service and research. This is a well-timed increase and with an explosion in Singapore's population especially in the last decade, there is a need to rapidly increase the number of dentists including paediatric dentists to serve the population. To meet this demand, the Discipline of Orthodontics and Paediatric Dentistry at the Faculty of Dentistry, intends to set up a postgraduate residency training program in Paediatric Dentistry . This was previously not possible due to the lack of manpower. However, the division has since grown and now boasts a team of dedicated and qualified paediatric dentists with diverse expertise from various parts of the world. We are confident that together with a committed group of practitioners from the private sector and the school dental service, graduates attending the residency programme will not only be proficient but will demonstrate excellence in all areas of paediatric dentistry.



PAEDIATRIC DENTISTRY

Research & External Collaborations:

Dr Catherine Hong○

Paediatric Oral-Stem Study

Earlier cancer detection and advances in cancer therapies have provided important management strategies to improve survival and quality of life. Common cancer treatment modalities include surgical resection, chemotherapy (CT), radiotherapy (RT), and hematopoietic stem cell transplantation (HSCT). However, side effects from these therapies can limit the effectiveness of treatment and have a marked impact on the patient's Quality of Life (QoL). The oral cavity is a common site of complications related to cancer therapies.

To fully understand which oral complications from cancer therapies are important targets for prevention and better management, it is essential to understand the burden of illness from cancer and cancer therapies. The Surgeon General's report "Oral Health in America" calls for both the building of the science and evidence base, so that science can be effectively applied to improve oral health. Recent systematic reviews of these oral complications have confirmed the limitations in the knowledge of the incidence and severity of the various additive oral complications in both adults and children.

In order to establish recommendations for pre-, interim-, and post-cancer therapy management of oral problems in patients receiving high dose conditioning regimen and hematopoietic stem cell transplantation (autologous or allogeneic), an understanding of the scope of oral

complications from cancer therapy must be established and be related to time after treatment and treatment regimen. There is thus a pressing need to establish the nature, incidence and temporal relationship of oral complications related to conditioning therapies, as well as other types of cancer therapies.

The paediatric oral-stem study is modelled after an ongoing international multi-center study evaluating similar parameters in adults. Singapore will be one of the sites (other participating sites: USA, Sweden) and the coordinating centre for this study. The goals are to establish the nature, incidence and temporal relationship of oral complications related to conditioning regimen (chemotherapy with or without total body irradiation [TBI]), hematopoietic stem cell transplantation (HSCT) and immunologic reactions (mainly Graft Versus Host Disease) in paediatric stem cell transplant patients and their impact on quality of life. The study also seeks to investigate the role of genetic polymorphisms in candidate genes and oral flora in the development of oral mucositis.

The data generated from the study will contribute to developing evidence-based management recommendations which will enhance the appropriateness of clinical practice, improve the quality and cost effectiveness of oral health care, lead to better patient outcomes, and identify areas of further research needs.



RESEARCH

Winner of the “Research Forum Competition Award” Dr Chang Po-Chun

My research group currently works in three major directions:

1. To facilitate periodontal regeneration by using the cocktail of platelet-derived growth factor (PDGF) and simvastatin.

By collaborating with Professor Wang Chi-Hwa in the Department of Chemical and Biomolecular Engineering, we developed a biocompatible and biodegradable poly-D,L-lactide-poly(D,L-lactide-co-glycolide) (PDLLA-PLGA) microsphere carrying these two bioactive molecules to enable a parallel or sequential-release profiles of the molecules. In our animal model, the microspheres showed acceptable biocompatibility, and the cellular viability was improved with the encapsulating of bioactive molecules. We have also demonstrated that PDGF-simvastatin combinational treatment was able to overcome the heat-induced osteonecrosis during the drilling on the alveolar bone, promote bone apposition and maturation, as well as periodontal ligament alignment, and the results were significantly more prominent under the sequential PDGF-simvastatin release profile.



2. To modulate periodontal destruction by using the anti-diabetic agents

The close interrelationship between diabetes and periodontitis has been shown in numerous investigations. In our study, we noted that the presence of advanced glycation end-products (AGEs), a by-product under extensive diabetes, was closely related to periodontal disease progression in physiologically healthy animals. In the cell culture we also found that tissue glycation may cause effects similar to infection from *P. gingivalis*. Thus, we systemically administrated an anti-diabetic agent, aminoguanidine (AG), which prevented the formation of AGEs, to the experimental animals. The results demonstrated that AG delayed the progression of periodontal disease and promoted periodontal repair, and the main effects of AG were modulating the behavior of inflammatory cells and maintaining the periodontal tissue integrity.

3. To validate computerized tomography (CT) for clinical assessments

We collaborated with the Singapore Bioimaging Consortium of the Agency for Science, Technology, and Research (SBIC-A*STAR) to investigate the reliability of current available image segmentation techniques. We developed a segmentation technique by smartly dividing image to small neighborhoods for evaluating the dynamics of periodontal bone loss. We also collaborated with Professor Ong Sim Heng from the Department of Electrical Engineering to establish a clinical guideline of aesthetically acceptable mucogingival profiles and investigate the dimension as well as the morphology of the gingival apparatus of Asian populations using cast models and digital imaging.

We currently own 21 conference papers and 12 manuscripts published in international peer-reviewed journals, with 9 of them in Tier 1 journals. In 2011, we won the Best Poster Award (4 of 48 presentations) from the Asia-Pacific Society of Periodontology, and the Award for the Research Forum Competition (1 of 8 finalists) at the annual meeting of the American Academy of Periodontology.

Project Title:

Photothermal Modulation of Adherence of Bacteria on Human Enamel



Principal Investigator:

A/P Stephen Hsu

Collaborators:

A/P Ho Bow (SoM) &

A/P Lim Chwee Teck (FoE)

Total Project Value:

S\$178,330

Summary of Achievements

Oral bacterial adhesion to dental enamel surfaces depends on many factors including surface free energy, hydrophobicity, and surface charge of bacterium and enamel. Since saliva is omnipresent in the mouth, most of the researchers think the surface energy of enamel would be less important or of little impact on bacterial colonization. Numerous studies have demonstrated that heat or laser irradiation can inhibit demineralization of enamel and dentin. However, there has been no study investigating the link of heat/laser-induced changes of physicochemical properties to bacterial adhesion. It was hypothesized in this study that proper heating may change the physicochemical properties of enamel and subsequently inhibit bacterial adhesion in spite of saliva covering of enamel. The results of this study revealed, firstly, the hydrophobicity of enamel increased after heating and the zeta potential of heated enamel became more negative than the control. Secondly, the physicochemical properties of three first colonizers were rather different. Thirdly, it was revealed via confocal laser scanning microscopy and atomic force microscopy that thermal treatments on enamel inhibited some bacterial colonization but not all.

In short, a proper thermal treatment may change the physicochemical properties of enamel surfaces to selectively prevent the adhesion of some oral pioneer strains in the mouth. This study has thus provided scientific evidence to dispute the conventional knowledge that clinical laser effect might not be useful in preventing bacterial adhesion since saliva/pellicle can mask all the potential effect of substrate/enamel. Therefore, the photothermal effects of laser treatment on enamel surface may be promising in modulating biofilm formation.

Details of the results of this study can be found in our publication (Hu XL, B. Ho, CT Lim, CS Hsu. Thermal Treatments Modulate Bacterial Adhesion to Dental Enamel. Journal of Dental Research 90(12): 1451-1456, Dec 2011).

Project Title:

Molecular Studies of Periodontal Ligament and Alveolar Bone Remodeling during Orthodontic Tooth Movement

Principal Investigator:

A/P Kelvin Foong

Co-Investigators:

A/P Cao Tong



Collaborator:

Prof Murray Clyde Meikle

Total Project Value:

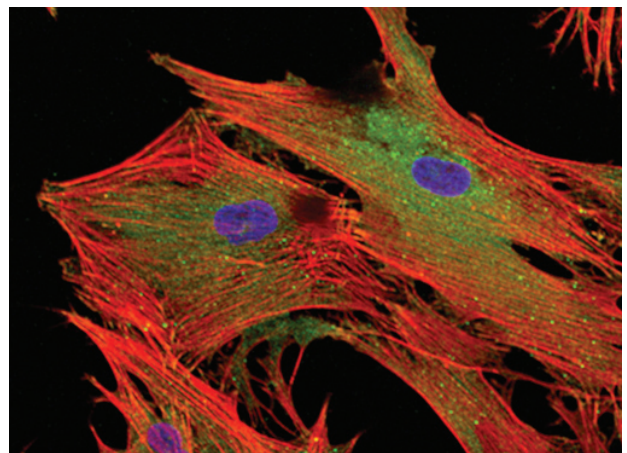
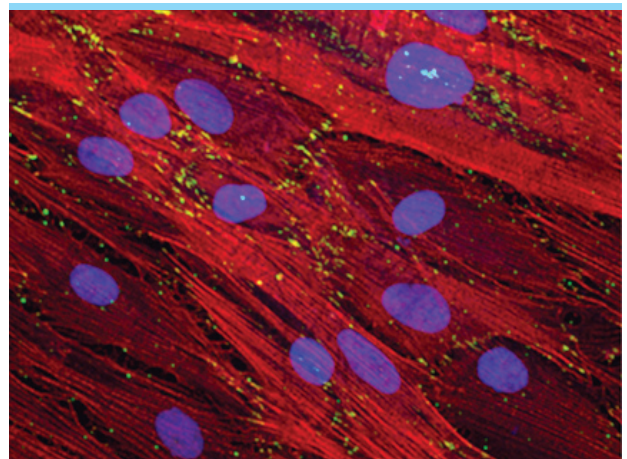
S\$179,860

Figure 1: Confocal immunofluorescent images of human PDL cells in Extracel, a commercially available gel matrix composed of hyaluronan and gelatin. The cells were fixed, permeabilized and stained with (1) an antibody against vinculin (yellow/green) which links integrin receptors to the actin cytoskeleton; (2) TRITC-phalloidin which binds actin filaments (red), and (3) DAPI, a fluorescent stain that binds to DNA (blue).

Summary of Achievements

The aim of this ongoing research programme is to further our understanding of the cellular and molecular mechanisms involved in remodelling the periodontal tissues during orthodontic treatment. The following are two highlights.

A major focus has been to engineer 3-dimensional tissue constructs of the Periodontal ligament (PDL) to mimic more closely the environment cells experience in vivo, by incorporating human PDL cells into hydrogel matrices. The novelty of this work lies in the fact it is the first attempt to engineer and fully characterize 3-dimensional constructs of the PDL (Figure 1). Although the original motivation was to produce constructs that could be mechanically-deformed, the models developed have a much wider research and clinical application.



A well-recognized complication of fracture fixation and joint arthroplasty in orthopaedic surgery is stress-shielding and osteopenia resulting from the implantation of rigid metallic devices into bone. An orthodontic appliance is also a metallic device of varying rigidity and therefore likely to produce stress-shielding, prompting the question: What effect does the appliance itself have on the metabolism and remodelling dynamics of the tooth-supporting tissues? Figure 2 shows the result of attaching a simple orthodontic appliance to the maxillary molars in rats – bone loss and osteopenia.

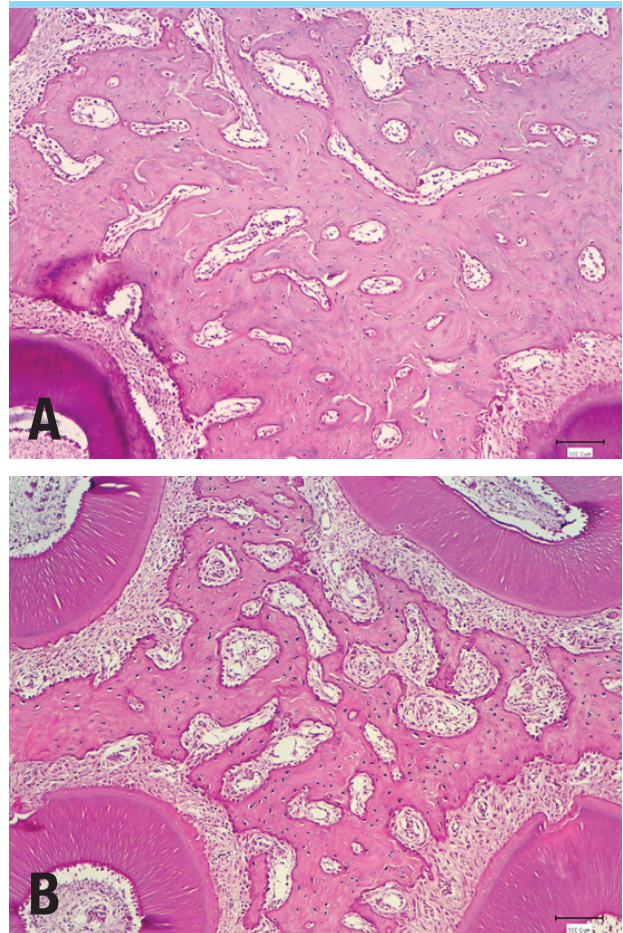


Figure 2: Horizontal sections through the interradicular bone of the maxillary second molars; 6-week-old rats. (A) Control: the bone is of the woven type enclosing a network of vascular channels. (B) After 8-days wear of an inactive transpalatal orthodontic spring. The bone is osteopenic due to stress-shielding by the appliance and a reduction of occlusal loading below the critical threshold required to maintain normal osseous architecture. Haematoxylin and eosin stain; bars measure 100 μ m.

This finding is counter-intuitive (at least to orthodontists) because it has been an article of faith for more than 100 years that orthodontic appliances have a positive effect on bone mass. Instead of stimulating bone formation, 'growing bone' as Edward Angle and many of his contemporaries believed, these data imply that an orthodontic appliance has a negative effect on bone mass.

Research Internships

The Faculty of Dentistry has hosted students from various schools, both locally and internationally as research interns. These schools include Junior Colleges, Polytechnics and overseas Universities. The duration of the internship varies from a few months to about a year. The internship can either be full-time or part-time. These students receive guidance from academic staff of the Faculty.

Timothy Lin
Wheaton College, USA

My time here at the Faculty of Dentistry has really opened my eyes to see what research can do. I was challenged in ways I had not been before. I was encouraged to look at the knowledge I possessed from a completely different perspective and to explore deeper within the same realm. Research also requires teamwork and collaboration, and I learnt how to communicate effectively and efficiently with my co-workers. I had enjoyed my time here at the Faculty of Dentistry and I would like to especially thank A/P Hsu and the Faculty for giving me this opportunity to conduct research here."



From left: Timothy Lin and Assoc Prof Stephen Hsu



From left to right: Soh Jie, Cheng Yuan Han & Lim Hui Min

Lim Hui Min, Soh Jie & Cheng Yuan Huan
NUS High School, Singapore

"Undertaking this research has allowed us to gain further insight into the field of Dentistry, further deepening our passion for it. It also enabled us to gain first-hand experience on what it is like as a researcher, developing us much as a person, gaining perseverance, determination as well as interpersonal skills. Doing this research was no easy feat as it was tough gathering response from the students despite numerous reminders. However, it was definitely heartwarming to see the turn-up rate at our validation test. All the time and effort that was put into this research project was definitely worth it, and we hope that this project can be further developed and the results would be able to better the quality of people's lives. We would like to thank our mentor, Dr Michael Mah, as well as co-investigator, Dr Catherine Hong, for their endless guidance and support throughout this entire project.

Yan Ming
Shanghai Jiao Tong University, China

My deepest gratitude goes first and foremost to A/P Cao Tong for giving me this opportunity to be trained here. I'm very lucky to join this excellent team. Although three months is really short, I have to say that it has been fruitful. Besides the stem cell technology, the team spirit, lab safety and lab management were good. The Lab Safety and Risk Assessment Workshop which I attended helped me a lot too, especially for my future work. I'll try my best to set up the human embryonic stem cell platform after returning back to China. In addition, my sincere gratitude to my fellow workmates who taught and helped me throughout my stint here."



From left: Dr Amr Fawzy, Yan Ming, Assoc Prof Cao Tong and Mr Chan Swee Heng

Project Title:

Apoptosis and Cell Viability Analysis of Human Calvarial Osteoblasts Under Mechanical Strain

This project was awarded the Outstanding Undergraduate Researcher Prize (Group Category) AY2011/12 and 1st prize at the Asia Pacific Dental Students Association (APDSA) 39th Conference.

Group Members:

Soh Shean Han, Alethea Foong Li Yen, Liesl Khoo Yi Min, Sabrina Ng Livia

Supervisor:

Prof Murray Clyde Meikle

Co-Supervisor:

Dr Vinoth Kumar



From Left: Liesl Khoo Yi Min, Alethea Fong Li Yen, Soh Shean Han, Sabrina Ng Livia

Project Summary

Mechanical loading is important in the regulation of bone remodeling. However, reported responses vary widely- from an increase to a decrease in cell numbers and the process of mechanotransduction is still poorly understood. Most in vitro cell studies investigate the effect of mechanical stimuli on osteoblast differentiation or proliferation. Limited studies have investigated the time-dependent process of osteoblast apoptosis when subjected to tension. Yet apoptosis is critical to bone remodeling and closely linked with cell proliferation.

Hence in this experiment, we investigate the effect of tensional mechanical strain on cell apoptotic activity and viability within 24h.

Human Calvarial Osteoblast Cells were subjected to repeated passage and trypsinization. Third passage cells were cultured on 6-well Bioflex Collage I plates and subjected to cyclic equibiaxial, tensile in-plane deformation of 2%, 0.2 Hz every 90sec for 6h, 12h, and 24h. Caspase- Glo 3/7 and MTT 98% TLC assays were conducted to determine activity of cellular apoptotic activity and viability respectively.

Our results show that the trend of apoptosis in the experimental group corresponds with the trend in cell viability over time. The experimental group demonstrates a significantly lower apoptotic activity ($p=0.004$) and viability ($p<0.001$) than the control regardless of the duration of mechanical strain over 24h.

Thus we conclude that the presence of a cyclic, equibiaxial, tensile mechanical strain significantly reduces cellular apoptotic activity and viability in human calvarial osteoblast cells over the 24h time-scale of the experiment. This reduction in viability could be attributed to a reduction in cellular proliferation or metabolism.

This is the first in vitro cell study that investigates the systematic progression of apoptosis of human calvarial osteoblasts in response to tensile forces. It advances the understanding of the role of osteoblast apoptosis in bone remodeling, how this relates to cell viability, and the effect of iatrogenic mechanical stimulation.



EDUCATION

NUS Annual Teaching Excellence Award - Dr Betty Mok

Since joining the Faculty of Dentistry in 1993, Dr Betty Mok has consistently shown an exceptional interest in teaching dental students in her favorite subject of Paediatric Dentistry. She has set herself very high standards and her achievements and accolades over the years bear testimony to her single-minded mission to inspire future generation of dentists in Singapore. Dr Mok has a natural flare for teaching which makes her students respect her as a friend, mentor and educator all in one. Very open in her approach to teaching and learning, she creates an environment where students are able to broaden their knowledge and skill sets to a high level while at the same time having an ability to accept feedback from both current and past students to further advance her teaching skills. A firm believer in maintaining discipline in her students, she tempers it with a sense of reality and a kind heart.



Betty takes time to understand her students well and tries to adapt her teaching wherever possible to suit their individual learning styles and needs. This is carried over to the clinics where she integrates the relevance of what they are learning with the real life scenarios of managing paediatric patients. She often uses patients' presenting problems as triggers for learning. Students are given opportunities to explore their prior knowledge, integrate and apply them to their patients' condition. Direct clinical work on patients is often demonstrated chair side. In this area, Dr Mok exemplifies the professional part of her teaching and management of child patients. The students under her care appreciate her for the way she teaches and shows them how to deal with these young fearful patients, often subduing their fears with talk and actions. Her distinct voice can be overheard in the clinics where the students love to learn under her guidance.

In the area of educational leadership, Betty has been exemplary. Always keen to learn and relearn, she has been involved in educational initiatives and leadership. In 1998, she was one of the pioneer group of staff who underwent training in PBL and later became a member of the PBL committee. She also took on additional responsibilities to become the Chair of the Faculty Clinical Dentistry Examination Sub-Committee in 2001 and later became Chair of the Peer Review Committee in 2010. Besides this, she is the current Chair of the Curriculum Committee looking at ways to further streamline the educational system within the faculty, integrating the latest technology and pedagogical methods into a new curriculum. Due to her commitment and passion in education, she was appointed the Assistant Dean in Education w.e.f. 1st October 2011.

In her capacity as a Course Director she has spearheaded new initiatives in the teaching of Paediatric Dentistry. She has also introduced new core competencies into the learning and assessment environment.



In the area of clinical teaching, Betty is a strong supporter of collaborative learning by students. The students work in pairs at the clinic she supervises. At the end of the clinical session, she encourages them to do critical reflection. She will discuss with them how they did as an individual and as a team. During these debrief sessions, the students have the opportunity to learn from their peers.

Betty has always been mindful that as a teacher she is also a role model to her students. She conducts herself such that she reinforces the professional and ethical values to her student.

In her Performance Indicators record, she has been awarded the Faculty of Dentistry Excellence in Teaching Award (7) times since year 2000. It is an exceptional achievement, truly deserving of Dr Mok. She was also recognised in 2003 & 2012 for her teaching where she was one of the NUS Excellent Teacher Award winners.

Dr Mok exemplifies all the desired qualities of a teacher, mentor and friend to her students. Staff and students are truly proud of her exceptional talent as a teacher in the Faculty of Dentistry.

Public Service Administration Medal (Bronze) 2011 - Associate Professor Jennifer Neo

A/P Neo has served NUS for 29 years. She has been Head of the Department of Restorative Dentistry from 2001-2011. She was Vice Dean of Research from 1995-2001 and currently serves as Vice Dean of Clinical Affairs, from 2010-2012.

She has led the Department of Restorative Dentistry for the past 8 years, facilitating the development of her staff in research and teaching.

As Vice Dean of Research, she streamlined the workflow processes in the Dean's Office and initiated a clinical trials unit to be formed.

Now, as Vice Dean of Clinical affairs, she oversees the clinical services in NUHS and the dental clinic at Alexandra Hospital. She is actively putting in processes to ensure

that the undergraduate students' clinics are running efficiently. A/P Neo has worked at increasing the patient pool for undergraduate students by engaging the dentists at polyclinics and introducing various methods of engaging the community.

Her people skills is seen in her ability to raise funds for the Faculty. She has worked tirelessly, engaging alumni to donate towards undergraduate bursaries. She is instrumental in bringing in a significant amount of the Faculty's bursary funds.

A/P Neo has served NUS with commitment and dedication.



Partnering to Impact the Oral Health of Older Singaporeans

Associate Professor Robert Yee

Partnering to improve the health of a population is a highly regarded health promotion activity. Over the past 2 years, the Faculty of Dentistry collaborated with the Health Promotion Board (HPB) and the Ministry of Health (MOH) to develop the Clinical Practice Guidelines (CPG) on 'Functional Screening for Older Adults in the Community' to address imminent healthcare challenges of Singapore's ageing population.

Dental public health specialists from the Faculty along with specialists from the fields of geriatric medicine, public health, family medicine, ophthalmology, psychiatry, and otolaryngology, worked to develop the CPG and a training package to assist community health promoters (nurses aids) to identify community dwelling older adults (aged 60 and above), who may have a decline in mood, continence, or physical function. Older adults with functional limitations are referred to primary care doctors for further assessment and management. Those with vision, hearing impairment and poor oral health are referred to appropriate specialists for management. Since opportunities may arise where patients with vision,

hearing impairment, or poor oral health status prefer to consult their primary care doctor before going to a specialist, a practical online resource was also developed for primary care physicians.

Primary care doctors and community health promoters use a modified form of the Oral Health Assessment Tool (OHAT) from the Iowa Geriatric Education Centre as a guide to assess the lips, the tongue, gums and oral tissues, saliva, teeth, oral cleanliness and pain. Based on their findings, older adults may be managed as follows:

1. Healthy status

encourage the patient to maintain good oral hygiene

2. Poor oral hygiene only

teach oral hygiene

3. Lesions/broken prosthesis/require prosthesis

refer to a dentist

Of pertinence to primary care doctors is the relationship between oral health and general health. Poor oral health and chronic diseases are interrelated due to common risk factors. Poor oral health can also be a risk factor for many common chronic diseases and poor periodontal health has been associated with cardiovascular disease, Diabetes Mellitus and aspiration pneumonia. Conversely, poor physical and mental health in the elderly has an effect on their oral health. The prevalence of poor mental health, dementia, depression, Alzheimer's Disease, Parkinson's Disease and physical function impairment increases with age and are associated with poor maintenance, greater risk of periodontal problems, edentulousness, poor oral function and pain. In addition, the risk of oral cancer, oral pharyngeal cancer and oral premalignant lesions is high in the age group above 60 years, due to the decline in the immune system, the common risk factors related to oral health and general health.

Through this partnership, the opportunity to integrate oral health into general health was seized and non-dental personnel now have the resources to detect and manage oral problems of older community dwelling Singaporeans; thus, helping them to age healthily.





Preparing Dental Students for the 'Silver Tsunami'

Associate Professor Robert Yee

A major global phenomena and demographic trend is the high rate of growth of the proportion of the population age 65 years and over. The demographic profile of the aging population in Singapore is similar to the global picture. The Singapore Department of Statistics reported that the proportion of Singaporean elderly (age 65 year and over) to the total population almost doubled from 4.9% in 1980 (118,281) to 8.5% in 2007 (390,031), while the crude birth rate for Singaporean residents declined from 17.6 per 1000 population to 10.3 per 1000 population during the same period. This wave of elderly Singaporeans known as the 'Silver Tsunami' has been forecasted by the Committee on Aging Issues to reach 900,000 (20% of the total population) by 2030.

As Singaporeans live longer and longer, chronic health problems including oral health conditions such as dry mouth, dental caries and periodontal problems begin to surface; and dentists will be challenged in the oral care management of elderly patients in their clinic and in nursing homes. As an adjunct to their didactic training in geriatric dentistry, third year dental students participate in a Geriatric Community

Outreach Programme. In this programme, small groups of students under the supervision of faculty staff, have the opportunity to practice their communication skills with the elderly and to better understand the medical and dental problems faced by the frail and dependent elderly.

Rather than bringing the elderly adults to the Faculty's teaching clinic, students are brought to a nursing home for the elderly. The dental students provide oral screenings, preventive care and oral health education to the residents. With the aid of portable chairs, portable lights and hand instruments, the students are able to provide simple restorative treatment using the Atraumatic Restorative Treatment technique. Sometimes elderly adults may be wheelchair bound and do not wish to be transferred to a dental chair; in which case the dental student performs the procedure with the patient in the wheelchair. More complicated cases are referred to a dental clinic for more advanced care. The students have been generally appreciative of this hands-on experience and have requested more field trips to enhance their learning and experience.

Overseas Community Work Students

The dental team for Project Sabai first took flight in 2008 with 4 dental students conducting oral health education for school children in Phnom Penh, Cambodia. Unfortunately with the small team, they had to turn away children who had agonizing toothaches and could not afford to visit the local dentists.

Determined to make a difference, they decided to embark on another trip in 2009. This time around, they managed to recruit 1 dentist and together with a band of comrades, they were able to offer dental treatment to the children. Encouraged by the success of this trip, another was planned in December 2010 – with 8 dentists and 30 dental students.

Through such mission trips, the students learnt how to offer comfort and pain relief to the less fortunate. At the same time, it also offers them an opportunity to be exposed to other aspects of dentistry which they would not have encountered here. This is definitely a chapter of dental school life they will always treasure and be proud of.

Building on experiences gained over the last few years, the decision was made in 2011 to merge Project Sabai with Project Lokun to offer oral health education and free dental treatment to the less privileged children and villagers in Cambodia. Coined as Project Sabai-Lokun 2011, this event took place from 10 to 21 December involving 6 days of clinical work followed by 3 days of field clinics. A total of 24 dental undergraduates volunteered to be part of this worthy project, alongside 9 dental officers.

Project Sabai was centered around the main city of Phnom Penh, treating the impoverished children from the Don Bosco Catholic Schools and the villagers living on the fringes of the city. While Project Lokun focused on rendering free dental treatment to the villagers living near Center for Research on Optimal Agricultural Practices (CROAP) in Pursat province.

Over the 10 days, they managed to treat around 400 children and villagers. While clinical dental work constituted the bulk of their time, they also devoted time for oral health education, teaching the Cambodians the proper brushing techniques and providing them dietary advice to reduce their caries incidence.

In the near future, with apparent improvement in the children's dental conditions, the next challenge will be to have the Cambodians themselves take charge of their own dental health as well as the opportunity to treat more villagers in other parts of Cambodia.



ALUMNI



Forty Years Later

Class of '72 celebrates homecoming in Singapore

The enthusiasm gathered pace as the initial discussion on holding a class reunion to celebrate 40 years since graduation in 1972 blossomed into a gathering of 24 classmates. What an eventful meeting it was. Many had travelled from Hong Kong, Malaysia, Australia and the United Kingdom just to meet up. Some of them have not met since graduation 40 years ago. The three alumni who did most of the cajoling and organization for the event were Loh Hong Sai (Chief), Teo Choo Kum and Yeoh Oon Soon.

Housed at the Visitors Lodge at Kent Ridge, the 3 day event in April 2012 saw nostalgic visits to the old Sepoy Lines Campus where they had their training, College of Medicine building including a visit to the old Ah Leng's canteen field at the KE Hall. The group also visited the new Alumni House at Kent Ridge.

Fond memories during their undergraduate days in which bonds were cemented was the "talk of the day " when they met up for morning walks, visits to tourist sites including Clarke Quay, night boat ride through the Singapore River and a visit to Sentosa Island.

The Faculty hosted the alumni for a visit to the dental school with a talk on our updated programs, a presentation of souvenirs to each participant including a tour of its facilities. Dr Betty Mok, Assistant Dean Education played host to the group. The talk also highlighted the many giving opportunities that former students could contribute to their alma mater. Many had remarked on the differences the new training facilities offered compared to what they had when they were trained at the old dental clinic at the Singapore General Hospital.

The highlight event was the dinner on 21st April, 2012, held at the Alumni House where former teachers like Chan Yew Ai, Leslie Yong, Francis Lee and Lim Swee Teck also attended. It was a night of nostalgia, fellowship, commonality of purpose and spirit that prevailed throughout the evening. Murmurings on the next reunion were also on the cards.

On Faculty's part, the dental school was most delighted that there was keen interest shown by many to the new developments within dental education and what the alumni could do to help.



Class of '72, with former teachers at Alumni House – 40th Reunion Dinner

BDS Class of '81 Giving

30 years after they graduated, the Class of '81 from the Faculty of Dentistry gathered for a reunion. The event held at the Shaw Foundation Alumni House on Sunday 17 July, rang with the voices of classmates greeting one another, some after decades.

But the reunion was more than just an opportunity to meet old friends and reminisce about their student days. The class also took the opportunity to organize a symposium cum fund raising event entitled "30 Years of Dentistry - Staying Relevant & Current". Featuring six speakers from the class, it attracted the support of more than 240 participants and 10 industry partners.

All registration and exhibitors' fees collected went towards the establishment of a BDS Class of '81 Bursary Fund. The event successfully raised S\$180,000. During the cheque presentation ceremony, A/P Grace Ong, Dean, Faculty of Dentistry, expressed her heartfelt thanks to the BDS Class of '81 alumni for their efforts in giving back to the faculty to help needy dental students and thus, contributing to the future of dentistry.



Class of '81 presents the cheque of \$180,000 to A/P Grace Ong, Dean, Faculty of Dentistry.

FOD Donation

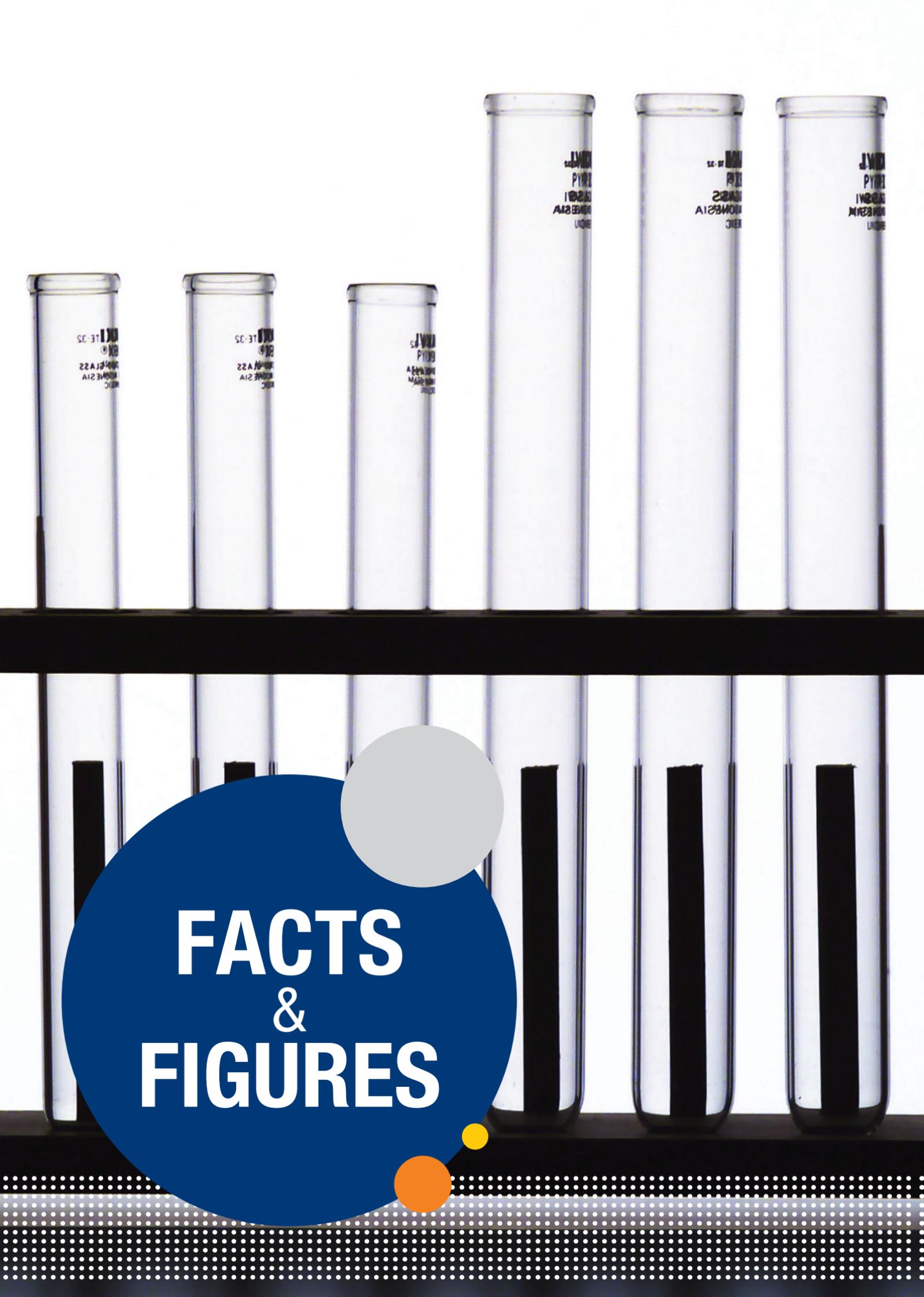
(April 2011 ~ March 2012)

\$10,000 ~ \$49,999

1. Chong Yea Hwe
2. Kaan Sheung Kin
3. Ong Hui Lian, Grace
4. Quake Tiang Chye, Matthias

\$1,000 ~ \$9,999

- | | | |
|--|---|---|
| 1. 3M Technologies (S) Private Limited | 20. Heng Gee Fat | 38. Samsudin bin Jetty |
| 2. Ace Star Dental Services Pte Ltd | 21. Ho Kee Hai & Partners Pte Ltd | 39. Shahul Hameed |
| 3. Asia Implant Support & Services | 22. IDS Dental Division | 40. Shahul Hameed s/o
M K Kader Muhaladeen |
| 4. Au Chai Onn | 23. Keng Siong Beng | 41. Shofu Inc Singapore Branch |
| 5. Bicon Singapore Pte Ltd | 24. Lee Kwee Jin | 42. Sim Wee Kiat |
| 6. Bio-Scaffold International Pte Ltd | 25. Leung Wing Hung, Dominic | 43. Smile Dental Group Holding Pte Ltd |
| 7. Cao Tong | 26. Lim Lum Peng | 44. Southeast Implants (S) Pte Ltd |
| 8. Chan Joo Choon, Jeffrey | 27. Lim Sor Kheng | 45. Tan Beng Choon, Keson |
| 9. Chee Winston | 28. Loh Poey Ling | 46. Tan Chin Hwee |
| 10. Chew Chong Lin | 29. Maung Kaung Myat Win | 47. Tan Kim Poon |
| 11. Chiew Yim Tho | 30. Mok Yuen Pun, Clara | 48. Tang Pui Fong, Margaret |
| 12. Chin Yoke Chin | 31. Mok Yuen Yue, Betty | 49. Tay Lai Hock, Alphonsus |
| 13. Eu Oy Chu | 32. Morita Medical Engineering (S)
Pte Ltd | 50. Tay Seng Kong, Louis |
| 14. Fondaco Pte Ltd | 33. Ng Bee Lang | 51. Tham Yin Har, Felicia |
| 15. Foo Say Peng | 34. Nobel Biocare Singapore Pte Ltd | 52. Tseng Seng Kwong, Patrick |
| 16. Foong Weng Chiong, Kelvin | 35. Ooi Choo Lian | 53. Yeo Siang Khin |
| 17. Go Wee Ser | 36. Precision Dental Laboratory Pte Ltd | 54. Yu Soo Hoon, Victoria |
| 18. Goh Giang Beng | 37. QST Technologies Pte Ltd | |
| 19. HealthBiz Resource Pte Ltd | | |



FACTS
&
FIGURES

Enrollment & Graduation Statistics FY 2011/12

Enrollment	
PROGRAMME	TOTAL
UG	188
MDS (Endodontics)	6
MDS (Oral & Maxillofacial Surgery)	4
MDS (Orthodontics)	16
MDS (Periodontology)	8
MDS (Prosthodontics)	8
MSc	8
PhD	14
GDDI	5

Graduation	
PROGRAMME	TOTAL
BDS	42
MDS (Endodontics)	3
MDS (Oral & Maxillofacial Surgery)	1
MDS (Orthodontics)	3
MDS (Periodontology)	2
MDS (Prosthodontics)	0
MSc	1
PhD	3
GDDI	5

Staff Profile Full Time Academic Staff (as at March 2012)

Professor	1
Associate Professors	10
Assistant Professors	13
Senior Lecturers	2
Instructors	4
Visiting Professor	1

Full Time Academic Staff

as at 31 March 2012

1	Chew Chong Lin	Professor
2	Cao Tong	Assoc Professor
3	Foong Weng Chiong, Kelvin	Assoc Professor
4	Hsu Chin-Ying, Stephen	Assoc Professor
5	Keng Siong Beng	Assoc Professor
6	Lim Lum Peng	Assoc Professor
7	Neo Chiew Lian, Jennifer	Assoc Professor
8	Ong Hui Lian, Grace	Assoc Professor
9	Tan Beng Choon, Keson	Assoc Professor
10	Yee Ting Fai, Robert	Assoc Professor
11	Yeo Jin Fei	Assoc Professor
12	Amr Sherif Fawzy Mohamed Fawzy	Assistant Professor
13	Andrew Ow Tjin-Chiew	Assistant Professor
14	Catherine Hong Hsu Ling	Assistant Professor
15	Chang Po-Chun	Assistant Professor

16	Fu Jia Hui	Assistant Professor
17	Intekhab Islam	Assistant Professor
18	Mah Kuan Seet, Michael	Assistant Professor
19	Ngo Uy Joanne	Assistant Professor
20	Rahul Nair	Assistant Professor
21	Roxanna Jean Nicoll	Assistant Professor
22	Tan Kai Soo	Assistant Professor
23	Tong Huei Jinn	Assistant Professor
24	Yu Soo Hoon, Victoria	Assistant Professor
25	Mok Yuen Yue, Betty	Senior Lecturer
26	Mok Yuen Pun, Clara	Senior Lecturer
27	Goh Enhui Charlene	Instructor
28	Hu Shijia	Instructor
29	Khoo Tuo Sheng Joel	Instructor
30	Loke Weiqiang	Instructor
31	Murray Clyde Meikle	Visiting Professor

Non-Academic Staff

as at 31 March 2012

Dental Clinics	10
Laboratory Technologist	2
Operations Associate	4
Specialist Associate	4
IT Support	3
Laboratory Technologist	1
Specialist Associate	2
Laboratory	15
Laboratory Technologist	15
Office Administration	15
Management Assistant Officer	13
Operations Associate	2
Research Laboratories	2
Laboratory Technologist	2
Grand Total	45

Visiting Professors



Professor Christopher Alan Squier

Professor Christopher Alan Squier, Director of Graduate Studies at University Iowa, was Visiting Professor from 22 June 2011 to 12 August 2011. In addition, Professor Squier gave a talk entitled "Dying for a Smoke - The Role of Health Professionals in Tobacco Control" at NUH Grand Round on 29 July 2011.



Professor Harold Messer

Professor Harold Messer, currently Emeritus Professor at University of Melbourne, was Visiting Professor from 4 July 2011 to 1 September 2011. He was principally involved with the Graduate Endodontic Programme.



Dr Philip Martin McLoughlin

Dr Philip Martin McLoughlin, Consultant Maxillofacial Surgeon at Ninewells Hospital, Dundee was Visiting Associate Professor from 18 July 2011 to 12 August 2011. He was involved in both teaching and clinical services.



Professor Ole Blok Fejerskov

Professor Ole Blok Fejerskov, Head of Institute of Anatomy, Dr. Odont., DDS, Ph.D., Odont Dr. h.c., University of Aarhus, Denmark was Visiting Professor from 23 January 2012 to 1 February 2012.



Professor Robert Gunnar Bergenholtz

Professor Robert Gunnar Bergenholtz currently Emeritus Professor at University of Gothenburg, Sweden was Visiting Professor from 25 January 2012 to 23 March 2012. He was involved in both undergraduate and postgraduate teaching in Endodontics.

HMDP Visiting Expert

Associate Professor Angus Cameron

The Ministry of Health's (MOH) Health Manpower Development Programme (HMDP), aims to develop Singapore's healthcare manpower capabilities by sponsoring local healthcare professionals and nurses to advance their skills and knowledge in their chosen fields of specialty. The HMDP also sponsors renowned experts to conduct lectures and provide consultancies to local trainees and specialist departments.

A/P Angus Cameron was the Faculty of Dentistry's HMDP visiting expert in Paediatric Dentistry and Orthodontics from 30 January – 3 February 2012. He is a Clinical Associate Professor at Westmead Hospital and heads their Paediatric Dentistry department. During his visit, he conducted several lectures on Paediatric Dentistry and exchanged ideas with students, faculty staff and dental clinicians.



A/P Angus Cameron conducting a lecture to dentistry students.

Leadership Positions

in International & Regional Organisations (AY11/12)

Name	Designation(s)	Organisation(s)
A/P Kelvin Foong	<i>President</i>	International Association for Dental Research (IADR) Southeast Asian Division
Dr Catherine Hong	<i>Member</i>	American Academy of Pediatric Dentistry Journal-Based Continuing Education Committee
	<i>Consultant</i>	American Board of Pediatric Dentistry, Oral Clinical Examination Committee
	<i>Member</i>	American Board of Pediatric Dentistry, Qualifying Examination Committee
A/P Keng Siong Beng	<i>Councillor/Webmaster</i>	South East Asia Association for Dental Education (SEAADE)
A/P Lim Lum Peng	<i>Committee Member</i>	South East Asia Association for Dental Education (SEAADE)
Dr Betty Mok	<i>Board of Directors</i>	Pediatric Dentistry Association of Asia
A/P Grace Ong	<i>Consultant</i>	Peer Review and Consultation Programme, South East Asia Association for Dental Education (SEAADE)
A/P Yeo Jin Fei	<i>Immediate Past President</i>	College of Dental Surgeons, Singapore
	<i>Dental Regional Advisor (Overseas)</i>	Faculty of Dental Surgery, Royal College of Surgeons of Edinburgh [till May 2012]
	<i>International Councilman</i>	International College of Dentists [ICD] Council
	<i>Regent</i>	International College of Dentists [ICD] Section XX Region 25 (Singapore, Indonesia & Brunei)
	<i>Councillor</i>	Asian Association of Oral & Maxillofacial Surgeons

Board Membership in

Local/Government Agencies (AY11/12)

Name	Designation(s)	Organisation(s)
Dr Amr Fawzy	Secretary	International Association for Dental Research (IADR) Singapore Section
A/P Cao Tong	President	International Association for Dental Research (IADR) Singapore Section
Dr Chang Po-Chun	Vice-President	International Association for Dental Research (IADR) Singapore Section
Prof Chew Chong Lin	Member, Dental Specialist Accreditation Board	Ministry of Health
	President	Singapore Dental Council
	Member, Executive Committee	Prosthodontic Society (Singapore)
	Member, Fluoride Committee	Public Utilities Board, Ministry of Environment
A/P Kelvin Foong	Member, Dental Specialist Accreditation Committee in Orthodontics	Ministry of Health
Dr Fu Jia Hui	Secretary	Society of Periodontology (Singapore)
Dr Catherine Hong	Member, Committee on Blood Borne Diseases	Ministry of Health
	Member, Dental Specialist Assessment Committee in Pedodontics	Ministry of Health
	President	Society for Paediatric Dentistry (Singapore)
Dr Intekhab Islam	Executive Committee	Asian Association of Oral Maxillofacial Surgery (AAOMS) Singapore
A/P Keng Siong Beng	Chairman, Technical Committee NITEC in Dental Technology	Institute of Technical Education (ITE)
	Member, Panel of Disciplinary Committee Chairpersons	Singapore Dental Council
Dr Michael Mah	Council Member	Association of Orthodontics (Singapore)
Dr Betty Mok	Member, Technical Committee NITEC in Dental Chairside Assisting	Institute of Technical Education (ITE)
	Member, Dental Officer Training Review Committee	Ministry of Health
	Member, Dental Specialists Assessment Committee in Pedodontics	Ministry of Health
	Chair, Committee for Dental Assistant Training	Singapore Dental Association
	Committee Member	Society for Paediatric Dentistry (Singapore)

Board Membership in Local/Government Agencies (AY11/12)(Cont'd)

Name	Designation(s)	Organisation(s)
Dr Clara Mok	Member, Dental Hygiene & Therapy Course Review Committee	Nanyang Polytechnic, School of Health Sciences
	Member, Dental Hygiene & Therapy Examination Panel (for foreign candidates)	Nanyang Polytechnic, School of Health Sciences
A/P Jennifer Neo	Member, Continuing Professional Development/Education Committee	Singapore Dental Council
	Member, Credentials Committee (from Jan 2010)	Singapore Dental Council
	Member, Panel of Disciplinary Committee Chairpersons	Singapore Dental Council
	Member, Singapore Dental Council Complaints Panel	Singapore Dental Council
A/P Grace Ong	Committee Member, Table of Surgical Procedures Review Committee	Academy of Medicine, Singapore
	Member, Advisory Committee for Medisave-approved Dental Procedures	Ministry of Health
	Member, Dental Specialist Accreditation Board	Ministry of Health
	Member	Singapore Dental Council
A/P Keson Tan	Member, Dental Specialist Accreditation Board	Ministry of Health
	Member, CDE Committee	Singapore Dental Council
	Member, Credentials Committee (from Jan 2010)	Singapore Dental Council
Dr Tan Kai Soo	Member	International Association for Dental Research (IADR) Singapore Section
Dr Tong Huei Jinn	Member	International Association for Dental Research (IADR) Singapore Section
	Secretary	Society for Paediatric Dentistry (Singapore)
A/P Robert Yee	Member, Geriatric and Special Needs Dentistry Committee	Ministry of Health
	Member, Dental Hygiene & Therapy Advisory Panel	Nanyang Polytechnic
	Member of Fluoride Review Committee	Public Utilities Board, Ministry of Environment
A/P Yeo Jin Fei	Chairperson & Member Dental Specialist, Accreditation Committee in Oral & Maxillofacial Surgery (2008-2010)	Ministry of Health
Dr Victoria Yu	Member, Dental Specialist Assessment Board Committee in Endodontics	Ministry of Health

National Day Awards

2011

National Day Awards 2011

Associate Professor Jennifer Neo was awarded the Public Administration Medal (Bronze)

Dr Clara Mok was awarded the Public Service Medal 2011



A/P Jennifer Neo receiving the award.



Dr Clara Mok receiving the award.

Long Service Awards

2011

Name of Staff	Years of Service
Associate Professor Tan Beng Choon Keson	25
Associate Professor Keng Siong Beng	35
Mdm Vadivale Navaammal	15
Mr Lai Yong Lim	30
Mrs Wong Lai Chan Doris	35

Profile on long service administrative staff – Mrs Doris Wong

**Professor Chew Chong Lin,
Director, Division of Graduate Dental Studies**



Doris joined the School of Postgraduate Dental Studies in 1975, a few years after the School was started in 1972.

The School has undergone many changes from just conducting examinations to running structured Specialists Training programmes, Graduate Diploma programme and Continuing Professional Development courses.

In addition the School has also undergone restructuring to what is now the Division of Graduate Dental Studies together with the setting up of the Centre for Advanced Dental Education in 2006.

Through all these developments and changes she was present to give the administrative support to ensure the successful implementation of these initiatives. She was working with Mrs Tan Kim Choo until May 2004 when she took over the helm from Mrs Tan. Her commitment to the Division is exemplary and her work ethics is commendable. She works and guide the 2 junior staff under her charge and works with them sometimes late into the night to ensure that programmes run smoothly. She has a challenging job of working with many part-time Faculty in helping to plan the teaching time-table.

Doris has worked with us for 35 years with continued commitment and on behalf of the Division and faculty I thank her for her years of dedication. I am glad that NUS has recognized her contribution by promoting her to Management Officer Grade 1 in 2011.

She will be receiving her 35-year Long Service Award this year.

Doris, on behalf of the Faculty, I congratulate and thank you and look forward to your continued support.

