Professor Joerg Eberhard: Putting the mouth into health 05
Dean’s word

With Semester 1 behind us, we are continuing to work towards our vision to put the mouth into health.

Links with the Charles Perkins Centre (CPC) are firmly in place and with the CPC Westmead node recently established, our staff now have the opportunity to explore opportunities easily, not only with Sydney Dental Hospital but also Westmead’s Centre for Oral Health. This can only help integrate activities to improve the management of chronic diseases.

We have also been developing our strategic vision and goals, aligned with those of the University as a whole (see right).

We very much welcome your input on this strategy. To comment, please email me at dentistry.dean@sydney.edu.au

I look forward to hearing from you.

Chris Peck
Dean, Faculty of Dentistry

Our vision
Putting the mouth into health

Our mission
Optimising health and wellbeing through excellence in oral health education and research

Our values
Working as a community of innovators in a coherent and cohesive way

Strategic goal 1
Research excellence
To become the leading, research-intensive dental school in Australia with a robust, diversified platform of fundamental, translational, and clinical research in strategically focused areas.

Strategic goal 2
Distinctive Sydney education
To deliver oral health education that is recognised as the best in Australia so that our graduates are leaders who possess the skills, values and knowledge to reduce disease risk and optimise wellbeing, with particular emphasis on evidence-based practice and information literacy.

Strategic goal 3
Culture and values
To develop a diverse, inclusive and culturally sensitive community that is built on relational cohesion and a coherent purpose, fostering strong and enduring relationships between our students, staff, alumni and partners.
Recognising our war heroes

By Dr George Franki, Faculty of Dentistry alumnus

A number of students from the Faculty of Dentistry volunteered to serve in the First and Second World Wars. Seven gave their lives. We remember them, along with other Faculty of Dentistry students who served and are still with us.

World War One

Bertie Ewen Berman

Bertie was 19 years old and in his first year of study when he enlisted on 23 August 1915. He passed away at Gueudecourt (Stormy Trench) in France on 4 February 1917, serving with the 13th Battalion.

A comrade of Bertie’s said: “He was 5’ 10” in height, dark and clean shaven. I saw him killed at Gueudecourt on 4th February 1917. He was a stretcher-bearer and was attending to the wounded when he was struck by a shell and killed instantly. He was a very good fellow – a real gentleman.”

Bertie Berman has no known grave.

Stanley Callaghan and Alfred Edward Watson

Stanley and Alfred were both 24 years old and in their third year of study when they enlisted together on 7 September 1915. They then spent a short time at the Dental Hospital before serving with the 9th Field Ambulance in France. Both were accepted for officer training at Oxford and graduated as 2nd lieutenants.Posted to the 34th Battalion, they died at Passchendaele in Belgium – Stanley on 1 October 1917 and Alfred on 13 October 1917.

The Commanding Officer of the 34th Battalion, Lt. Col. Ernest Martin, said of Stanley: “He had my greatest confidence as an enterprising and energetic officer and his loss is lamented by all officers and men in the Battalion. He set an example that was worthy of his rank and died a proper soldier.”

Of Alfred it was written: “Sincere, honourable and public spirited, he was greatly beloved. He has left behind the memory of a gallant career and a noble sacrifice.”

Stanley Callaghan has no known grave. Alfred Watson is buried at Nine Elms British Cemetery, Poperinge, Belgium.

John Keith Henderson

John was a senior dental student when he enlisted on 7 September 1915, enlisted in the Australian Imperial Force on 3 August 1915, and was posted to the 13th Battalion. After a short period on Gallipoli, he served in France and was killed in action at Pozieres on 14 August 1916.

A comrade reported: “The last seen of Captain Henderson was, when he was leading, he called out ‘Follow me lads’ and over the top he went but was never seen again. It was at Mouquet Farm August 1916. James was a first-year student when he enlisted on 18 December 1940. At 29 years old, Robert was lost over Lorient, France, on 6 June 1942, serving with the No. 50 Squadron of the Royal Air Force. Robert’s brother, Charles Ogilvie, also lost his life in WW2, serving with the Royal Australian Air Force.

Robert Ogilvie has no known grave and is remembered on the Runnymede Memorial, Surrey.

James Hillman Hornbrook

James was a first-year student when he enlisted on 5 December 1924. He died when his plane was circling to land at Higgins Field, Queensland. It struck the side of a hill when landing in darkness. All six on board were killed, including three American servicemen.

James Hornbrook is buried in Townsville War Cemetery in Queensland.

World War Two

Robert William Ogilvie

The son of dentist William Ogilvie, and brother of dentists Margaret and Sybil Ogilvie, Robert was a third-year student when he enlisted on 18 December 1940. At 29 years old, Robert was lost over Lorient, France, on 6 June 1942, serving with the No. 50 Squadron of the Royal Air Force. Robert’s brother, Charles Ogilvie, also lost his life in WW2, serving with the Royal Australian Air Force.

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James Scott

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James Hornbrook is buried in Townsville War Cemetery in Queensland.
New Research Centre in Lifespan Oral Health

A $3.6 million donation to the University of Sydney in 2015 was the catalyst for the plan to establish the inaugural Chair of Lifespan Oral Health along with an ambitious drive for a $20 million research centre spearheading research, policy, advocacy and education initiatives to prevent and reduce chronic diseases caused by poor oral health.

On 24 May, the University’s newly appointed Chair of Lifespan Oral Health, Professor Joerg Eberhard presented at the launch of the Charles Perkins Centre Westmead node about his team’s mission to ease the global burden of rising health-related conditions through improved oral health.

“The University of Sydney’s Faculty of Dentistry has a strong research record revealing how chronic infections and degeneration of the gums and teeth raise the risk of disease processes throughout the body,” Professor Eberhard said.

Oral diseases are commonplace. A third of Australian adults have untreated dental decay and one in four have moderate to severe gum disease – factors that raise the risk of chronic health conditions.

“As the newly established Chair, I will be working with colleagues to develop and drive strategies to improve the health of current and future generations of Australians,” said Professor Eberhard.

“This mission goes beyond traditional dentistry and medicine by extending to education, nutrition, agriculture, economics, public health policy, the built environment, and communication technologies. The ability to bring together researchers from many disciplines is a unique feature of this appointment and represents an extraordinary opportunity to integrate oral health into broader health issues. I’m confident that our research, education and policy work will help to improve oral health but also the systemic health of the population.”

The University recently released a prospectus describing plans to translate its research findings into real-world impacts and raising $20 million to establish the world-class research centre.

According to Professor Chris Peck, Dean of the Faculty of Dentistry, the new Chair’s research will be incorporated into the University’s dentistry curricula, as well as new clinical treatment guidelines for future dental professionals, and in continuing professional development programs for current practitioners.

“The centre will build on the work of the new Chair and develop a whole-of-health disease prevention strategy that defines benefits to individuals, the community and government through improved health, reduced costs and evidence-based health policy development,” said Professor Peck.

Still in development, the new Research Centre in Lifespan Oral Health is solely devoted to investigating aspects of preventable dental disease and the links to overall health.

Starting the journey towards world-class research in oral health

By Professor Joerg Eberhard, Chair of Lifespan Oral Health, University of Sydney

Coming to the University of Sydney and joining the Faculty of Dentistry and the Charles Perkins Centre was definitely the right decision for me. I am confident our collaborative work will contribute significantly to easing the burden of chronic diseases.

Since I arrived in April, I have become acquainted with inspiring, open-minded and excellent researchers who anticipated the necessity to address current knowledge gaps about oral and general health relationships and are keen to work with us on fundamental, clinical and population health research.

Working with these networks, the Faculty of Dentistry will have the capacity to contribute substantially to ease global health problems, not only for dental diseases, but cardiovascular disease, diabetes, dementia, arthritis, and adverse pregnancy outcomes. This knowledge will then translate into better disease prevention strategies and patient management underpinned by health education programs informed by this research.

Clinical research is essential to proving the relevance of research observations and the sustainability of preventive or therapeutic strategies. To be successful, it is critical to have the ability to bring together researchers from various clinical and research faculties and disciplines including nutrition, immunology, sleep medicine and cardiology, to name but a few.

The Faculty of Dentistry has the vision of ‘putting the mouth into health’ and has prioritised research activities to align with this. We are fortunate to be building on already established high quality research capacity and existing projects.

Research is not the only answer. Although the implications of oral health for general human wellbeing throughout the lifespan are considerable, oral health currently has virtually no part in health education programs. It is of high priority to our work to be involved in the education of health sciences students and graduates. Our engagement with the general community, as well as health professionals, is highly relevant.

Working with colleagues and fellow researchers Professor Adrian Bauman and Dr Joanna Gale, we have been able to present our first collaborative study results: we have found that elderly people with no teeth have twice the risk of dying than people with more than 20 teeth. This is a good start.
Meet Dr Julian Oey, Faculty of Dentistry alumnus, dentist and astronomer.

Dr Julian Oey graduated from the Bachelor of Dental Surgery in 1986 and now works as a dentist at Potts Point and Matraville in Sydney. He has also constructed his own observatory and discovered several rare binary asteroids.

**What attracted you to a career in oral health?**  
Work in oral health or dentistry is very rewarding. Dentistry is a science-based profession and all about people. The work I do has a direct and immediate impact on my patients. Coming from a medical background, I was influenced from a young age to think of either a career in medicine or oral health. Since astronomy has always been at the back of my mind, dentistry allowed me the time and financial resources to pursue and maintain the interest. As I developed my skill as a dentist, I found a happy balance between family, astronomy and dentistry.

**Why is oral health important?**  
Oral health contributes greatly to overall human health. We know from reliable research that periodontal disease is directly related to heart disease and inflammation of other organs in the body.

In my practice, patients who have poor dental function due to significant loss of teeth suffer greatly with their overall health, bordering on malnourishment. On the other hand, those who attend regular dental appointments show a much healthier and happier lifestyle.

If you had unlimited resources, what would you suggest be done to improve oral health in Australia?  
I don’t think it would require unlimited resources. I believe the problem could be addressed by good delivery and management of oral health services.

The main reason for poor oral health in Australia is the cost of dentistry and the availability of the services. Dentistry in a developed country should be a free service provided under the auspices of government-funded Medicare.

The cost of dentistry could be addressed by utilising existing infrastructure and administration available through government institutions or universities.

Services in metropolitan areas could be provided by private practitioners under an agreed price structure and moderately controlled treatment plans. Incentives should be given to experienced dentists to provide mentoring and business opportunities to remote regions, which would solve the problematic availability of service.

**What do you enjoy most about what you do?**  
I love working with people who have a compromised smile. By changing the size, colour, shape of teeth, their skin and lips, and also by clever combination use of implants, bridges and dentures, the resulting overall look and function are very satisfying.

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Metagenomic Insights into Transferable Antibiotic Resistance in Oral Bacteria

Authors: Dr Christina Adler, Dr Smitha Sukumar, Professor Elizabeth Martin (Faculty of Dentistry, University of Sydney), and Dr Adam Roberts (University College London)

Abstract summary

Antibiotic resistance is considered to be one of the greatest threats to global public health. Resistance is often conferred by the presence of antibiotic resistance genes (ARGs), which are readily found in the oral microbiome. In-depth genetic analyses of the oral microbiome using metagenomic techniques reveal a broad distribution of ARGs (including novel ARGs) in individuals not recently exposed to antibiotics, including humans in isolated, indigenous populations. This has resulted in a paradigm shift from focusing on the carriage of antibiotic resistance in pathogenic bacteria to a broader concept of an oral resistome, which includes all resistance genes in the microbiome.

Metagenomics is beginning to demonstrate the role of the oral resistome and horizontal gene transfer within and between commensals in the absence of selective pressure, such as an antibiotic. At the chairside, metagenomic data reinforces our need to adhere to current antibiotic guidelines to minimise the spread of resistance as it reveals the extent of ARGs without exposure to antimicrobials and the ecological changes created in the oral microbiome by even a single dose of antibiotics.

The aim of this review is to discuss the role of metagenomics in the investigation of the oral resistome, including the transmission of antibiotic resistance in the oral microbiome. Future perspectives, including clinical implications of the findings from metagenomic investigations of oral ARGs will also be considered.

Read the full paper in the Journal of Dental Research, available online.

− jdr.sagepub.com/content/95/9/969

Antibiotic resistance in oral bacteria

An abstract written by several of our academics focuses on the issue of rising antibiotic resistance and how new genetic methods are being used to understand the basis and transmission of resistance among bacteria in the oral environment and beyond.

The Judith and Dr Mario Adamo Implant Innovation Scholarship

This year, the Faculty of Dentistry welcomes a new endowed scholarship to encourage innovation in implant dentistry.

The Judith and Dr Mario Adamo Implant Innovation Scholarship has been made possible by a generous gift from the Adamos. The gift provides an annual $6000 scholarship in perpetuity.

The purpose of the scholarship is to encourage research in implant dentistry and further understand issues associated with implantology, including:
- osseointegration
- stability and retention of implants
- reductions of implant failure
- infections.

The scholarship will:
- assist a student aiming to solve a problem related to implant dentistry
- instil an ethos of engaged inquiry by embedding research into educational activities
- encourage involvement with professional associations, focusing on improved clinical outcomes and wellbeing.

The Dean will award the first scholarship in 2016.

The Judith and Dr Mario Adamo Implant Innovation Scholarship

Judith and Dr Mario Adamo with Chris Peck, Dean of the Faculty of Dentistry at the University of Sydney

Left to right: Professor Elizabeth Martin, Dr Adam Roberts, Dr Smitha Sukumar and Dr Christina Adler

The University of Sydney
Encompass Spring 2016
Faculty of Dentistry

sydney.edu.au/dentistry
sydney.edu.au/dentistry
sydney.edu.au/dentistry
Taking orthodontics innovation to the world stage

Meet Doreen Ng, final-year Doctor of Clinical Dentistry student, acclaimed researcher and conference presenter.

The last year of a degree can be stressful. But for Doreen Ng, it has been an opportunity to show her dedication to the field of dentistry, research and innovation.

Since February 2016, Doreen has presented at three orthodontic conferences: the 25th Australian Orthodontic Congress in Melbourne, the American Association of Orthodontists Conference in Florida, United States; and the European Orthodontic Society Congress in Stockholm, Sweden.

She was also asked to speak at the 15th Congress of the World Federation for Laser Dentistry in Japan, but was unable to attend due to academic commitments.

Later in the year, Doreen will present at the Australasian Begg Society of Orthodontists meeting in Broome, the Faculty Research Day and at the Australia Society of Orthodontics NSW Clinical Day.

We spoke to Doreen about her experiences at these conferences and her research activities.

What were the objectives of the conferences you have attended?
The Melbourne conference had an innovative flavour focusing on emerging technologies and ideas in orthodontics. The other conferences were more general, covering a diverse range of orthodontic topics such as accelerated tooth movement, digital orthodontics and practice management.

In February, you represented the University of Sydney at the Australian Orthodontic Congress in Melbourne. What was your topic?

My presentation was on the use of low-level laser therapy (LLLT) in orthodontics. Over the past decade there has been a lot of investment and research into using lasers to speed up orthodontic treatment. The aim of my research was to investigate whether the hype was worth it.

I used clinical research to break it down. My thesis had three main objectives. First, I sought to establish whether the laser light actually penetrates through the gums and alveolar bone to reach the surface of the tooth root where the biological activity for tooth movement occurs. Secondly, I wanted to find out if there are any side effects to accelerating tooth movement with lasers, such as root resorption. Finally, I wanted to know whether there are any additional benefits of using lasers during orthodontic treatment.

The results of our randomised controlled trial showed laser penetration is dependent on bone thickness but the effect of the gingiva is negligible. Therefore, for each millimetre of bone the laser light has to penetrate, there is 7 percent reduction in laser energy.

The most interesting finding from our research was that LLLT does not cause root resorption – it actually reduces it by 24 percent (which was statistically significant). Our research also showed that laser therapy may also reduce orthodontic pain.

You were selected from candidates around the world to present at the American Association of Orthodontists (AAO) International Conference. How did you find this experience?

I submitted an abstract to the AAO based on the clinical research I did as part of my thesis for the Doctorate of Clinical Dentistry in Orthodontics. I was honoured when my abstract was one of 28 selected by the AAO, and I was invited to participate in an Oral Research Presentation recognising new investigative research at the annual conference.

I found it a rewarding experience to be among 28 likeminded researchers from all over the world with whom I could share my knowledge.

You recently received second place in the prestigious Charley Schultz Resident Scholar Award. Tell us about this award and your presentation.

I was selected to represent the University of Sydney at the AAO Annual Session in Orlando.

The Charley Shultz Award was established in 2004 by the AAO and sponsored by Dentsply GAC as a way for orthodontic graduate students to share their clinical and basic science research using a poster presentation and narrative material. The program selects 40 orthodontic registrars from American and Canadian accredited orthodontic schools and five international students/residents.

The Charley Shultz Resident Scholar Clinical Research Award is given to the most outstanding clinical research done by a resident worldwide.

I was recognised for my research on resolving a controversial topic on the use of lasers in orthodontics with an evidence-based approach. My presentation on ‘The effect of low-level laser therapy (LLLT) on root resorption and orthodontic pain’ received second place.

The strength of my thesis and poster presentation was the study design and methodology; it was a double-blinded randomised controlled trial.
On 7 July, several Faculty of Dentistry students and staff volunteered their time for the annual Sydney Homeless Connect event held at Sydney Town Hall. Together, we handed out about 400 toothbrushes and toothpastes and shared our oral health knowledge with some of the most vulnerable members of our community. We provided oral health assessments for 59 guests, with 23 guests receiving more than 48 treatment items during the course of the day. These guests will be referred to Sydney Dental Hospital for ongoing treatment, prevention and monitoring. Several guests expressed how happy they were with the treatment they received and were very grateful.

Thanks to Mobile Dental Services for the generous provision of the two-chair dental van for use on the day, as well as some of their capable staff. Thanks also to Colgate Palmolive for their generous donation.

2016 Roland Bryant Cup

The Roland Bryant Cup embodies new friendships, connections and a sharing of ideas between two dental schools.

The inaugural Roland Bryant Cup was held in 2010 and was designed to forge a greater relationship between dental faculties from Charles Sturt University and the University of Sydney.

The annual event involves the best of five sports series: Men’s Basketball, Women’s Dodgeball, Mixed Touch, Women’s Soccer and Men’s Soccer.

This year’s event, held on 7 May at the University of New South Wales Fitness and Aquatic Centre, was attended by Professor Heiko Spallek, Pro-Dean of the Faculty of Dentistry at the University of Sydney, who said: “I was deeply impressed by the enthusiasm our students displayed.”

The event has grown to be one of the premier events on the calendar for dental students. It is supported by Professor Bryant and the Australian Dental Association.

The importance of pro bono work

By Cathryn Forsyth, Aboriginal and Torres Strait Islander Lead and Associate Director, Health Education and Promotion, the Faculty of Dentistry

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Sydney Ideas Health Forum

This year, the University of Sydney’s health and medicine disciplines are hosting public forums on campus that unite experts and interested people to discuss key healthcare issues affecting millions of people in Australia. Upcoming forums include:

Childhood infectious diseases: protecting kids from the cradle to the mosh pit
12 October 2016
Sydney Nanoscience Hub
Camperdown Campus

For more information on these and other upcoming events, visit our website:
– sydney.edu.au/sydneyideas

Raising the Bar

Raising the Bar is a worldwide initiative previously run in New York, Hong Kong and London, aimed at making education a part of a city’s popular culture.

Our academics will be delivering talks at venues across Sydney to take education out of the lecture theatre. Learn more:

Humboldt and health

Looking backward to move forward
Presented by Professor Joerg Eberhard
5 October 2016
Charles Perkins Centre Lecture Theatre

For more information and to register, visit
– sydney.edu.au/dentistry/alumni
Your support can make a difference

We’re aiming to raise $20 million to establish the Research Centre in Lifespan Oral Health – a collaborative venture integrating research, clinical treatment and education.

Our aim is nothing less than to lead the world in spearheading research, policy, advocacy and education initiatives to prevent and reduce chronic diseases caused by poor oral health.

Achieving this vision would be transformational for our students, the dentistry profession, and the communities we serve.

Find out how you can support our work.
sydney.edu.au/dentistry/give