Insights and advances in oral rehabilitation

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Mainland matters
By Lakshman Samaranayake, Dean

While this issue of Expressions was being prepared, our Faculty and University—along with the rest of the city and world—gradually learned of the full extent of the damage caused by the earthquake that hit Sichuan Province on 12 May 2008. It was particularly disheartening that the death toll included so many school children and teachers. This gives our Faculty and University extra cause to show support by donating to local branches of charities such as Oxfam, World Vision, Salvation Army, Red Cross, and UNICEF.

One of our sister dental schools is the West China College of Stomatology, Sichuan University, Chengdu. Fortunately, after getting in touch with the College, we were told that there were no casualties on the campus, just structural damage. In fact, members of the College formed voluntary corps to offer professional help and medical/dental care to earthquake victims. We pay tribute to the College for taking this humanitarian initiative and displaying true commitment to public service in the face of adversity—a shining example for us all.

As the Hong Kong Special Administrative Region enters its second decade, our Faculty is further reminded of the importance of creating links and deepening networks with mainland China.

At our Silver Jubilee celebrations last November, we signed Agreements for Academic Collaboration with dental schools from Sun Yat-Sen University, Shanghai Jiao Tong University, Fourth Military Medical University, Peking University, Sichuan University, and Wuhan University.

With the latter, our Faculty has organised a joint scientific meeting to take the place of our Annual Scientific Meeting. The Inaugural Conjoint Dental Scientific Meeting of The University of Hong Kong and Wuhan University was held in Dongguan from 10 to 11 May 2008, and involved a record number of participants and presentations from our Faculty.

Also recently, the Conjoint International Postgraduate Programme in Periodontology of The University of Hong Kong and Peking University officially started. The first batch of seven students from China, India, and Qatar began their studies in the purpose-built Beijing campus in May 2008, following an Opening Ceremony and a dinner celebration that was attended by more than 150 guests. On the same occasion, we signed a Memorandum of Understanding with the Chinese Stomatological Association to establish an annual Postgraduate Scholarship Programme at our Faculty.

Coverage of those events will appear in the next edition of Expressions. In this issue, we get a taste of what kinds of treatments and research the Faculty’s Discipline of Oral Rehabilitation is involved in, focusing on dental implantology and advances in dental ceramics. Happy reading!
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Reception receives facelift

Visitors to the HKU Faculty of Dentistry since the start of the year will have noticed the new-look Faculty reception counter and deanery foyer on the sixth floor of the Prince Philip Dental Hospital—just two of the renovation projects that were initiated to mark the Faculty’s Silver Jubilee.

The sixth-floor Faculty reception area has been renovated both inside and out to cope with the Faculty’s increasing educational support work, and to start preparing for the administration needed for the additional undergraduate year associated with the Hong Kong-wide 3+3+4 curriculum reform. Unveiled at a special ceremony on 31 January 2008, the redesigned reception has a glass facade bearing the HKU logo with explanations of the logo’s mottoes in English and Chinese.

"Because our Faculty is ‘down the road’ from the main HKU campus, we wanted to promote the sense of belonging to the University by redesigning the reception area,” says Dean Samaranayake. For the same reason, the HKU and hospital logos were placed on the wall of the deanery foyer when the deanery and Faculty Office were recarpeted and refurbished during mid-2007.

Other make-overs that took place in 2007 to celebrate the jubilee included renovation of the main conference room, new Faculty logos on the front and at the entrance of the building, and the transformation of the seventh-floor Resource Room into the Faculty Lounge, which has catering staff and provides an oasis where Faculty staff and visitors can meet in a relaxing atmosphere.

Long service awarded

Two Faculty of Dentistry staff members—Prof Tak-wah Chow (Professor in Family Dentistry) and Mr Raymond TC Leung (Audiovisual Officer)—have been honoured for their long-standing loyalty to HKU, working a combined length of 60 years (25 and 35 years, respectively). Along with about 25 others, they were presented plaques on 6 May 2008 by HKU Vice-Chancellor Prof Lap-chee Tsui at an HKU Long Service Awards Ceremony in recognition of their commitment and dedication to HKU.

Mr Leung told Expressions: “It is my great honour to have served the University for more than 35 years.” Prof Chow commented: “I enjoy working at this Faculty and am still hungry for knowledge.” When asked for any words of wisdom, Prof Chow said: “I’m a perfectionist and like to get things done properly. In clinical work, shortcuts rarely pay off—‘The shortcut is the longest way’.”

Prof Chow has been with the HKU Faculty of Dentistry ever since its formal establishment in 1982 and Mr Leung was with the HKU Faculty of Science for 10 years before transferring to our Faculty. HKU Long Service Awards are presented to academic and senior administrative staff who have served the University for more than 25 years; the 35-year category was introduced for the first time this year.
Students take clinical pledge

BDS II students have attended the Faculty’s first Clinical Pledging Ceremony to formally mark the point in their studies when they begin taking on responsibilities for patient care.

The Inaugural Clinical Pledging Ceremony took place on 28 January 2008 in Lecture Theatre I at the Prince Philip Dental Hospital. Witnessing the pledge were Faculty representatives and members of students’ families, who had earlier been invited to take a hospital tour and attend a special reception. Officiating at the ceremony were Dean Samaranayake, Dr John Dyson (Associate Dean of Undergraduate Education), and Guest of Honour Dr Jeffrey YS Tsang, MBE (Immediate Past Chairman of the Dental Council of Hong Kong), who gave the main address.

Badge of honour
After the Class of 2011 recited the Faculty BDS Clinical Pledge (see Box), students individually signed the pledge and were each presented with a golden name badge to commemorate the event and to wear in the hospital clinics.

“This historic event was very meaningful for both students and their families, and with it we hope to have initiated a new tradition to instil our ethos of professionalism into every student passing through our doors,” says Dean Samaranayake. “I would particularly like to thank all staff and BDS II and BDS V students who took part in the planning.”

Programme of professionalism
The Clinical Pledging Ceremony concluded the Faculty’s new formal Clinical Induction Programme for BDS II students. Although students start receiving clinical training in their first year of studies, the Clinical Induction Programme formally introduces the part of the curriculum in which students encounter and provide oral health care to public patients. This year’s induction programme included a half-day course on professionalism on 22 January 2008, when Faculty staff delivered workshops titled Responsibilities of Dental Students (Dr John Dyson), Patient Care and Management in Polyclinics (Dr W Keung Leung), and Ethics and Dentistry (Dr Colman McGrath). In addition, Dr Susan Bridges facilitated several debates on Ethics and Professional Conduct.

“It was a pleasure for us to be the first cohort of students to participate in the Clinical Induction Programme and Clinical Pledging Ceremony. Not only did the ceremony mark a significant time in our education, it also acted as a reminder of our obligation to become mature and responsible professionals,” says class representative Sincere SS Wong. “Our thanks go to the organisers and the Dean for giving us the opportunity to formally celebrate this special moment. As future dental professionals, we long to provide high-quality, ethical, and professional patient care. We look forward to our new adventures in the clinical environment.”

HKU Faculty of Dentistry BDS Clinical Pledge
• To observe faithfully the rules and regulations regarding personal conduct and patient care set forth by The University of Hong Kong, the Faculty of Dentistry, and the Prince Philip Dental Hospital;
• To accept my professional responsibility to treat, to the best of my ability, all who entrust themselves to me for care with confidentiality and compassion;
• To conduct myself at all times in a manner which will merit the respect of patients, Faculty and Hospital staff, fellow students, and the community;
• To uphold the honour and integrity of the dental profession, and to strive to contribute to its progress and to the betterment of the community;
• To continue to strive to advance my knowledge and skills throughout the remainder of my education and professional career.
International visitors see our PBL in action

Earlier in the year, the Faculty hosted official delegations from two dental schools in the region that were interested in observing how our Faculty delivers a Bachelor of Dental Surgery (BDS) programme using a fully implemented, open-discovery model of problem-based learning (PBL).

This spring, two delegations—nine senior teaching staff and the Dean of the Showa University School of Dentistry, Tokyo, Japan, and the Vice Head and an educational psychologist of the Office for Dental Education, Seoul National University School of Dentistry, Seoul, Korea—came to the Faculty to observe PBL tutorials and clinical teaching. They also attended special presentations organised by Dr John Dyson (Associate Dean of Undergraduate Education), Dr Cynthia Yiu (Assistant Dean of Undergraduate Education), and Dr Susan Bridges (Assistant Professor in Dental Education and E-Learning), and discussed a wide range of aspects of our undergraduate curriculum.

Matrix revolutions

Why is there international interest in our Faculty’s BDS programme?—Because it does not use traditional lectures and instead relies on PBL methodology throughout the whole curriculum to promote life-long learning. The Faculty is recognised as one of only three dental schools worldwide that have fully implemented, undergraduate PBL programmes in dentistry, and ours is the only such programme in Asia. Curriculum designers have shown particular interest in how the Faculty’s matrix management model provides support for all aspects of the BDS curriculum, including problem and resource development, facilitator training, and assessment to name a few.

Key to this matrix model is the horizontal and vertical nature of curriculum management, which encourages academic staff to collaborate across disciplines in order to fully integrate course content. “The matrix structure, although complex, works to overcome the disciplinary ‘silos’ that can easily develop in faculties,” says Dr Bridges. “Our guests were amazed by how many different ‘hats’ one BDS staff member can wear, and they noted the high level of administrative support provided by staff in our PBL Suite, as well as the extent of our Web-based resourcing.”

Academic Networking

The visits in turn allowed the Faculty to strengthen already long-standing academic links with the two universities. In recent years, BDS students from our Faculty have visited both dental schools for their final-year overseas attachment. Our Faculty also provided advice and know-how when the Showa University School of Dentistry introduced PBL to its curriculum in 2003, becoming the first to do so in Japan. And in August 2007, Prof Esmonde Corbet was a guest at the Showa University International Symposium for Health Science Education, speaking on Integration and Connectedness in Dental Education Through PBL.

Decade of PBL

We expect more academic visits to come and welcome overseas delegations, especially from Asia, to find out more about how our PBL-based BDS degree is run. (For a brief introduction, please download the on-line booklet Problem-based Learning in Dentistry, at <www.facdenthk.org/undergraduate00.htm> or e-mail Ms Joyce Chan at <jpschan@hku.hk>.)

The 2008-09 academic year will provide a fine opportunity for the Faculty to share know-how and experience, as we commemorate the 10th anniversary of our current BDS curriculum and the introduction of PBL to the Faculty. We also look forward to promoting PBL in dental education in the region and to providing a forum for exchange in PBL research and practice, when we host an international conference on PBL in dentistry in the autumn of 2009. Conference details will be announced soon.

Learning to learn: The HKU Faculty of Dentistry has used a fully implemented, open-discovery model of PBL in its BDS programme for 10 years.
Promoting international partnership

The HKU Faculty of Dentistry has continued forging international links by entering into an Agreement for Academic Collaboration with the Arthur A. Dugoni School of Dentistry, University of the Pacific, San Francisco, California, USA.

The 5-year agreement was signed by Dean Samaranayake and Prof Patrick J Ferrillo, Jr, Dean of the Arthur A. Dugoni School of Dentistry, University of the Pacific, at a ceremony at the HKU Faculty of Dentistry on 13 May 2008. The document paves the way for collaboration in the “pursuit of excellence in scholarship” and will encourage knowledge transfer “to benefit and serve both schools”.

Under the agreement, the two sister schools will participate in mutual activities such as student and staff exchange, educational and research programmes, and joint academic meetings. “We are proud to have initiated this partnership and we look forward to organising joint projects,” says Dean Samaranayake. “By doing so, we hope to create opportunities for cooperation and to learn from each other. In today’s global village, education, research, advancement of knowledge, and identifying best practices are all collaborative processes that rely on such cooperation.”

Hong Kong warned about dental acid erosion

Brushing immediately after meals can do more harm than good if the meal consisted of acidic food and drink, Dr Chun-hung Chu (Associate Professor in Family Dentistry) told reporters at a press conference on 17 March 2008.

Commenting on the findings of a telephone survey conducted by the HKU Public Opinion Programme (HKUPOP), Dr Chu noted that nearly 90% of the 520 respondents aged 25 to 45 years regularly consumed acidic food and drink—a major risk factor for dental acid erosion, during which enamel softens and wears away. Yet, 70% had not heard of acid erosion before and nearly 60% wrongly said brushing immediately after meals might help prevent it. Furthermore, 92% of the respondents reported having at least one symptom of acid erosion (eg yellowish or thinning teeth, cracks, or sensitivity).

Brushing straight after eating or drinking something acidic, such as juice, fruit, or red wine, could hasten the loss of enamel, which is irreplaceable, said Dr Chu, who called the findings “worrisome”. His advice for the public included lowering the frequency of snacking, brushing at least 1 hour after meals because our saliva needs time to neutralise the acid, and using a straw for acidic drinks to minimise contact with teeth.

Dr Chu was quoted in more than 10 newspapers the next day, and a television interview he gave to local channel TVB-Jade after the press meeting was aired on 26 March 2008.
Caries among Cambodian kids

Children living in rural Cambodia have poor oral health and high caries rates, according to Dr Chun-hung Chu and Faculty colleagues, who conducted clinical examinations in three rural districts.

On average, the 120 6-year-olds included in the study each had about 8 teeth with caries. Although the 196 12-year-olds studied had an average of only one affected tooth, all cases of caries were untreated and none of the children had healthy gums. Parents’ questionnaire answers showed that two-fifths of the 6-year-olds and one-fifth of the 12-year-olds had never brushed their teeth.

On the basis of their findings, the authors note that these children’s “oral health habits need to improve”.


Gum care in Down’s syndrome

Treatment for periodontitis without the use of surgery can achieve “satisfactory healing responses” among adults with Down’s syndrome, a study performed in the Discipline of Periodontology has shown.

At the start of the study, 21 adults with Down’s syndrome who had mild to moderate learning disabilities were given non-surgical therapy to treat chronic periodontitis. For the next year, the participants brushed with chlorhexidine gel and used chlorhexidine mouthwash twice a day and returned to the clinic for monthly follow-ups. The final examination revealed reductions in the average proportion of sites with plaque (from 84% to 24%), sites that bled on probing (from 82% to 30%), and probing depth (from 3.2 to 1.8 mm); the clinical attachment level—reflecting tooth-gum attachment—increased by an average of 0.6 mm.

The same therapeutic approach could thus be “appropriate and beneficial” for adults with Down’s syndrome who have chronic periodontitis, the researchers conclude.


Yeasts and Sjögren’s syndrome

Some oral effects of Sjögren’s syndrome, a chronic autoimmune disease, include dry mouth, ulceration, and an increased rate of tooth decay and tooth loss. Dr Katherine CM Leung and Faculty colleagues have found that Hong Kong patients with Sjögren’s syndrome are prone to oral yeast carriage too, despite regular dental care.

The 52 patients tested had a higher prevalence of yeasts than did the 29 controls (73% vs 7%) in either oral rinse samples or plaque taken from teeth away from the gumline. One-fifth of the patients had candidiasis, which was associated with the presence of yeasts, mainly Candida albicans, in the plaque. For two-fifths of the patients, DNA profiles from pulsed-field gel electrophoresis revealed that yeasts from oral rinse and plaque samples were closely related.

The authors suggest that patients with Sjögren’s syndrome in whom yeasts have established in plaque “might be more readily affected by mucosal colonization of the same or genetically related yeast species”.

Change of scenery

Dr Chun-hung Chu (Associate Professor in Family Dentistry) and Dr Rory Watt (Assistant Professor in Oral Biosciences) recently joined the Faculty of Dentistry, transferring from HKU’s main campus. They told Expressions about what attracted them to the Faculty.

What was your job before joining the Faculty?

Dr Chu: I was a dental surgeon in the Dental Unit of the HKU Health Service. I was the first HKU graduate working there when I joined full-time in 1992. I’m glad to see there are now four HKU graduates working as full-time dental surgeons at the unit.

Dr Watt: My wife and I moved to Hong Kong about 7 years ago, and I’ve been at HKU the whole time: as a postdoctoral researcher in the Department of Biochemistry, then as a Research Assistant Professor in the Department of Chemistry. In joining the Faculty of Dentistry, I’ve only had to move about 1 km down the hill!

What inspired you to enter your current field?

Dr Chu: I wish to help improve the health and welfare of others, and family dentistry is a good way to do that. A university setting offers the chance to do research and teaching in addition to providing clinical service to patients in need.

Dr Watt: Growing up in a quiet corner of Scotland, I’ve always loved the natural world. Ever since I was 8 or 9, I knew that I wanted to be a scientist. Although my BSc and PhD degrees are in Chemistry, I’ve steadily moved towards the study of microbes. I find their molecular efficiency and diversity quite fascinating.

How did you decide to join the HKU Faculty of Dentistry?

Dr Chu: Since BDS graduation, I’ve been participating in clinical service, research, and teaching at the HKU Faculty of Dentistry in full- or part-time capacity. I’ve worked as a part-time research assistant, postgraduate dental officer, part-time lecturer, and, from 1989 to 2007, a seconded assistant clinical professor. The University offered me an opportunity to join the Faculty as a full-time teacher towards the end of 2007.

Dr Watt: I was lucky to have several academic positions to choose from. However, after having a chat with Dean Samaranayake, I had no doubts that this was definitely the right move to make. As well as coming across as a very warm and straight-talking individual, he greatly impressed me with his vision for the Faculty.

What do you hope to accomplish at HKU?

Dr Chu: I’ve just been appointed Assistant Dean for Mainland and Global Affairs, and I want to assist the Dean, Associate Dean for Mainland and Global Affairs Prof Li-jian Jin, and colleagues to strengthen the Faculty’s international links, continue achieving its goals as set out in its mission statement, and realise its vision of being the leading dental faculty in Asia.

Dr Watt: I’m currently using proteomic and DNA-based approaches to study the “molecular machinery” of a number of disease-causing bacteria present within the mouth. My aim is to identify “weak points” that may be new targets for future antibiotic therapies. Also, as Convenor of the Faculty’s Infection and Immunity Research Group, I hope to draw on my experience in the basic sciences to stimulate research into exciting new areas related to oral infections.
Recent innovations in dental implantology

By Edmond Pow and Katherine Leung

Dental implantology is being used more and more to replace missing teeth as an alternative to traditional treatments such as fitting removable dentures or bridges. Typically, an artificial tooth crown or other prosthesis is attached to an artificial root made of metal that has been surgically inserted into the jaw bone.

Treatment planning for implants is usually straightforward for prosthodontists—dentists who specialise in tooth restoration and replacement of missing teeth. However, difficult cases, such as loss of multiple teeth, severe deficiency of jaw bone, and facial deformities with tooth loss, can pose a great challenge. Fortunately, advances have been made in treatment planning to facilitate the fitting of an implant and thus yield predictable functional and aesthetic outcomes. As a result, patients’ quality of life can be improved markedly.

Computer-assisted dental implantology

The Discipline of Oral Rehabilitation at the HKU Faculty of Dentistry is pioneering the use of computer software that has been specifically designed for dental implantology to help in the treatment planning of difficult cases.

Computer-assisted implant planning systems require computed tomography (CT), which uses X-rays to precisely scan a patient’s jaws in a three-dimensional manner. The prosthodontist then studies the CT images to accurately plan the positioning of the implants for the best use of the available jaw bone (Figure 1). The assigned positions are transferred to the patient’s mouth with the use of a specially designed three-dimensional template (Figure 2), which guides the surgical placement of the implants. Temporary or permanent prostheses can then be immediately attached to the implant base (Figure 3). Thanks to the use of CT and computer modelling during treatment planning, for prosthodontists, treatment is more predictable than ever before; for patients, treatment duration is significantly shortened, and patients can get back to normal daily activities much sooner.

Nanotechnology in dental implants

Nanotechnology is an emerging field in medical and applied science. It refers to the study and control of matter at the molecular or atomic scale. Studies have shown that the response of the human body to nanomaterials is different from its response to conventional materials. In conventional implant dentistry, a dental implant that is surgically placed in the jaw usually needs several weeks to months to fuse with the surrounding bone (osseointegration) before the prosthesis can be placed. In contrast, an implant whose surface has received calcium phosphate nano-treatment (Figure 4) may potentially allow the bone integration process to be completed much faster. Implants with nano-treated surfaces may benefit patients who have certain medical conditions in which bone quality, quantity, or healing is compromised, such as patients with diabetes or osteoporosis and patients undergoing radiotherapy.

The Discipline of Oral Rehabilitation plans to spearhead a series of controlled clinical trials of newly developed dental implants with nano-treated surfaces among patients who have undergone radiotherapy in the head and neck region.

Dr Edmond HN Pow (e-mail: <ehnpow@hkusua.hku.hk>) is Associate Professor in Oral Rehabilitation and Dr Katherine CM Leung (e-mail: <kcmleung@hkucc.hku.hk>) is Assistant Professor in Oral Rehabilitation at the HKU Faculty of Dentistry.
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Demystifying dental ceramics

By Michael Botelho

The recent advent of new dental ceramic systems has expanded the repertoire of materials and techniques that can be used for tooth restorations. But how should clinicians decide which dental ceramic to use?

Although many different dental ceramic systems are available on the market, the most popular ones can be classified into two main types: hot-pressed ceramics and machine-milled zirconia. There is in fact a third “type”, which is a hybrid of these two approaches. As yet, no single ceramic system fits all the requirements of both patients and clinicians, so clinicians need to consider the advantages and disadvantages of each system when choosing the best one for their patients.

Hot-pressed ceramics

Examples of new hot-pressed ceramics are IPS Empress II and IPS e.max Press systems (Ivoclar Vivadent), which are ingots of particle-filled lithium disilicate glass. (A similar product, IPS e.max CAD, can be milled from prefabricated blanks using computer-assisted design and manufacturing [CAD/CAM] technology.)

**Preparation**—This type of glass-ceramic can be either hot-pressed into the final form and stained, or cast as a core and then built up with a layering ceramic (IPS e.max Ceram [Ivoclar Vivadent]). Although lithium disilicate glass-ceramics have a lower fracture toughness (2.8–3.5 MPa m$^{1/2}$) and flexural strength (300–400 MPa) than other ceramics, they perform well clinically as single crowns and even short anterior bridges. Still, it is important to realise that there is no correlation between most laboratory measurements of strength, such as flexural strength, and clinical performance.

**Applications**—Owing to their glassy nature, these lithium disilicate glass-ceramics can achieve the highest translucency and some of the best aesthetics among the ceramics currently available. They are ideally suited when placing crowns and laminate veneers in the aesthetic zone. Being a glass, the restorations should be laboratory etched with hydrofluoric acid, silane bonded and adhesively bonded to the tooth to enhance their strength and longevity. Caution should be taken when the underlying tooth tissue of core is dark to avoid shine-through of the discoloured substructure. These problems may be overcome by using high-opacity or “HO” ingots and/or cementing with an opacious luting cement.

Lithium disilicate glass-ceramics can also be used for short fixed bridges but doing so requires a connector of 4 to 5 mm occlusogingivally and 3 to 4 mm buccolingually to ensure longevity. Some evidence suggests cautious use in posterior restorations under certain conditions and episodes of clinical data are available.

Machine-milled zirconia

Zirconia (zirconium oxide) is maybe the most exciting ceramic material to have been recently developed, given its high strength (flexural strength, 900–1200 MPa; fracture toughness, 8–10 MPa m$^{1/2}$) and special properties related to crack propagation. When subjected to stress, zirconia is said to undergo a local increase in volume of 3% to 5%, which is meant to act compressively on small cracks in the material and prevent their propagation.

**Preparation**—Zirconia cannot be hot-pressed or fired from a powder like other ceramics. Instead, the core is machine-milled with CAD/CAM technology to produce a substructure that is built up with special porcelain that matches the coefficient of thermal expansion of the core material. The zirconia “blank”, usually pre-sintered, can be fabricated in two ways using CAD/CAM: (1) from a digital scan of the stone die of a tooth preparation (Procera [Nobel Biocare] and Lava [3M ESPE]), and (2) from a digital scan of a wax pattern (Cercon [Dentsply]). Either way, the pre-sintered zirconia pattern is made approximately 30% larger than the final restoration to allow for shrinkage during sintering (6-hour firing cycle, up to 1350°C).

**Applications**—Zirconia’s polycrystalline structure makes it relatively opaque and inert; hence, high translucency is not possible and it cannot be acid etched, so bond strength to dentine is less predictable than for other ceramics. An alternative to acid etching is cementing with a phosphate monomer adhesive cement such as Panavia (Kuraray); this has been shown to achieve good zirconia adhesion to tooth tissue.

Zirconia can be used in very long bridges, as well as single crowns, but it is not recommended for laminate veneers because of its reduced bond strength and shine-through of the substructure. As with lithium disilicate glass-ceramics, posterior zirconia restorations tend to have a higher failure rate than anterior restorations. Nevertheless, zirconia frameworks are suitable for posterior and longer-spanning tooth and implant-supported prostheses by virtue of their strength characteristics.

Glass-ceramic on zirconia

In the final “type” of ceramic system, a hot-pressed ingot of fluorapatite glass-ceramic such as IPS e.max ZirPress (Ivoclar Vivadent) is pressed onto a fully sintered, milled zirconia substructure. Because fluorapatite glass-ceramic has the same coefficient of thermal expansion as zirconia, it can also be pressed onto zirconia core material from a number of other manufacturers. The hybrid ceramic combines the strength of zirconia with the aesthetics of the glass-ceramic. However, the laboratory costs for this approach are likely to be considerably higher than those for the individual systems.

Dr Michael Botelho (e-mail: <botelho@hku.hk>) is Associate Professor in Oral Rehabilitation at the HKU Faculty of Dentistry, and has no commercial interest in the named products; references are available on request. [Top photo courtesy of Ivoclar Vivadent; clinical photos of Empress II restorations courtesy of Dr Duncan YK Tang.]
Asian plum research gains juice

Prof Urban Hägg, Chair Professor in Orthodontics, has been named one of the three winners of the 2008 Innovation in Oral Care Awards of the International Association for Dental Research (IADR).

His research group receives an unrestricted grant for US$75,000, sponsored by GlaxoSmithKline Consumer Healthcare, and will investigate the effectiveness of the Asian plum (Prunus mume) in inhibiting bacteria commonly found in oral biofilms. If the fruit is found to have natural oral biofilm-reducing properties, it might one day be useful in preventing dental caries and gum disease. Prof Hägg’s co-researchers in this project are Dr Ricky Wong (Associate Professor in Orthodontics), Prof Lakshman Samaranayake (Chair Professor in Microbiology), Dr Richard Kao (Assistant Professor in Microbiology, HKU Li Ka Shing Faculty of Medicine), and Dr Michelle Yuen (Master of Orthodontics student).

The award will be presented at the 86th General Session and Exhibition of the IADR, to be held from 2 to 5 July 2008 in Toronto, Canada.

Congratulations

Prof Lakshman Samaranayake, Dean of the HKU Faculty of Dentistry, has been reappointed as Dean for the period of 1 January 2009 to 31 December 2013.

Prof Anne McMillan, Chair Professor in Oral Rehabilitation, has been appointed Associate Dean of the HKU Graduate School.

Prof Lim K Cheung, Chair Professor in Oral and Maxillofacial Surgery, has been elected as the Chairman of the Board of the HKU Faculty of Dentistry.

Prof Urban Hägg, Chair Professor in Orthodontics, has been admitted to the Edward H Angle Society of Orthodontists, USA, as a regular member.

Dr Ricky Wong, Associate Professor in Orthodontics, has been invited to join the Editorial Board of the International Journal of Biomedical Engineering and Consumer Health Informatics.

Prof Edward CM Lo, Professor in Dental Public Health, has been appointed to the Editorial Board of the Journal of Dental Research, the official journal of the International Association for Dental Research.

Dr May CM Wong, Assistant Professor, has been appointed as an Associate Editor of the journal Community Dentistry and Oral Epidemiology.

Prof Lim K Cheung and Dr Qian-feng Li won Outstanding Oral Presentation Awards at The University of Hong Kong and Wuhan University Inaugural Conjoint Dental Scientific Meeting, 10-11 May 2008, Dongguan, China.

Dr Chun-hung Chu and Dr Qian Lu won Outstanding Poster Presentation Awards at The University of Hong Kong and Wuhan University Inaugural Conjoint Dental Scientific Meeting, 10-11 May 2008, Dongguan, China.

Staff moves

The Faculty bids a grateful and fond farewell to:

♦ Dr Ken WK Chiu, Assistant Professor
♦ Ms Anson Chan, Executive Officer
♦ Ms Edith Ng, Communications Manager

...And a warm welcome to:

Dr David Kuo, Assistant Professor in Periodontology
Dr Li-wu Zheng, Postdoctoral Fellow in Oral and Maxillofacial Surgery
Dr Priscilla PS Lee, Postdoctoral Fellow in Oral and Maxillofacial Surgery
Dr Wen-you Zhou, Postdoctoral Fellow in Orthodontics

...And congratulations to:

♦ Dr May CM Wong, Assistant Professor, who has been appointed as Associate Professor in Dental Public Health
♦ Dr Chun-hung Chu, Associate Professor in Family Dentistry, who has been appointed as the Assistant Dean for Mainland and Global Affairs, and the Assistant Director of Polyclinics
♦ Dr Rory Watt, Assistant Professor in Oral Biosciences, who has been appointed the Convenor of the Faculty’s Infection and Immunity Research Group, taking over from Dr W Keung Leung
Joining in the Olympic spirit

The annual Dental Olympics, organised by the HKU Students’ Union Dental Society, carried a special significance this year, being the year that the Summer Olympics will be held in China for the first time, with the Olympic and Paralympic Equestrian Events taking place in Hong Kong. The Dental Olympics is held in the spring of each year and is open to all BDS classes. This year’s three Sports Secretaries—Anthony HY Law, Zoe SW Wong, and Chris SL Cheung—helped to organise matches in basketball, football (soccer), badminton, squash, and table tennis, and made sure the whole tournament ran smoothly. This year’s overall champions were Class of 2012.

Although relatively small-scale, the Dental Olympics shared the spirit of the Summer Olympics and provided an opportunity for students to mix, compete, and get to know each other. “The games strengthened bonds and promoted friendships not only within each year group but also between years; staff and postgraduates also entered a team in the contest,” says Anthony.

“The event promoted sportsmanship and a sense of belonging to the Faculty,” says Zoe. This spirit was also achieved in the HKU Interfaculty Games this spring, in which the men’s and women’s teams were both overall first runners-up. The men’s team were champions in table tennis and volley ball, and the women’s team were champions in squash and aquatics.

Mental floss
Playing sports has other benefits. “It’s relaxing but also energising,” says Chris. “It feels great to meet new people and strive to win together,” says Anthony.

According to a review in Nature (2008; 9:58-65), there is growing evidence that physical exercise may be beneficial to mental health throughout life too. Although the Sports Secretaries did not cite that advantage, feeling good and gaining a sense of achievement certainly helps with a positive mindset, as Zoe notes: “I like sports because I find it’s an effective means to relieve stress and build confidence at the same time.”

Where did Class of 2006 go?
The future looks bright for Faculty graduates. All BDS Class of 2006 and taught postgraduates who responded to the HKU 2006 Graduate Employment Survey (webpage, <www.hku.hk/oepc/GEreport2006>), have secured employment or are pursuing higher degrees, and their median (midpoint) total monthly salaries are among the highest of HKU’s fresh graduates (figures in parentheses are from the 2005 survey):

<table>
<thead>
<tr>
<th>BDS Graduates</th>
<th>All HKU Graduates</th>
<th>Taught Postgraduates</th>
<th>All HKU Taught Postgraduates</th>
</tr>
</thead>
<tbody>
<tr>
<td>Working/studying by end of 2006</td>
<td>100% (100%)</td>
<td>99% (99%)</td>
<td>100% (100%)</td>
</tr>
<tr>
<td>Median total monthly income (HK$)</td>
<td>$25,000 ($24,400)</td>
<td>$12,111 ($11,050)</td>
<td>$30,000 ($47,500)</td>
</tr>
</tbody>
</table>

2nd highest in HKU Highest in HKU
The HKU Dental Alumni Association (HKUDAA) started this year aiming high—with their binoculars at the Mai Po Marshes, that is. Our Family Bird-watching Day on 27 January 2008 was fun and educational for the 20 alumni and family members who took part, despite the 10°C early morning temperature!

The HKUDAA Family Day was a great way to start the year, and the kids especially enjoyed the interesting and informative guided tour provided by World Wide Fund for Nature (WWF) Hong Kong, which manages the wetlands nature reserve. It was a blessing that the weather was mild that day and bird flu was not playing havoc, and we managed to spot some regular residents of the wetlands, including cormorants and herons. Afterwards, we met up for a well-deserved, sumptuous lunch in a Chinese restaurant nearby. I would encourage readers to pay Mai Po a visit and support its conservation efforts: more information can be obtained from the WWF Hong Kong website <www.wwf.org.hk/eng/maipo>.

Official engagements
On 26 February 2008, I represented the HKUDAA at the Inauguration Ceremony of the Executive Committee of the HKU Students’ Union Dental Society at the HKU Rayson Huang Theatre (pictured below); other officiants were Dean Samaranayake and Dr Sigmund Leung, the new President of the Hong Kong Dental Association. I am glad to have met a group of fresh, energetic BDS students who have a clear vision, devotion, and commitment to student activities. Under the leadership of Ms Carmen KM Chan, the Dental Society is sure to continue its strong associations with the HKUDAA, and I wish the Executive Committee success with their endeavours during their term of office.

It was also a privilege to be invited as a member of the selection panel of the HKU Young Leaders of Tomorrow Scholarship 2007-08, the final round of which was held at HKU’s Loke Yew Hall on 16 March 2008. The finalists and winners were really bright students: future hopefuls of HKU and all of whom have the potential to become tomorrow’s leaders. (I hope some BDS students make it to next year’s finals.)

The sky’s the limit
This message is my last one as the HKUDAA President, and by the time this newsletter is published, the HKUDAA Annual General Meeting will have happened and a new Council will have been elected. I hope the HKUDAA, under their leadership and with your support, continues going from strength to strength.

Inspired by our Mai Po Family Day, I can only say “Time flies!” Looking back, I realise that serving on the Council has exposed me to many memorable and valuable experiences beyond my regular practice. I have enjoyed very much the camaraderie of dental colleagues and meeting many brilliant people in and outside dentistry. I sincerely wish my successor and the new Council all the best for the future.
Planting firm roots

The HKU Faculty of Dentistry sincerely thanks all students who are currently reading for the degree of MSc in Implant Dentistry, for unanimously making financial donations to the Faculty earlier this year.

A s a gesture to celebrate the Faculty’s 25th academic year since its formal establishment, both cohorts of MSc (Implant Dentistry) students—Class of 2008 and Class of 2009—made generous donations to the Faculty this spring. Totalling HK$360,000, the group cheque was presented on behalf of the students by the programme admissions advisor and course coordinator Prof Tak-wah Chow to Dean Samaranayake on 1 March 2008.

Unprecedented

“This is the first time in the history of the Faculty, and indeed the University, that the entire student body enrolled in a degree course has made charitable contributions to their Faculty before their graduation,” says Prof Chow, who is Professor in Family Dentistry and also the Associate Dean for External Relations. “Our students’ support for their future alma mater sets a shining example for other students and alumni alike. It’s a coincidence that the Faculty is celebrating its 25th anniversary and we have 25 implantology students giving to the Faculty!”

“I’m most delighted and grateful for the generosity shown by our implantology students, especially as they are the first two cohorts of this new taught postgraduate degree programme,” says Dean Samaranayake. “Their willingness to invest in the Faculty’s future while still studying here is very laudable. A big thank you goes to them all, and to Prof Chow for his rallying efforts.”

Class act

A proportion of the students’ donations will go towards establishing the Faculty’s planned Implant Centre at the Prince Philip Dental Hospital.

Why did all members of both year-groups choose to donate and celebrate the Silver Jubilee in such a memorable way?

“Being the first implantology students at HKU, we wanted to support the Faculty and contribute to the future development of the new Implant Centre,” says MSc (Implant Dentistry) Class of 2008 representative Dr Martin Au. “We hope this tradition can be passed along to future implantology students year by year, as well as inspire other classes to contribute.”

MSc (Implant Dentistry) Class of 2009 representative Dr Henry Ho agrees, saying: “The setting up of the Implant Centre will help meet the public’s growing demand for dental implants, and the availability of the MSc (Implant Dentistry) programme at the Faculty provides formal and organised training in implantology for dental practitioners in Hong Kong and the region. We hope that our gift will act as a booster to the development of the Faculty and professional dental education in Hong Kong.”

The Faculty encourages readers to use this Silver Jubilee academic year as an opportunity to support the future of Hong Kong’s only dental school. One-time and regular donations can be made at the secure HKU website <www.hku.hk/giving>. Your gift may be tax-deductible, and student and alumni gifts are matched by the Stanley Ho Alumni Challenge (see <www.hku.hk/alumnichallenge>). Thank you!
Guide to dental implants

What is a dental implant?
A dental implant is a type of artificial tooth that can be used to permanently replace lost, damaged, or badly decayed teeth. It typically consists of several elements (see Box). An anchor, usually a titanium rod, is surgically inserted into the bone under the gums; it fuses with the bone (osseointegration) during healing to give a stable tooth base. An abutment is connected to the top of the anchor to allow the attachment of the prosthesis, which is the custom-made, visible part of the tooth replacement.

What can dental implants be used for?
Dental implants can be used to replace single or multiple teeth, and even a complete upper or lower set of teeth. They are an alternative to conventional crowns, dental bridges, and partial/complete dentures.

Artificial teeth fixed or supported by an implant allow proper chewing and speech, and help restore the smile and face shape. Many patients find that implant-supported tooth replacements look natural and feel secure and comfortable.

What is involved in the implant procedure?
(a) The clinician uses radiographs to help evaluate whether a patient is a good candidate to receive a dental implant.
(b) Surgery is performed to insert the anchor (dentures may need several anchors); bone takes up to 6 months to grow around the anchor. Some implants need a second surgery to connect the abutment; some implants already have the abutment attached.
(c) The artificial teeth are then made and attached to the abutment; several fittings may be required, so this step can take 1 to 2 months.

How should implants be cared for?
Artificial teeth fixed by implants are usually only removable by a dentist and are not taken out for cleaning. Some types of implant-supported dentures are removable, but, unlike conventional dentures, they do not use adhesives.

The crowns of implants are not susceptible to tooth decay, but they can still harbour plaque and get damaged by accident or tooth wear; however, they can be replaced by your dentist.

Proper care of dental implants involves thoroughly cleaning both the artificial teeth and any neighbouring teeth, flossing, wearing a mouth guard for sports, and regularly seeing your dentist and hygienist, who may also give you special instructions for caring for your implants.


Written by Trevor Lane, DPhil; edited by Anne McMillan, FHKAM (Dent Surg), FCDSHK (Prosth), and Edmond HN Pow, FHKAM (Dent Surg), FCDSHK (Prosth). This Patient Page is for general informational use and is not a substitute for diagnosis; for specific advice, please consult a dentist.
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ORAL HEALTH AND SCIENCE SEMINARS 2008-2009
Four seminars sponsored by Listerine

**PART 1**
**Can biofilms kill you or your patients?**
Lakshman Samaranayake,
Dean, Faculty of Dentistry, the University of Hong Kong

**PART 2**
**Periodontal infections, systemic inflammation and atherosclerotic vascular diseases**
Li-jian Jin,
Professor, Faculty of Dentistry, the University of Hong Kong

**PART 3**
**The role of cariogenic microorganisms in systemic health and diseases**
Kevin HK Yip,
Associate Professor, Faculty of Dentistry, the University of Hong Kong

**PART 4**
**Update on the over-the-counter topical fluoride products**
Edward CM Lo,
Professor, Faculty of Dentistry, the University of Hong Kong

**Time:** 6.00pm-7.30pm (Wednesday)
**Venue:** Lecture Theater 1, The Prince Philip Dental Hospital
**Registration:**
1. Visit www.fadentthk.org/cme for enrolment
   - $888 for season ticket
   - $250 for individual seminar
2. Send cheque to Mr. Winslow Wong, PPDH, 34 Hospital Road, Sai Ying Pun, HK.
   Cheque should be crossed and made payable to "The Prince Philip Dental Hospital"
   - $888 for season ticket
   - $250 for individual seminar
3. On-site registration
   - $300 for individual seminar

**Participants:** Dentist / hygienist / under and post graduate dental student / dental surgery assistant
**CME credit:** 1.5 each for HKOA and CDSHK
**Remarks:** Souvenir provided for participants

For further information, please contact Mr. Winslow S.F.Wong, PPDH CME coordinator, at 2859 0237.

**Organizer:**
Faculty of Dentistry
The University of Hong Kong

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