As part of a prominent research-intensive University, it is incumbent on us to challenge traditional concepts and, using scientific method, test new theories. Nowhere is this more important than in health care, where we need to push the boundaries and develop more sustainable models of care.

As we enter the last quarter of the year, our vision of fully integrating scientific research, education and clinical care to ultimately improve the community’s oral health is being realised.

Our researchers are integrating their findings into our courses and working side by side with clinical academics to emphasise a philosophy of critical thinking.

We are assessing our clinical activities by tracking patients, treatments and outcomes through our recently established clinical cohort database. An implementation plan is being developed by Dr Shanika Nanayakkara, Dr Manish Arora, Professor Neil Hunter and the Research Committee.

We have several exciting infrastructure projects underway, such as the Special Needs Dentistry and Bioengineering refurbishment. This is only the beginning of our plans to enhance the faculty’s research, education and clinical facilities.

There has been gradual staff change as some of our academic managers make room for more recent academics who are stepping up admirably. I wish to thank and acknowledge particularly the services of Associate Professor Peter Dennison, Dr Evelyn Howe and Dr Stephen Yeung.

Through several well-attended events, we have made great progress towards our goal of fostering mutually beneficial networks of students and alumni, thereby helping to advance career development, research and learning.

Following the launch of the INSPIRE campaign we continue to see a steady rise in support from external partners and alumni. Never before has the faculty received such positive encouragement. Adding to the Noel Martin Memorial Scholarship, the Schweitzer Scholarship and the Waterman Scholarship, 2013 saw the introduction of the James Fairfax Postgraduate Award in Oral Rehabilitation, the Dr Peter Kaleski OAM Prize, the Pacific Smiles Group Scholarship and the Dr Leslie Green Scholarship. I wish to express my personal thanks to our donors for their continued support.

In this financially challenging year, I also want to commend and applaud our staff who have reacted with resilience, innovation, perseverance and teamwork.

Professor Chris Peck
Dean, Faculty of Dentistry
Returning from his postdoctoral position in the Division of Health Sciences and Technology (HST) at the Harvard Medical School – Massachusetts Institute of Technology (MIT), Dr Luiz Bertassoni is bringing world-class expertise in tissue engineering to the Faculty of Dentistry.

As leader of some of the world’s most prominent endeavours in tissue engineering, he is contributing to the development and implementation of revolutionary technologies.

Luiz describes organ transplantation as “one of the biggest issues affecting health care worldwide.” The number of available donors is far lower than the number of patients in transplant units.

To help address this shortage, tissue engineers are combining knowledge of engineering, biology and life sciences to understand and synthesise organ substitutes or their damaged tissues.

In the Harvard-MIT tissue engineering laboratory, Luiz and his colleagues have been using microfabrication techniques (commonly employed in the semiconductor industry) to engineer a variety of tissues and organ substitutes, from bone and cardiac tissues to blood vessels and teeth.

Some of the techniques developed in the Harvard-MIT lab will soon be applied in the Biomaterials Research Unit at the Faculty of Dentistry. These include the development of smart hydrogels that mimic the extracellular matrix of living systems; soft-lithography, a technique used to create micro-patterns to guide cell differentiation and behaviour; bioprinting, which uses 3D printers to assemble cells and extracellular matrices with biomimetic precision; and microfluidics, a technique that replicates the physiology of different organs in microchips, thus allowing for tissue regeneration and diagnostic tools.

The implementation of these technologies in the Faculty of Dentistry will help to put Australia in the forefront of regenerative dentistry and dental tissue engineering.

Luiz says: “With the development of these techniques, we are catalysing an important revolution in clinical dentistry, tooth regeneration and point-of-care diagnostics.”

“We are excited by the opportunity to use these innovative techniques developed with our colleagues at Harvard Medical School and MIT to improve oral care worldwide.”

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NIKEETA NAREN, BACHELOR OF DENTISTRY YEAR 3 STUDENT

The shortage of dentists in rural and remote Australia places a disproportionate burden on non-dental health care workers, whose knowledge of emergency dental conditions is limited.

When symptoms such as facial swelling and severe trauma are incorrectly triaged, the inappropriate management of a dental emergency may result in significant and long-term patient morbidity.

In their project ‘Review of the current status of dental education and training of non-dental personnel in remote Aboriginal medical services and the way forward’ students Nikeeta Naren, Nini Li and Richard Cho are looking for ways to address this issue. Under the supervision of Dr Steven Naoum and Dr David Walker, they are focusing on current dental knowledge and training among such non-dental personnel such as registered nurses, medical practitioners and Aboriginal health workers in rural and remote Australia, where a dentist is not available.

Says Nikeeta: “By reviewing the literature and existing training programs, we hope to establish a framework for the development of a triaging tool for non-dental health workers, which we will seek to be piloted with Bourke Aboriginal Health Service. We believe this training tool will ensure that a reliable triaging service for dental emergencies is in place in remote and rural locations where there is a shortage of dental services”.

NIATALIA TRISNA, BACHELOR OF DENTISTRY YEAR 3 (HONOURS) STUDENT

Early Childhood Caries (ECC) is the most common disease affecting the oral cavity in preschool children. Despite being completely preventable, there has been no significant improvement in preschool children’s oral health over the last two decades due to the complex aetiology of ECC.

Shortlisted for an Australian Dental Research Foundation grant for their study “Content analysis of infant and toddler ready-to-eat foods”, Natalia and her colleague, Trevor Pinchin, are investigating the nutritional content and health claims of Australian ready-to-eat infant foods. Their research is supervised by Dr Amit Arora.

Says Natalia: “Recent research released from the ACT’s Food Survey indicates that more parents are serving ready-to-eat meals than preparing food from scratch. Notwithstanding the evidence presented, ready-to-eat infant foods are not mentioned in the 2013 Australian Dietary Guidelines and, as a consequence, parents are left to rely solely on the health claims on the product packaging. They have little alternative guidance on the actual nutritional value of these products.”

To fill this gap, Natalia and Trevor are establishing a nutritional profile of ready-to-eat foods infant available in Australian supermarkets.

This joint venture research between the Sydney Medical School and Faculty of Dentistry is supported by the Australian National Health and Medical Research Council. The study will provide valuable evidence for dental health professionals, paediatricians, nutritionists and health policy experts on the impact of ready-to-eat infant foods on diet-related diseases such as ECC and obesity in Australian preschool children.
Outlining her research at the 2nd Meeting of the International Association of Dental Research-Asia Pacific Region (IADR-APR) in Bangkok last month, Xiao Yan Zhou was honoured with a first prize in the Colgate Travel Award (ANZ region) and invited to present her work at the upcoming 2014 General Session of the IADR in Cape Town, South Africa.

Under the supervision of Dr Ky-Anh Nguyen, Xiao Yan’s research involves the characterisation of a protein, designated as Gingipain Maturation Protein A (GmapA). This protein is essential for the maturation and secretion of important virulence factors such as the gingipains on the cell surface of the periodontal pathogen Porphyromonas gingivalis.

The bacterium itself is a black-pigmented, Gram-negative anaerobe that is one of the primary causative organisms of chronic periodontitis. More recently, it has been suggested that P. gingivalis may be the microbial link that explains the association between chronic periodontitis and systemic diseases such as cardiovascular diseases and rheumatoid arthritis.

By deleting the gene encoding for GmapA, Xiao Yan was able to show that many virulence proteins associated with P. gingivalis infectivity were dramatically reduced in quantity, with immature forms remaining trapped within the bacterial cell.

By deciphering the role that GmapA plays in the maturation and secretion of these virulence factors, it may create opportunities to impede their growth through targeted inhibitors, thereby helping to prevent and treat periodontal disease.
At the TIMA dental fair in Mt Druitt, students and alumni joined forces to provide much-needed dental care to a community in need.

Eleven years ago, Tzu-Chi International Medical Association (TIMA) ran its first free dental fair in Queensland, at which a team of dentists and students provided a day of free dental treatment to the rural Queensland community.

Ten years later, in December 2012, TIMA expanded to NSW, running the first dental fair to bridge the gap in dental care in Sydney.

Operating from the Mt Druitt Youth College, the dental team was overwhelmed by the demands of this small community. They returned in July 2013 to continue their delivery of urgent dental care.

Dental health services have been regarded as a privilege by many members of the Blacktown community. The perceived barriers to dental health services have resulted in a significantly high rate of caries and periodontal disease.

The second dental fair project was also supported by graduates, Dr Laura Su and Dr Philip Leung, who participated in the first NSW TIMA fair in 2012 as students. At the July 2013 fair, they were joined by 27 student volunteers from the Faculty of Dentistry, who gave up their weekend to provide dental assistance, sterilisation of instruments, administration and delivery of oral hygiene advice.

Over the two-day fair, the TIMA volunteers treated 85 patients, provided 37 scale-and-cleans, 78 restorations and 49 extractions. They were reported to be supremely professional, empathetic and enthusiastic.

The students themselves felt humbled by the experience, but rewarded with the knowledge of having made a positive difference in other people’s lives. These students will be looked upon as future leaders in bridging the oral health gap in economically disadvantaged communities.
For the second time this year, a team of Bachelor of Oral Health students provided dental information and assistance to guests of Homeless Connect in the Parramatta Town Hall.

Accompanied by Faculty of Dentistry staff, the students dispensed important oral hygiene information, and identified people requiring urgent dental treatment. The guests were then taken for triage assessment by dental alumni who attended with a team in their mobile dental clinic. Essential dental treatment was provided on site.

Attending Homeless Connect in the Sydney Town Hall earlier this year, Bachelor of Oral Health 3 student, Alex Ong described the atmosphere as “infectious. Both students and staff, bright-eyed and bushy-tailed, got straight to work.

Bombarded with questions ranging from dental pain, oral hygiene and free dental service, our experience and patience was immediately put to the test. We learnt that people in difficult circumstances often have no awareness of the services available to them and attempt to ‘self-treat’.”

The students found that dispensing even the most basic of oral hygiene advice was greatly appreciated. The event was a profound experience for all those involved. “We felt humbled, rewarded and inspired by our participation,” says Alex. “For us, it wasn’t just about increasing awareness, but about making a positive impact on worthwhile lives. The commitment and determination shown by each individual made the day a truly rewarding and memorable experience.”

Dean Chris Peck, himself a volunteer, describes the event as having “confirmed our engagement and commitment to our community’s welfare. I received excellent feedback from organisers, other volunteers and, most importantly, the guests. I was very proud of the professionalism displayed on the day. The student were great ambassadors for the University”.

The Sydney Homeless Connect event was also honoured by a surprise appearance from NRL celebrity Wendell Sailor!
DENT TRIUMPHS

Tom Shumack, final-year Bachelor of Dentistry student and coach of the Dentistry rugby team, reports on the nailbiting Friday 6 September rugby match against Veterinary Science.

Circling St John’s Oval, there is a tense atmosphere as 80 anxious Bachelor of Oral Health and Dentistry students look on. After eight weeks of Sunday training, all the players are itching to get on field, nervously squaring off one last time. The whistle blows – Vet Science jogs in. A final squeeze and Dentistry is also ready.

As expected, the first of the three 20-minute thirds is a hard-fought battle. The ‘Vets’ put up some aggressive counter-rucking and to quote Dean Peck’s words of wisdom during the break: “Dent forwards have to keep the rucks deliberate and tight – 50 microns of leeway”.

Vet scores, Dent equalises, and the platform is set for an all-time nailbiting match.

With only 5 minutes’ play remaining, Vet scores and Kyle Green’s very, very deliberate kick clears RPA’s new Lifehouse Cancer Centre, and a 15-14 victory is declared to Dentistry.

The following Friday, 13 September, Dent collided with Pharmacy and both teams pulled out all stops to provide their enthusiastic audience with another thrilling match. There could only be one winner and alas for Pharmacy, Dentistry’s warriors were once again victorious with a convincing score of 17-12. Congratulations to all teams for outstanding performances in both the first and second of the three matches.

A big thank you also goes to fans and supporters who are expected to return for the giant final game between Dent/Medicine on 20 September, which promises to be another riveting cliff-hanger as the two big teams go all-out for the finals laurels. All matches are preceded by Girls Touch at 6.30pm.
R U OK? DAY

On Thursday 12 September, many staff of the University of Sydney took the time to ask each other ‘Are you OK?’ R U OK? day was established to remind us to regularly check in with other people who may be struggling with life and need our support.

With depression and mental illness on the increase, we are learning the importance of remaining alert, listening, and holding meaningful conversations with our friends, family and colleagues. It starts with the simple question ‘Are you OK?’ You don’t have to be an expert.

For more information, visit www.ruokday.com

EVENTS
WOMEN IN DENTISTRY

On Friday 9 August, 120 guests shared cocktails and the unique opportunity to network with colleagues and peers while celebrating women in Dentistry.

Guest speaker Dr Karin Alexander, ADA Federal President, eagerly encouraged alumni, staff and students to put their hands up to take on leadership roles and become involved in the dental community.

For more information, visit www.ruokday.com