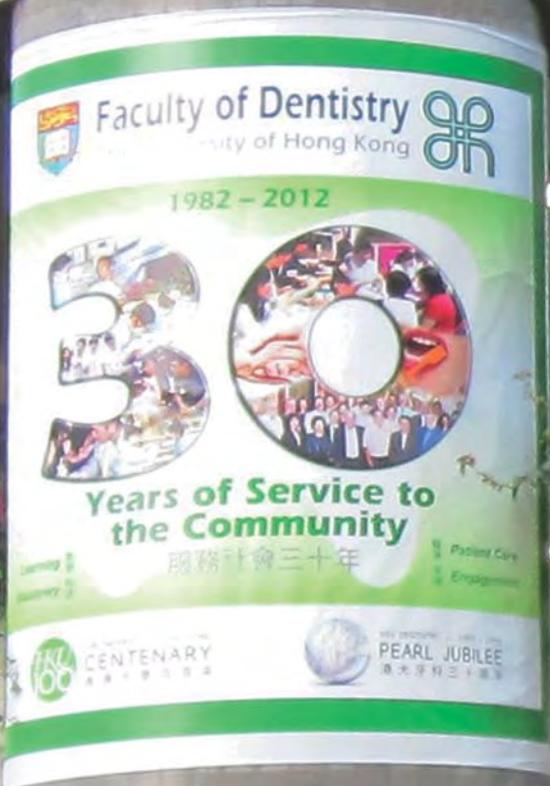


# Expressions

Newsletter of the HKU Faculty of Dentistry  
2012, Issue 2



Planning for the next 30 years  
Inspiring pearls of wisdom

ISSN 1997-356X



THE UNIVERSITY OF HONG KONG  
**CENTENARY**  
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Reference:  
1: Sharma N, et al. 2004. JADA. 135:496-504  
\* control rinse was 5% hydroalcohol

**LISTERINE**

# Thirty years of dental excellence

By [Lakshman Samaranayake, Dean](#)

**In only 30 years, the HKU Faculty of Dentistry has attained a leading position in dental education and scholarship regionally and internationally.**

I would like to take this opportunity to thank all our talented teaching and research staff; pararental, technical, and administrative staff; alumni and professional community who have generously volunteered their time and expertise; our collaborators in education, research, and community engagement, both here and abroad; and external partners and donors who have provided loyalty and support since our establishment.

Together, we can stand proud of our success in nurturing bright and compassionate dental professionals, while achieving much in knowledge creation and exchange. By fostering multiple channels of communication and co-operation, and being open and responsive to feedback and reflection, we have remained sensitive to patient and community needs, kept up with societal expectations and international

standards, and promoted a vibrant educational and research culture.

We have now realised our Faculty vision of being Asia's leading dental faculty and will be holding consultations about our vision for the next 30 years. We are mindful that we need to plan for tomorrow's dentistry today. In addition, although Hong Kong is classed as a "developed country", our population's level of oral health and our dentist-to-population ratio still fall behind those of some of our counterparts. We are committed to strengthening links with our stakeholders and finding innovative and sustainable ways of making a difference in people's lives and contributing to the local knowledge economy.

It is said that education is a journey, not a destination. As we celebrate three decades of achievements, we are also actively preparing for the adventure ahead. In this issue of **Expressions**, contributors share their pearls of wisdom for the future.

**Happy reading!** ■



## ■ In this issue...

- 3 [Dean's Message](#)
- 5 [Faculty Focus](#)
- 8 [Faculty Expressions](#)
- 11 [Close Up](#)
- 15 [For the Record](#)
- 16 [Student Expressions](#)
- 18 [Sound Bites](#)



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References for graph

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# Pearl Jubilee Kick-Off Party

The HKU Faculty of Dentistry held a kick-off party for its Pearl Jubilee at the HKU100 Gala Dinner on 18 December 2011 at the Hong Kong Convention and Exhibition Centre. Among invited guests were representatives of external partner groups with whom the Faculty has enjoyed close collaboration, including representatives from the private sector and dental alumni.



Front row, L to R:

Dr Joseph Chow, Dr Patrick Chee, Dr PYW Lau, Dr CT Law, Dr BKC Chow, Dr SK Chan, Dr Cheng-fei Zhang (HKU)

Back row, L to R:

Mrs Amanda Ng, Dr Gordon Chiu, Dr TC Ng, Dr WL Cheng, Dr TC Wong, 2 guests, Prof Esmonde Corbert (HKU), Prof Li-jian Jin (HKU), Mr Godfrey Ngai (Modern Dental Laboratory), Dr William WM Cheung, Dr Sigmund Leung, Prof Lakshman Samaranayake (HKU), Dr Ivy Fung, Prof Edward CM Lo (HKU), Dr SF Leung, Prof Tak-wah Chow (HKU)



L to R: Dr Cheng-fei Zhang (Director of Greater China Affairs), Prof Li-jian Jin (Associate Dean for Research, Innovation & Enterprise and Modern Dental Laboratory Professor in Clinical Dental Science), Dr Homer WK Tso (Chairman, Dental Council of Hong Kong), Prof Lakshman Samaranayake (Dean of Dentistry, Tam Wah-Ching Professor in Dental Science, and King James IV Professor of the Royal College of Surgeons of Edinburgh, UK), Dr Sigmund Leung (President, Hong Kong Dental Association)



*Come celebrate:* As part of the Jubilee, the Faculty is organising the conjoint 23rd Annual Scientific Meeting of the South-East Asia Association for Dental Education (SEAADE) and 26th Annual Scientific Meeting of the International Association for Dental Research South-East Asia Division (IADR SEA) on 2-4 November 2012. Please see <[www.seaade.org/hkseade2012/index.htm](http://www.seaade.org/hkseade2012/index.htm)> for details.

## Brief history of our time

- 1980 HKU admits first intake of dental and paridental students
- 1981 Prince Philip Dental Hospital opens on 24 March 1981; first cohort of paridental students qualifies
- 1982 HKU Faculty of Dentistry is established on 1 July 1982
- 1985 First cohort of dental students graduates; HKU Dental Alumni Association is formed; first taught postgraduate programmes are offered
- 1990 BDS programme is extended from 4 years 4 months to 5 years
- 1997 Faculty becomes a unitary faculty with Disciplines instead of separate departments
- 1998 Problem-based learning (PBL) is integrated into the BDS curriculum to promote student-centred life-long learning
- 1999 Simulation Laboratory is established on 6th floor of Hospital
- 2004 1000th BDS student graduates; Faculty establishes three themed research groups
- 2007 Faculty launches Conjoint International Postgraduate Programme in Periodontology with Peking University
- 2010 Faculty receives first HKU Endowed Professorship in Dentistry; Centre for Advanced Dental Care is established on 6th floor of Hospital; 500th taught postgraduate student graduates; 100th research postgraduate student graduates
- 2011 Faculty receives second HKU Endowed Professorship in Dentistry
- 2012 BDS programme to last 6 years; Virtual Reality (Haptics) Training Unit to be formally opened; Faculty celebrates Pearl Jubilee

# Pearls of wisdom for Pearl of the Orient

As part of a knowledge exchange campaign during this Pearl Jubilee year, the HKU Faculty of Dentistry has been co-operating with various local media to promote oral health education in the community.

## Oral surgery series

On three consecutive Sundays in April 2012, [Prof Lim K Cheung](#) (Chair Professor of Oral and Maxillofacial Surgery; pictured top) and [Dr Mike YY Leung](#) (Clinical Assistant Professor in Oral and Maxillofacial Surgery; pictured bottom) talked about oral health in the iCable channel 8 TV programme “至 Fit 男女” (“Health and Fitness”). The three 1-hour programmes, in Cantonese, featured clinic scenes involving the Faculty, recorded and live staff interviews, and live audience phone-ins about dental and oral surgery. The topics were as follows:



- **Wisdom teeth**

15 April, Dr Mike YY Leung

Archived at <

- **Implant dentistry**

22 April, Prof Lim K Cheung

Archived at <

- **Reconstructive jaw surgery**

29 April, Prof Lim K Cheung

Archived at <



## Periodontal health in the papers

On 7 May 2012, [Prof Edward CM Lo](#) (Clinical Professor in Dental Public Health) and [Prof Li-jian Jin](#) (Modern Dental Laboratory Professor in Clinical Dental Science and Clinical Professor in Periodontology) held a media briefing for the Chinese press about periodontal (gum) health and care.

The press conference followed the recent release of an oral health factsheet by the World Health Organization, available at <[www.who.int/mediacentre/factsheets/fs318/en/](http://www.who.int/mediacentre/factsheets/fs318/en/)>, which outlines the global prevalence of oral diseases, in addition to their prevention and treatment.



For example, 15% to 20% of adults aged 35 to 44 years have severe gum disease, which can lead to tooth loss.

Focusing on Hong Kong, Profs Lo and Jin noted that 9 in 10 people have some form of gum disease, according to the HKSAR Department of Health. They recommended that people brush their teeth with a fluoride toothpaste at least twice a day, use mouthrinse and floss or interdental brushes to clean between teeth, and arrange a dental check-up twice a year. ■

## Bringing oral health to Hong Kong

For six consecutive weeks this summer in the *Ming Pao* newspaper, Faculty representatives will discuss common oral health problems and tips at different life stages:

- (1) Public health ([Prof Edward CM Lo](#))
- (2) Children ([Dr Cynthia KY Yiu](#))
- (3) Teenagers ([Dr Ricky WK Wong](#))
- (4) Adults ([Prof W Keung Leung](#))
- (5) Pregnant women ([Prof Li-jian Jin](#))
- (6) Elderly ([Dr Edmond HN Pow](#))

For publication dates and archives, check out the Faculty's Facebook page at:

<[www.facebook.com/facdent](http://www.facebook.com/facdent)>.



# The 6-year BDS curriculum

By [Cynthia KY Yiu](#)

The 2012-13 academic year will be a Faculty educational landmark. Following Hong Kong's 3+3+4 curriculum reform, the HKU Bachelor of Dental Surgery (BDS) degree will last 5 years for students entering on the basis of HKALE results and 6 years for students entering on the basis of HKDSE examination results.

The new 6-year undergraduate degree curriculum at the HKU Faculty of Dentistry is future-oriented and builds on its international reputation as an integrated, student-centred, inquiry-based educational experience. Professional competencies and learning outcomes are designed to prepare students to become dental professionals serving the needs of modern Hong Kong, global thinkers, and future leaders. In meeting these aims, the new curriculum model will encompass both compulsory "University Requirements" and the "Professional Core".

## University Requirements

The University Requirements consist of the Common Core Curriculum and language courses. The six Common Core courses are key common learning experiences for all HKU students, and stimulate students' intellectual curiosity to explore issues of profound significance to humankind. The credit requirement for both the English and Chinese languages is raised in the 6-year curriculum to strengthen students' language abilities.

## Professional Core

**Inquiry-based learning**—The undergraduate degree curriculum is led by an inquiry-based philosophy, with many learning experiences occurring in small-group, facilitated discussions drawing on problem-based, case-based, and journal-based formats. Early introduction to clinics and patient care in tandem with the inquiry-based approach exposes students to real-world applications and motivates learning.

**Integration**—Students will develop requisite knowledge, skills, and attitudes through the integration of key aspects of modern dentistry:

- Biomedical, behavioural, social, and clinical sciences underlying oral diseases and oral disorders;
- Prevention, clinical features, and management of oral diseases; and
- Diagnostic, operative (manual), interpersonal, and communication skills to allow students to develop into competent dental practitioners.

**Person-centred approach**—Each year level has an identifiable focus to provide clear coherence across the curriculum. The focus is on the patient, the dentist, and

the dental team. This person-centred approach is critical for understanding the growing complexities of patient-centred care as students progress across the 6 years of the curriculum. A key emphasis is on clinical exposure and early patient contact from the first year of studies.

**Research experience**—The recently established Undergraduate Research Programme provides opportunities for students to work with academic staff on cutting-edge research projects in pursuit of scholarship and new knowledge.

**Outreach experience**—A wide variety of community dental outreach experiences are provided to complement teaching and learning at the Prince Philip Dental Hospital. These outreach experiences not only enhance experiential learning, but also support diverse communities in Hong Kong by providing ad hoc oral health education and promotion.

**Capstone experience**—The final-year "Portfolio" represents a culmination of student learning activities across the Professional Core. Sample tasks required in the portfolio include case presentations, reports, and written reflections.

**Assessment**—Assessment principles across the curriculum support continuous feedback and self-reflection in all aspects of learning. As reflective practitioners, students identify their own strengths and weaknesses and appraise the dynamics involved in working in effective teams. Summative reporting focuses on assessing the integrated achievement of student learning outcomes while clinical competences are assessed in both simulations and in the delivery of supervised patient care. ■

*Dr Cynthia KY Yiu, <[ckyyiu@hkucc.hku.hk](mailto:ckyyiu@hkucc.hku.hk)>, is the Associate Dean for Undergraduate Education at the HKU Faculty of Dentistry. More information on the 6-year BDS curriculum in 2012 can be found online at <[http://facdent.hku.hk/learning/ug\\_6\\_year\\_BDS.html](http://facdent.hku.hk/learning/ug_6_year_BDS.html)>.*



# Mission possible



Several Faculty members reflect on ongoing and new developments in dental education at the HKU Faculty of Dentistry.

## Undergraduate education

### Our next 30 years



Our educational mission is to foster dental professionals who will be global thinkers and future leaders, serving the needs of

modern Hong Kong. In the next 30 years, Hong Kong will require dentists of outstanding calibre to support oral health needs locally, regionally, and internationally. Hong Kong's dentists will need to be able to meet the challenges of an ageing population. With increased

access to medical care, there will also be a resulting demand for special-needs care. An additional challenge will be the oral health disparities between different socioeconomic groups. The role of the dental professional will be constantly reshaping in response to these and other major social changes.

In an information-rich era, future clinical consultation will be reconfigured. Patients will have greater access to knowledge and will arrive with their own Internet pre-diagnosis and treatment plan. Dentists will need not only to evaluate and synthesise scientific knowledge rapidly, but also to manage more complex interactions, such as mediating open-source knowledge with diverse populations.

As the 21st century proceeds, dental education will focus on translational knowledge. There will be a close nexus between research, education, and professional and community service. The current curriculum reform initiatives in Hong Kong and worldwide are reinforcing the need for a holistic approach to higher education. The global competency movement across all health sciences will lead to the standardisation and portability of professional qualifications across countries and systems. The global dental professional will need to be a flexible thinker with a global outlook.

—*Dr Cynthia KY Yiu, Associate Dean for Undergraduate Education*



### E-learning for PBL

In moving towards the concept of “blended learning”, the Faculty has been responding to new ways of thinking about learners, learning, and learning spaces. While consolidating on our interactive approach to pedagogy (ie, small group, inquiry-based), we have expanded our e-learning strategy for a digitally engaged generation of undergraduates.

Building on the use of the University Learning Management System for self-study, the new focus has been on heightened technological interactivity during face-to-face tutorial interactions to enhance the problem-based aspects of the curriculum. This has been through the introduction of Interactive White Boards, which facilitate real-time, large-screen engagement to support synchronous integration of not only in-house digital resources but also open-access resources such as animations, videos, and critical thinking software. For the problem-based learning (PBL) component of the curriculum, the Interactive White Boards and enhanced Learning Management System resources are facilitating a more interactive approach to resourcing PBL. As the first faculty to introduce this technology to all classes, we aim to engage undergraduate learners in a new era of e-learning at HKU.

—*Dr Susan Bridges, Assistant Dean for Undergraduate Education*



### Tactile training

Haptic simulation uses a “virtual tooth”, which is a 3D computer image. Dental decay can be removed using the virtual handpiece and drill, also viewed on the 3D computer screen. The result is a life-like re-creation of a tooth which, during cutting, feels “real” by replicating the different hardnesses of enamel, dentine, and decay.

The use of haptic devices has almost eliminated the need to collect hard-to-find natural teeth for preclinical training. Additionally, as they use a computer image, students and teachers can stop at various points during a procedure, review and discuss any errors, and repeat the procedure error-free or keep trying until success is achieved. This learning process could never have occurred with previous simulation exercises.

Haptic training in dentistry is still in its infancy. However, as software and technology develop, the potential for treating virtual patients before entering clinical practice is no longer a dream. This new mode of learning is a great step forward in training students. We have now filled the missing gap from preclinical to clinical training, which will ultimately enhance the quality of care given to future patients.—*Dr Michael Burrow, Clinical Associate Professor in Operative Dentistry*

## Postgraduate education

### Advanced training



My vision of the Faculty's next 30 years of postgraduate education has to start with the first 10 to 15 years from today. I envision by then a self-funded, stand-alone

Postgraduate Training Centre. There, clinical specialty experts at the highest international level of each specialty will conduct courses and clinical training for local and international students, who will then go on to develop a career as specialists and leaders in their disciplines worldwide.

The teachers would be university appointees whose remit would exclusively be the teaching and training of postgraduates, without any

overlapping duties to undergraduates or research.

I also envision a continuing education programme that is almost completely web-based. Well-defined web-based curricula would be specifically designed to enrich the body of knowledge of general practitioners, without straying into clinical training at any level.

—**Prof Nabil Samman, Associate Dean for Postgraduate and Continuing Education**



### Engaging classes

iClass is innovative educational software developed by Dr Wilton Fok's team at the Department of Electrical and Electronic Engineering at the HKU Faculty of Engineering. It enables the enhancement of interactivity among students and between facilitator and students during classes. The iClass has been used in journal-based learning (JBL) in the MSc in Dental Materials Science and in BDS problem-based learning (PBL) laboratory classes in Dental Materials Science.

JBL with iClass can be run in several forms. For example, the facilitator prescribes one or more specific journal articles and lets

the students discuss the problems set for the class. The students can input their comments or answers into iClass, which makes all inputs transparent. All students can contribute equally, and a logical path can be created from the answers with the help of the facilitator. Furthermore, erroneous or ambiguous wording or other content in the journal articles can be identified and discussed. Critical thinking of the students is thus developed.

In addition, PBL laboratory classes use iClass to discuss prescribed questions and multiple choice questions presented in the laboratory manual. Instead of simply writing in answers in the handouts, students can input their answers into iClass. The "cloud" being used in iClass allows the whole class, students and facilitators alike, to know all of each other's responses at once. In this way, the initiation of discussion and teaching becomes more interesting and interactive.

I think the Chinese proverb "Teaching others teaches yourself" is the right attitude for teachers using new technology. Educational technology is ever changing and also challenging. However, the core value of teaching in HKU will never change: *Sapientia et Virtus (Wisdom and Virtue)*.—**Dr James KH Tsoi, Part-time Lecturer in Dental Materials Science**



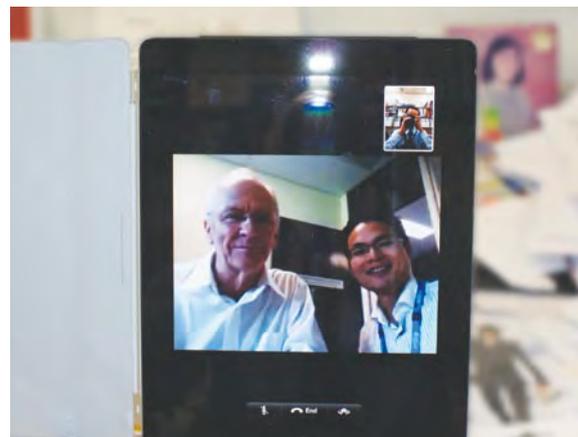
### Tablets for teaching

The Facetime video camera system in the Apple iPad2 allows video-conferencing via an Internet Wi-Fi connection. Because no extra fee is needed (just a portable Wi-Fi generator is needed within the Prince Philip Dental Hospital) and the connection time can be as long as you want, this form of real-time communication should be ideal for joint seminars and treatment-planning sessions between different educational institutions around the world.

In October 2011, I performed a test-run at the Faculty with Prof Andrew Sandham, Professor of Dental Science and Head of Dentistry at the James Cook University (JCU), Australia, and Dr Ye, JCU's Orthodontics Programme Director, while both were in Cairns (pictured below). Recently, Prof Sandham visited Hong Kong and we used Facetime to help a student at JCU finalise an orthodontic treatment plan.

With an improved camera in future iPad models and the ability to connect the iPad to a projector or TV screen, this method of communication holds promise for effective postgraduate teaching. The portability of the iPad also allows the inspection of patients and hence overseas consultations, as well as other collaboration possibilities. It is expected that in the next 30 years, online video-conferencing, consulting, teaching, and knowledge exchange among multiple centres around the world will be the major trend in education.

—**Dr Ricky W/K Wong, Associate Professor in Orthodontics**



# FDI World Dental Federation

Leading the World to Optimal Oral Health



## 2012 FDI Annual World Dental Congress

Leading the world into a new century of oral health

29 August - 1 September 2012

Hong Kong Convention and Exhibition Centre



Local Organizer:



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- joint celebration of the 100<sup>th</sup> FDI Annual World Dental Congress

and showcasing

the latest technology and equipment development from leading international companies at the world dental exhibition

meeting international speakers include:

**Australia** – Newell Johnson (Prof.); Derek Mahony; Ian Meyers (Prof.); Eric Reynolds (Prof.); Martin Tyas (Prof.); **Canada** – Peter Cooney; Martin Gillis; **Germany** – Stefan Hassfeld; Gottfried Schmalz (Prof.); Susanne Schwarting; **Italy** – Maurizio Tonetti; **Switzerland** – Mutlu Ozcan (Prof.); **Turkey** – Nermin Yamalik (Prof.); **USA** – Alan Atlas; Markus Blatz; John Featherstone; Ken Hargraves; Baldwin Marchack; Shi Song-Tao (Prof.); Franklin Tay (Prof.); David T. Wong

and local speakers include:

Cheung Lim Kwong (Prof.); William Cheung; Niklaus Lang (Prof.)

**And we have specially designed Putonghua sessions with Mainland speakers.**

*(The above preliminary speakers list is subject to final update.)*

Online Registration starts 16 January 2012

Early Bird Registration until 31 May 2012

Deadline for abstract submission 30 March 2012

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# How has dentistry changed the world?

The 2011 HKU Centenary – Faculty of Dentistry Pearl Jubilee Essay Contest asked entrants to nominate the most significant development in dentistry in the past century. Answers included fluoride use, resin composites, evolution of the profession, dental implants, braces for tooth alignment, laser treatment for gum disease, local anaesthesia, dental drills, evidence-based dentistry, and problem-based learning. The two winners each won an Apple iPad2 (sponsored by Listerine, Johnson & Johnson HK) and the two runners-up won book vouchers.

## The dentist: the Steve Jobs of medical science

By Andrew Poon



If Apple is the company that has changed the world of media technology, then dentistry is the scientific field that has changed the world of medicine and health care. If Steve Jobs is the person who played the role of an artist in a technological world, then the dentist is the artist in medical science.

In the past 100 years, more and more people have been able to lead beautiful lives: not because of trendy hairstyles, slimming plans, or cosmetic products, but because of the development of dentistry and the dental profession.

For a long time, the role of the dentist was mainly to help people who were suffering from oral disease, periodontal (gum) disease, or tooth decay. Dentists helped their patients escape from immediate pain and sadness. As time passed by, dentistry underwent a reform, being transformed from a knowledge-based science into a combination of art and science.

Owing to rapid advancements in dental technology, dentists can deal with very complex oral diseases and conditions, all while restoring the smile. Furthermore, dentists also deal with disciplines such as orthodontics, implantology, and maxillofacial surgery to make patients' lives more colourful and meaningful. They help bring happiness to people and raise their quality of life, self-esteem, and confidence.

Everyone desires to have a better and beautiful life, while some pursue what they believe is perfectionism. Patients are getting more and more demanding. Therefore, successive batches of dentists need to be Da Vinci-like doctors, as artists in their patients' lives. They use knowledge, dental technology, and new dental materials, and apply a mix of

science and craft. From simple procedures such as bleaching to more complicated procedures such as dental implants, dentists are constantly developing and offering methods to keep up with patient demands and expectations.

At the same time, dentists provide a human touch and care for the whole patient. They are sensitive educators, educating patients to become more aware of the importance of oral and dental health to general health, as well as how to keep their teeth or dental restorations as long as possible for necessary functions in life such as eating, chewing, and speaking. At regular check-ups, they look for early signs of disease like mouth cancer and gum disease, to stop any problems early.

Steve Jobs made Apple products become an inseparable part of today's culture, adding not only functionality but also aesthetic design, user-friendliness, and social networking to brighten up daily

living. In the past 100 years, dentistry has become part of life and has helped countless numbers of people worldwide to become an apple of someone's eyes. Dentists are restoring both function and aesthetics of people's dentition, while helping people keep healthy. Dentistry has maybe changed Earth into the most beautiful planet in the universe, thanks to the science and artistry of the dental profession. ■



*Mr Andrew CK Poon is a student at the TWGHS Sun Hoi Directors' College, New Territories. His essay was the winning entry in the 2011 HKU Centenary – Faculty of Dentistry Pearl Jubilee Essay Contest in the Schools category.*

# Adhesive dental bonding

By Samantha Chu



**A**ccording to the ADAM Medical Encyclopedia, dental caries (tooth decay) is the second most common disease, after the common cold, to affect all people including very young children.

In the past when patients had decay in a tooth above the gumline (the crown), a large cavity had to be created through the removal of the affected and surrounding parts of the tooth. The remaining structure was filled with a restorative material, such as silver amalgam, that did not actually bond to the tooth. Sometimes, the prepared cavity could not adequately retain the filling, and even more tooth structure had to be removed for successful restoration. This process, called “crowning”, is thus often an invasive operative dental procedure.

In 1955, Dr Michael Buonocore found that the surface of enamel, which is the highly mineralised outer layer of teeth and the hardest material in the body, could be changed with acids to enable adhesion of biomaterials. With this discovery, an alternative to crowning was soon developed: adhesive dental bonding.

Adhesive dental bonding refers to applying layers of synthetic resin composite onto the teeth. First, an acidic solution is prepared and applied to the teeth. The small fissures and crevices that are created on the enamel allow the plastic-like resin restoration to bond to and fill the teeth. The resin permanently bonds to the teeth after hardening and drying, which can be helped by using a special light.

Subsequent developments have enabled resins to bond successfully to the inner dentine layer, which contains not only mineralised tissue but also a substantial amount of water and organic hard tissue.

In 1970, Dr Irwin Smigel, an American dentist honoured by the US National Museum of Dentistry, was the first to adhere resin composite instead of using crowning to improve patients’ teeth. Although adhesive dental bonding and crowning were found to have similar success rates, adhesive dental bonding has some additional benefits, such as being tooth-coloured, keeping more tooth tissue, and allowing many types of tooth reshaping.

Adhesive dentistry has flourished rapidly in the past few decades. Today, benefits from adhesive dentistry are no



longer limited to the successful treatment of dental caries, but also include the management of weak or discoloured teeth, chipped or fractured teeth, and teeth needing orthodontic (straightening) treatment. The same technique can also be used to fill in wide gaps between teeth.

Adhesive dental bonding can be considered the most important breakthrough in dentistry in the past 100 years. Adhesive dentistry has become very popular, as it is convenient and affordable, and it can serve restorative, orthodontic, and cosmetic purposes. By offering such improvements in structure, function, and appearance, dentistry can continue to benefit and serve many more people in society. ■

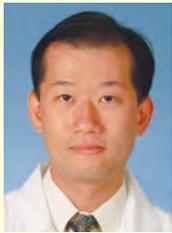
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*Miss Samantha Chu is a student at the Diocesan Girls' School, Kowloon. Her essay was the runner-up entry in the 2011 HKU Centenary – Faculty of Dentistry Pearl Jubilee Essay Contest in the Schools category.*

# Use of fluoride in caries prevention

By Shiu-yin Cho



**D**entistry developed practically at the beginning of human civilization. In ancient Greece, around 500 BC, there were already “dentists” who extracted loose teeth in their patients. The development of modern dentistry started in 1840 with the establishment of the world’s first dental school in Baltimore, US, known as the Baltimore College of Dental Surgery (now the University of Maryland School of Dentistry). This also marked the beginning of dentistry as a profession. There have been numerous important advances in dentistry since then, all of which have contributed significantly to the success of modern dentistry. The advancement that I consider to be the most significant in the past 100 years is the use of fluoride in the prevention of dental caries (tooth decay).

Prevention of dental caries is one of the hallmarks of contemporary dentistry. Although there are multiple components in modern preventive protocols, the appropriate use of fluoride may be the most important. The caries-preventive effect of fluoride was first discovered by Dr Frederick McKay in the 1920s. Then, in the 1940s, Dr H Trendley Dean carried out studies for the US Public Health Service, and found that water supplies that naturally contained fluoride were related to a low prevalence of dental caries. In areas where the optimal concentration of fluoride was not available in natural water supplies, a water fluoridation programme was shown to achieve the same preventive effect.

Today, there is no doubt that consuming water from an optimally fluoridated water supply is the most effective, safest, and cheapest way of preventing caries. The preventive method works before and after the teeth erupt, and it has the added advantage that no conscious co-operation is needed on the part of the patient. Water supply fluoridation represents the best therapeutic use of fluoride for the prevention of caries—that is, by using a low-dose, high-frequency approach.

Another major development in the use of fluoride for caries prevention is the invention of fluoridated toothpaste. The first commercially available fluoridated toothpaste was marketed in the US in the 1950s. The use of fluoridated toothpaste has contributed significantly to the decline of caries in developed countries. Regular use of fluoridated toothpaste twice daily is regarded as the most practical way of keeping high fluoride concentrations at the plaque-tooth interface. A patient’s



exposure to fluoridated drinking water does not affect a toothpaste’s effectiveness in caries prevention.

Other useful tools for delivery of fluoride to teeth include home-use fluoride rinse or gel, and professionally applied fluoride agents. These can be recommended to individual patients with a high caries risk. However, at the community level, the most important tools remain water fluoridation and use of fluoridated toothpaste at least twice a day.

In sum, although there are rapid developments in surgical and restorative techniques in dentistry every year, the importance of fluoride in caries prevention has stood the test of time. Water fluoridation and fluoridated toothpastes have been used for more than half a century, but they have never been considered out-dated and will still remain important tools in modern dentistry. ■

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**Dr Shiu-yin Cho (BDS 1990) is a Senior Dental Officer for the Department of Health of the Hong Kong Special Administrative Region. His essay was the winning entry in the 2011 HKU Centenary – Faculty of Dentistry Pearl Jubilee Essay Contest in the Faculty (staff/alumni/students) category.**

**Correction:** In an advertisement for the Faculty Pearl Jubilee and World Dental Forum II 2012, in *Expressions* 2012, issue 1, page 11, the affiliation of Dr Ken Zhang, Professional & Scientific Relations Manager, should have read “Oral Care, Procter & Gamble”. The Conference Office regrets this error and the online version has been corrected.

# Adhesion and composites: birth of a new smile

By Eva Novak-Solinska



In dentistry, “white fillings”, also known as “composite resins”, are taken for granted nowadays. However, their impact in dentistry is understated, and the adhesive technique that allows dentists to substitute human dental tissue is certainly remarkable.

We have the Swiss to thank for the now regular use of this material. Two Swiss chemists paved the road towards adhesive dentistry through the development of the epoxy molecule (by Castan in 1938) and the acid conditioning of dental tissues (by Hagar in 1951). They inspired Buonocore to develop the process of enamel etching in 1955, and in 1962 Bowen developed the Bis-GMA formulation. “White fillings” were born.

Composite resin materials and adhesive techniques have changed the face of dentistry in the last century. Roulet and Degrange could not have emphasised the situation better than with the title of their book *Adhesion: The Silent Revolution in Dentistry*. All areas of dentistry were affected. Paediatric dentists started using fissure sealants, which proved to be a highly effective means of preventing dental decay in children. Orthodontics became fashionable as metal bands were replaced with smaller and aesthetic brackets. Restorative dentists shifted their thinking, developing minimally invasive techniques, as aesthetics became a primary concern. Cosmetic dentistry was born.

Composites have helped transform the human smile. Public media has reinforced the value and power of an immaculate smile, which is now associated with beauty, confidence, and success. It is not surprising that many public figures choose to have dental improvements carried out in order to improve their public image—whether it succeeds or not is a different question! Perhaps Gordon Brown was inspired by Barack Obama’s impressive set of pearly whites; however, reporters at a press conference in 2010 were abhorred to see the then-Prime Minister bare his new set of veneers. His original set of grey and uneven teeth had reflected true “Recession” Britain, where few could afford to bleach or veneer their dentition. On the other hand, Obama would probably have found it difficult to gain office had he sported discoloured and uneven teeth.

Composite resin materials have contributed in other, less superficial aspects. The evolution of chemical techniques has made it possible to modify resin materials to create and repair facial bones and to ensure compatibility with

human tissue, reduce postoperative side effects, and lessen the need for immunosuppressants. Recent developments allow composite resins to reduce periodontal diseases and dental decay. With ongoing research, the full extent of the possibilities for this material could be endless!

Without the humble composite resin, dentistry would not be where it is today. Needless to say it has changed the world we live in; it has improved the lives of countless people who now have better oral health, and in some cases provided patients with a renewed opportunity to recover physically and psychologically. Our thanks must go to those who have made the composite resin what it is today, and we look forward to the impact it will have in generations to come. ■

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**Dr Eva Novak-Solinska is an MOrth student at the HKU Faculty of Dentistry. Her essay was the runner-up entry in the 2011 HKU Centenary – Faculty of Dentistry Pearl Jubilee Essay Contest in the Faculty (staff/alumni/students) category.**

## Mental floss



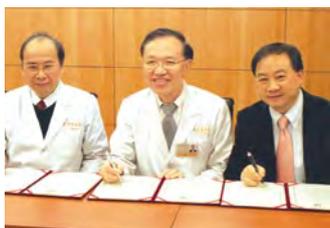
### How well do you know our Faculty?

- (1) What’s our address? \_\_\_ / \_\_\_\_\_ / \_\_\_ □
- (2) What’s the city affiliation of the person in Answer 1’s edifice? \_\_\_\_\_ □
- (3) What’s our head’s title from Answer 2’s surgical profession? \_\_\_\_\_ / \_\_\_\_\_ / \_\_\_ / □ \_\_\_\_\_
- (4) What’s the number in Answer 3 multiplied by the number of themed research groups? \_\_\_ □
- (5) What’s Answer 4 minus the floor number of the Simulation Laboratory, multiplied by the number of endowed professorships? \_\_\_ □
- (6) Rearrange the boxed letters for a Faculty-related word (see page 16 for the solution). □□□□□

# Creating knowledge networks

Earlier this year, the HKU Faculty of Dentistry further extended its network of academic partnerships, and also established the mainland section of its dental alumni association.

## Signs of the times



Left, L to R: Prof Daniel CS Huang, Prof Yu-ray Chen (Chang Gung Memorial Hospital), Prof Lim K Cheung (HKU)  
Right, L to R: Prof Lakshman Samaranayake (HKU), Dr Nawarat Waraswapati Charoen (Khon Kaen University)

The Faculty has recently signed three collaborative agreements with overseas academic institutions. On 9 January 2012, [Dean Samaranayake](#) and [Prof Lim K Cheung](#) signed a Memorandum of Understanding on Academic Exchanges with the Craniofacial Research Center, Chang Gung Memorial Hospital, Linkou, Taiwan (first photo). On 26 April 2012, Dean Samaranayake signed a renewed Agreement for Collaborative Programs with the Faculty of Dentistry, Khon Kaen University, Thailand (second photo). And on 7 May 2012, Dean Samaranayake and Prof Tak-wah Chow signed a Memorandum of Understanding with the James Cook University, Australia.

"We are glad to embrace this era of international collaboration and exchange, and look forward to working closely with these prestigious institutions," says Dean Samaranayake.

## Congratulations

[Dr Michael Burrow](#) (Clinical Associate Professor in Operative Dentistry) has been appointed as an Honorary Professorial Fellow at the Melbourne Dental School, Faculty of Medicine, Dentistry and Health Sciences, The University of Melbourne, Australia.

[Dr Jukka Matinlinna](#) (Associate Professor in Dental Materials Science) has been appointed as a Visiting Professor at the Faculty of Dentistry, Universitas Gadjah Mada, Yogyakarta, Indonesia.

and published by the Department of Electrical and Electronic Engineering, HKU Faculty of Engineering (ISBN 978-988-15045-3-1):

– [Dr Susan Bridges](#) (Assistant Professor in Dental Education and E-Learning), [Dr Cynthia KY Yiu](#) (Clinical Associate Professor in Paediatric Dentistry), [Dr Michael Botelho](#) (Clinical Associate Professor in Oral Rehabilitation), [Dr Peter CS Tsang](#) (Clinical Assistant Professor in Oral Rehabilitation), [Prof Colman McGrath](#) (Clinical Professor in Dental Public Health), [Prof Edward CM Lo](#) (Clinical Professor in Dental Public Health), and [Prof Lakshman Samaranayake](#) (Chair Professor of Oral Microbiology) wrote the chapter "e-Learning for problem-based learning at the Faculty of Dentistry".

– [Dr James KH Tsoi](#) (Part-time Lecturer in Dental Materials Science) wrote the section "Using iClass as a tool for journal-based learning (JBL) in teaching Dental Materials Science at MSc level" in the chapter titled "Case studies in the HKU".

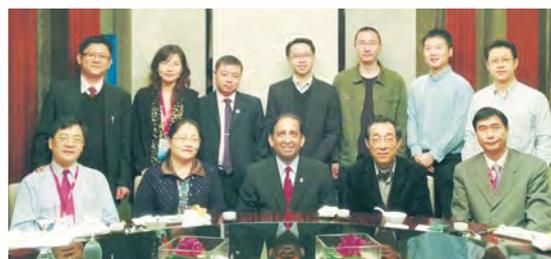
The following staff have contributed to the book *The New Era of e-Learning: Mobile Learning & Interactive Class for the New Curriculum*, edited by [Dr Wilton Fok](#) (Assistant Dean for External Relations and Knowledge Exchange, HKU Faculty of Engineering)



## Alumni in China

To mark the 15th anniversary of the return of Hong Kong's sovereignty to mainland China, the Faculty met with alumni from different parts of China at the South-China Dental Expo in Guangzhou on 8 March 2012, and established the "HKU Dental Alumni Association, Chinese Mainland Section" (HKUDAA-CMS).

The meeting was attended by [Dean Samaranayake](#), [Prof Li-jian Jin](#), and [Dr Cheng-fei Zhang](#). Prof Qian-ming Chen from Sichuan University was unanimously nominated as HKUDAA-CMS President, and regional representatives were also nominated. The inauguration ceremony of the HKUDAA-CMS will be held during the Faculty's Pearl Jubilee Celebrations on 2-3 June 2012.



## Staff moves

**The Faculty bids a warm welcome to:**

- [Dr Angeline HC Lee](#), Principal Clinical Dental Instructor
- [Dr Gillian HM Lee](#), Clinical Assistant Professor in Paediatric Dentistry
- [Mr Ben WP Ho](#), Executive Officer
- [Ms Sue SY Cheung](#), Secretary II

**...And congratulations to:**

- [Prof Gary SP Cheung](#), who has been promoted to Clinical Professor in Endodontics

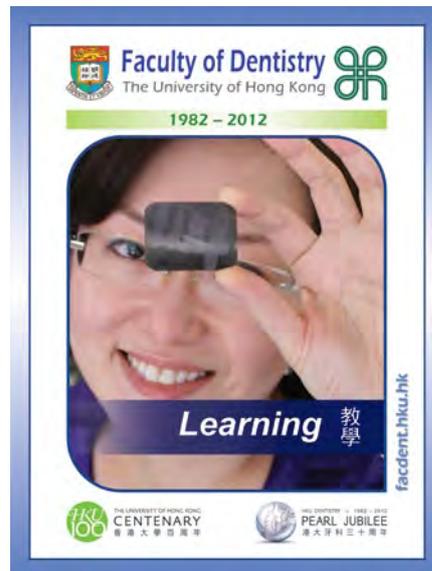
**...And a fond farewell to:**

- [Ms Vicky VM Gatioan](#), Facilities Assistant

# Facing the future

The Prince Philip Dental Hospital had a slight face-lift early this spring in the form of five banners hung on the building facade. The banners mark not only 30 years since the formal establishment of the Faculty, but also 30 years of fruitful partnership between HKU and Hong Kong's only dental teaching hospital.

Designed by the Knowledge Transfer Unit (KTU), the main corner banner is themed "30 years of service to the community", while the other four banners depict the Faculty's mission areas: Learning, Discovery, Patient Care, and Engagement. The banner for Learning was a winning entry in the KTU's photography contest of 2009, themed *Tomorrow's Dentistry.....Today*. It shows then-MDS postgraduate student Dr Angeline HC Lee, photographed by then-MDS postgraduate student Dr Michael CC Tse. **Expressions** caught up with both students, who have since stayed on to undertake further postgraduate studies, and one has even joined the Faculty's staff.



**Dr Angeline HC Lee (MDS 2010, AdvDip 2011), Principal Clinical Dental Instructor**

At this very special moment, I wish to express my utmost gratitude to the Faculty of Dentistry at The University of Hong Kong and the Prince Philip Dental Hospital. Together, they have nurtured me into a person with great passion and competence

in endodontic dentistry. I wholeheartedly thank all the staff at the Faculty for providing me with such a friendly and supportive training environment that is well equipped with world-class facilities and resources. I salute HKU for its immeasurable contribution to the world of dentistry, and I know that the Faculty will continue to inspire and fulfil the dreams of many younger generations to come. Thank you, and *Happy 30th Birthday!*



**Dr Michael CC Tse (MDS 2010, AdvDip student)**

The inspiration for the contest photo was planning for the future. Angeline is looking through a small radiographic picture, representing a window into the future. She has chosen dentistry and is keen to keep studying to improve her knowledge and skills. However, not everybody knows what choices

to make. Today, your choices will become your future, so make the right move now and never stop learning.

As for me, I was and still feel privileged to study at the HKU Faculty of Dentistry, and I have never been more sure that I have made the right decision. This year is a special birthday for the Faculty, for dental training in Hong Kong and the region, and for community service and improving the oral health and well-being of populations here and abroad. We have much to celebrate and be proud of, and I look forward to seeing the Faculty scale new heights in the next 30 years. ■

## Birthday message

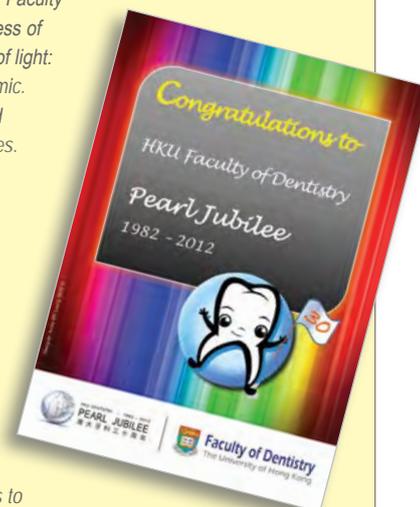


**Annie WK Leung (BDS II)** has won the Faculty Pearl Jubilee E-Card Contest. She wins an electric toothbrush donated by Oral B (Procter & Gamble), plus jubilee-inspired food (pearl tapioca dessert, pearl barley, pearl peanuts) and a HK\$500 book voucher courtesy of the KTU. Below, Annie explains the design of her e-card (available at <[www.facebook.com/facdent](http://www.facebook.com/facdent)>):

[Click here for E-card](#)

*"Being a student of the HKU Faculty of Dentistry, I view the success of the Faculty like a spectrum of light: vibrant and bright and dynamic. The Faculty adds colour and many angles to dental studies."*

*I congratulate the Faculty on the occasion of its Pearl Jubilee. I hope that the success of the Faculty continues, ever changing, yet improving. I also sincerely hope that our Faculty will continue to educate young successful people to become well-trained dentists to serve society."*



## Answer to p14 quiz

(1) 34 Hospital Road; (2) Edinburgh; (3) King James IV Professor; (4)  $4 \times 3 = 12$ ; (5)  $(12-6) \times 2 = 12$ ; (6) Pearl

# Pledge to patient care

**The Faculty's fifth Clinical Pledging Ceremony, on 13 January 2012, marked the point in the BDS curriculum when Class of 2015 began to provide care to public patients under the supervision of clinical tutors. Cherrie CY Hung and Denny CP Wang, BDS II Class Representatives, write:**

The Clinical Pledging Ceremony ended the BDS II Clinical Induction Programme, which was a series of workshops aimed at developing proficiency in effective communication and patient management.

On completing the programme, all BDS II students were filled with enthusiasm for the journey ahead. Our pledge during the ceremony not only reminded us of the responsibility and professional conduct that we should uphold, but it also committed us to our clinical careers. At the ceremony, Dean Samaranyake drew the comparison between our pledge and marriage vows. Our Guest-of-Honour, Dr John Ling, Past President of the College of Dental Surgeons of Hong Kong, affirmed the meaning of the ceremony and encouraged us to excel in the profession.

Under the witness of Faculty staff members, tutors, and parents, the ceremony also symbolised the faith and trust that these important people have in us, which further motivated us to promise to do our best for the well-being of our patients.

The BDS II Clinical Induction Programme was filled with great memories and knowledge we will never forget. On behalf of Class of 2015, we deeply appreciate Dr Susan Bridges for chairing the Organising Committee and accompanying us through the programme, as well as all staff in the Organising Committee and BDS helpers. In addition, we thank the guest speakers and facilitators in the workshops: Dr Jerry Liu, Dr Zenobia Chan, [Dr Cynthia Yiu](#), [Dr Susan Bridges](#), [Prof W Keung Leung](#), and [Prof Colman McGrath](#).

As members of the HKU Faculty of Dentistry, it is an honour to be inducted into clinical practice in one of the top dental schools in the world. We are devoted to becoming skilled, competent, and compassionate dental practitioners who are assured to make valuable contributions to the communities we serve after graduation. ■



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## Student voice



**Alfred Hui (BDS V) has entered stardom, having won various singing contests and recorded the HKU100 song with Canto-popstars Sam Hui and Kay Tse (see <<http://100.hku.hk/galadinner/song>>).**

**Expressions asked him about juggling the limelight with the dental light.**



### How's life as both a famous singer and a university student?

Singing has always been a passion for me. What I get out of singing is satisfaction when I'm happy with my performance on stage and when I've managed to deliver a song's message well. It's certainly tiring at times, but I see recording songs and performing on stage as a time to relax from my school work. Although I have less time to hang out with friends, I still find what I'm doing enjoyable and rewarding.

### What was it like collaborating with HKU alumni in the HKU Centenary song?

It was a pleasure to participate in the production of the HKU100 song, *Brighten Me with Virtues*. Being able to work with several respectable HKU alumni and learn more about music production with them, I felt it was a once-in-a-lifetime experience.

### You also won some music awards?

2011 was a very memorable year for me. It's been so exciting to actually take part in many prize presentation ceremonies when, thinking back, only 1 year earlier I was just one of the many audience members. All the awards signify recognition from professionals in the music industry and also the public. I would love to sincerely thank everyone who has supported me all along.

### What are your plans after graduation from the Faculty?

This is a question I get asked in almost every interview since I started being a singer! No matter how many times I've answered, people still assume that I'll give up dentistry as my occupation. To be very honest, dentistry is something that I enjoy doing and I look forward a lot to practising dentistry. Hopefully, I will keep on having this attitude in mind, and I will try my very best to cope with having two roles: one as a singer and the other as a dentist. ■

# Pearls of wisdom from dentists



Four dentists from the local community offer words of advice for students and beginning dentists, in this Faculty Pearl Jubilee year.



**Dr Michael SF Mui (BDS[HK]), Private Practice; President of HKU Dental Alumni Association**

I think the key to success in the clinic is to build trust with patients. Here are some suggestions to enhance trust between dentists and patients:

- Listen to the patient's chief demand and respect the patient's preferences
- Perform procedures step by step and in order of priority, while gaining incremental trust from patients
- Fully explain dental conditions, procedures, costs, and pros and cons before treatment
- Use a soft voice and appropriate eye contact; use the patient's preferred name
- Communicate more, not only on issues in dentistry
- Show personal interest and remember social and family details, such as names of children and grandchildren



**Dr William WM Cheung (DMD), Private Practice; Continuing Education Programme Director for Asia Pacific, FDI World Dental Federation**

This is an exciting time to enter the dental profession because new inventions, new knowledge, and new

technology are evolving fast. To stay connected with new developments, we must be committed to life-long learning. Today, life-long learning can be achieved through journals, continuing education and postgraduate courses, conferences and conventions, and e-learning. There should be no excuses not to be committed to continuing professional development. We owe it to our patients.



**Dr Shiu-yin Cho (BDS[HK], MDS[Otago]), HKSAR Department of Health**

Dentistry is a very broad subject. Students can no longer rely on books or teachers' handouts as in school or in preclinical years. Visit the university library or its website regularly and

look for good review articles that present the most up-to-date peer-reviewed research evidence. In clinical sessions, different tutors may have different approaches for the same

clinical situation. Consider the alternatives, exercise your wisdom, and find the way that suits you best. Never argue, but instead discuss each case with your tutors in a positive, constructive way. That's the best way you can learn.



**Dr John KP Yau (BDS[HK], MOrth[HK]), Private Practice**

Education itself is not enough to succeed in life, so maximise your time, opportunities, and talents. The top five extracurricular things I treasured at university were friendship, backpacking, guitar, basketball, and

photography. I was extremely lucky to travel from continent to continent with my camera and guitar. My photos and improvised music became another way of communication and self-expression. Basketball kept me strong and cheerful to face the ups and downs in life. But I rank friendship first: without friends, it's unfulfilling no matter how well one can perform in exams. Remember to make the most of university, and the world, beyond teeth! ■



## Apply to be Alumni Ambassadors

*Calling all local dentists who studied at the HKU Faculty of Dentistry...*

In this Pearl Jubilee year, why not volunteer as Alumni Ambassadors to strengthen ties between Faculty alumni and current or prospective students? In particular, a consultation service is being planned to supplement the alumni-BDS II mentorship scheme, in which BDS students from other years can book a one-to-one appointment with a roster of Alumni Ambassadors for guidance, advice, and support.

Please e-mail <[dentktu@hku.hk](mailto:dentktu@hku.hk)> to volunteer.

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1 in 3 patients suffers from the symptoms of dentine hypersensitivity,<sup>1</sup> with most of those affected aged between 20 and 50.<sup>2</sup> Unfortunately more than half of these patients don't seek dental advice, leaving 50% of those who suffer untreated.<sup>1</sup>

For 50 years we've been at the forefront of scientific research, working with leading dental care experts to develop solutions that have provided millions of patients relief from dentine hypersensitivity. Today we continue to strive to offer the best solutions for you and your patients.

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Sensodyne® Repair & Protect	Sensodyne® Rapid Relief	Sensodyne® potassium formulations
<ul style="list-style-type: none"> <li>NovaMin® advanced calcium phosphate technology builds a reparative hydroxyapatite-like layer over exposed dentine and within the tubules<sup>3-7</sup></li> <li>Creates an effective and lasting barrier to the symptoms of dentine hypersensitivity<sup>8-10</sup></li> </ul>	<ul style="list-style-type: none"> <li>Instant relief in just 60 seconds with dab-on application<sup>11</sup></li> <li>Twice-daily brushing helps your patients maintain effective relief in the long term<sup>12</sup></li> <li>Strontium acetate formulation creates deep acid-resistant occlusion of dentine tubules<sup>13,14</sup></li> </ul>	<ul style="list-style-type: none"> <li>An advanced formulation delivers clinically proven relief and around the clock protection from the symptoms of dentine hypersensitivity<sup>15,16</sup></li> <li>Low abrasion, SLS*-free and a fresh new flavour</li> </ul>
		

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\*Sodium Lauryl Sulphate

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# Sensitive Pro-Relief™

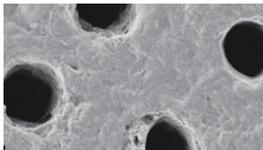
## TREATMENT PROGRAM



Finally, instant\* sensitivity relief patients can take home.

### A breakthrough: Pro-Argin™ Technology

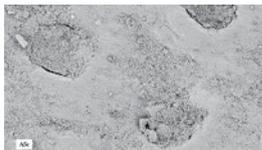
BEFORE<sup>1</sup>



In Vitro SEM photograph of untreated dentin surface.

The tubules that lead to sensitivity are open

AFTER<sup>1</sup>



In Vitro SEM photograph of dentin surface after application.

The tubules are plugged for instant, lasting relief

With Pro-Argin™ Technology, you can finally provide instant\* and lasting relief from dentin hypersensitivity<sup>4</sup> using the Colgate® Sensitive Pro-Relief™ Treatment Program:

- In-office desensitizing paste
- At-home everyday toothpaste

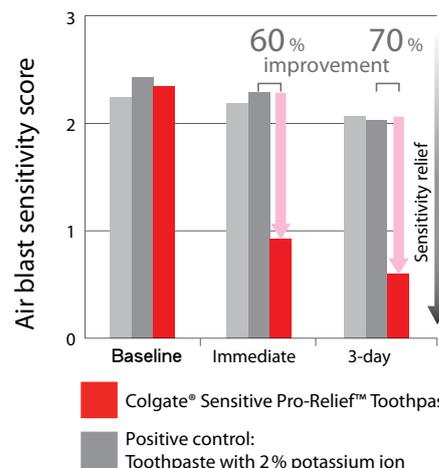
Pro-Argin™ Technology works through a natural process of dentin tubule occlusion that attracts arginine and calcium carbonate to the dentin surface to form a protective seal that provides instant relief.<sup>2</sup>

\*Instant relief is achieved with direct application of toothpaste massaged on sensitive tooth for 1 minute.

Scientific works cited: 1. Petrou I et al. *J Clin Dent.* 2009;20(Spec Iss):23-31. 2. Cummins D et al. *J Clin Dent.* 2009;20(Spec Iss):1-9. 3. Nathoo S et al. *J Clin Dent.* 2009;20(Spec Iss):123-130. 4. Schiff T et al. *Am J Dent.* 2009;22 (Spec Iss A):8A-15A.

### The results are revolutionary

Instant relief achieved with direct application of toothpaste massaged on sensitive tooth for one minute and continued relief with subsequent twice-daily brushing<sup>3</sup>



When applied directly to the sensitive tooth with a fingertip and gently massaged for 1 minute, Colgate® Sensitive Pro-Relief™ Toothpaste provides instant sensitivity relief compared to the positive and negative controls. The relief was maintained after 3 days of twice-daily brushing.

Visit [www.colgateprofessional.com](http://www.colgateprofessional.com) to learn more about how instant relief from dentin hypersensitivity can impact your practice.