

# IMPRESSIONS

2 Dean's  
Message

4 News

16 UBC Dentistry at the Educational  
Forefront of Geriatric Oral Care

20 At the Intersection of Medicine and  
Dentistry—UBC OMOP Specialty

22 Donors to UBC Dentistry—Sharing  
Their Values, Making a Difference

24 Donor Honour Roll

26 Rings of Success: Imaging  
Scientists at the Core of the CHTP

32 Alumni Profiles  
From the Class of 2011

34 Off the Campus: Dental  
Students in Kenya

36 Off the Campus: Dental Hygiene  
Students in Vietnam

37 Alumni Class Notes  
and Events

43 CDE Calendar



*Advancing Oral Health Through Outstanding Education, Research and Community Service*



THE UNIVERSITY OF BRITISH COLUMBIA

## Dean's Message

*The UBC Faculty of Dentistry has an outstanding global reputation for being an innovative leader in dental education, service and research. We are thankful to have the support of our community partners and alumni base in this mission of excellence. This issue of Impressions focuses on examples of our innovation that are contributing to the strength of our academic, service and research programs.*

Regarding the area of education, we feature an article about the restructuring and enhancement of the Faculty of Dentistry's educational content in geriatrics. Our program continues to lead the way, addressing the oral health needs of seniors, who are now Canada's fastest growing demographic. Drs. Leandra Best, Mario Brondani, Leeann Donnelly and Chris Wyatt, as well as program manager Shunhau To, discuss how their respective areas in education, research and service delivery have evolved to advance geriatric oral health at UBC Dentistry.

UBC Dentistry's engagement in interprofessional education and service is highlighted in the article outlining the intersection of oral medicine and oral pathology with medicine. Since 2000, UBC has offered postgraduate residency training in oral medicine and oral pathology (OMOP); however, not all readers may know the depth and breadth of this specialty and how it plays a critical role in early diagnosis of oral lesions. Dr. Eli Whitney, program director for UBC's OMOP residency training, provides a succinct



snapshot of the program: who is involved, what they do, with whom, for whom and where they do it.

The Faculty of Dentistry is home to the state-of-the-art Centre for High-Throughput Phenogenomics, a research core facility that is an integral component of the UBC Imaging Core. Opened in 2013, this facility houses a high-tech, comprehensive suite of imaging technologies staffed by a noteworthy team of scientists: Drs. Nancy Ford (director), Shujun Lin, Gethin Owen and Guobin Sun. In this issue, you will learn more about how they have helped researchers from across campus, other academic institutions and industry to analyze their samples through various imaging modalities and produce data sets that resulted in publication in top journals.

This past year, a large cadre of our students and faculty members have been recognized and are featured in the “News” section. Their accomplishments in research and teaching are significant, and we are proud they have chosen UBC Dentistry for their studies and careers.

Through the generous support of the Sinclair Travel Fellowship Fund, again this year some of our dental and dental hygiene students participated in international volunteer rotations, travelling to Kenya and Vietnam. The experience of practising their respective professions in an environment of great need will have a lasting impact on their lives and careers.

Also, in the pages of this issue, we are fortunate to have several donors to UBC Dentistry share their values. They demonstrate to us that the motivations for philanthropy can be found in dedication to family, community, and in many cases, their alma mater. While each donor is unique, they all share an unmistakable quality: a conviction that they are making a difference. We are thankful for their support and trust.

I hope, as you read through this issue of *Impressions*, you appreciate the breadth and depth of the innovations associated with the education, service and research programs of UBC Faculty of Dentistry. The innovation of our programs, faculty, staff and students

is the foundation for our excellence and global reputation.

Please enjoy this issue of *Impressions*.

Dr. Mary MacDougall  
Dean and Professor, Faculty of Dentistry



# NEWS

## AADSM Recognizes Innovative Obstructive Sleep Apnea Research at UBC



Left photo: Dr. Mona Hamoda (R) with Dr. Olivier Vanderveken, AADSM research committee chair.

Right photo: Dr. Yuuya Kohzuka (R) with Dr. Olivier Vanderveken, AADSM research committee chair.

Dr. Mona Hamoda, a year-three doctoral candidate in Craniofacial Science, is the recipient of two awards from the American Academy of Dental Sleep Medicine (AADSM). She was selected for the Graduate Student Research Excellence Award for most outstanding research project and placed first for a Graduate Student Research Award. The objectives of her work, titled “Long-Term Side Effects of Sleep Apnea Treatment with Oral Appliances,” were to determine the nature of the changes (whether dental and/or skeletal in nature) associated with long-term oral appliance treatment and to evaluate the magnitude and progression of these changes.

Her study represents the longest observational period to date examining oral appliance side effects, with up to 21 years of follow-up for some patients. Employing cephalometric analysis (using radiographs of the facial, dental and skeletal structures to assess relationships), Hamoda was able to characterize the nature, magnitude and progression of the oral appliance side effects—which is an important step toward mitigating these issues.

The AADSM also bestowed a Graduate Student Research Award on Dr. Yuuya Kohzuka, an international student at UBC from Showa University in Japan, for his research titled “Difference in Dental Arch Size Between Japanese and Caucasian Patients With Obstructive Sleep Apnea: An International Comparison Study.” Kohzuka found that Japanese people with obstructive sleep apnea (OSA) have a larger tongue and larger maxillary and mandibular dental arches compared to Caucasian people with OSA, but the degree of oropharyngeal crowding is the same between the two groups. His study is the first of its kind to focus on dental arch difference among races.



## About the Cover

The cover image for this issue of *Impressions* depicts a white-crowned sparrow, *Zonotrichia leucophrys*. The white-crowned sparrow can be found readily in most parts of the province. The photo was taken by Dr. Markus Haapasalo, professor and chair of the Division of Endodontics, in the Department of Oral Biological & Medical Sciences.

## Calling Alumni Photographers: Do You Have a Cover Image?

Since 2008, *Impressions* magazine has featured magnificent images on its covers. Beautiful scenic shots of British Columbia, as well as photos of mammals, birds (a particular favourite among readers) and even fish, all native to this province, have illustrated the magazine cover to support a theme of “BC nature.”

If you are a UBC Dentistry alumnus and a photographer and would like to submit a nature photo to be considered for the cover of *Impressions* magazine, email or Dropbox it to [communications@dentistry.ubc.ca](mailto:communications@dentistry.ubc.ca). All photos should be 300 DPI at the size of 11 by 17 inches. Photos for consideration should support the BC nature theme. If the subject matter is scenic, it must be in British Columbia, or if flora and/or fauna, it must be indigenous to the province.

# Researchers Discover Proteolytic Enzymes in Bacterial Flagella



Enzyme found in a new type of flagella that is capable of digesting proteins in the bacteria's environment, including tissues.

Researchers at the University of British Columbia Faculty of Dentistry and at the University of Waterloo have discovered a new class of enzymes in hundreds of bacterial species, including some that cause disease in humans and animals. The discovery provides new insights into how bacteria invade their hosts. The research appeared recently in the prestigious journal *Nature Communications*.†

Andrew Doxey, a professor of biology at the University of Waterloo, led the collaborative research team together with Christopher M. Overall, Canada Research Chair in Protease Proteomics and Systems Biology and professor in the Department of Oral Biological & Medical Sciences at UBC Dentistry. They found the enzymes in flagella located on the outside of bacteria cells. Flagella are whip-like appendages, and it has long been thought that

bacteria use their flagella mostly just for movement. This newly discovered type of flagella, however, is capable of digesting proteins in the bacteria's environment, including in tissues.

Doxey made the initial discovery through the use of bioinformatics, a growing scientific field that combines biology and computer science to study large biological datasets, such as genomes. "It is an exciting time for bioinformatics right now. We have thousands of genomes available to us and most of them are unexplored. It's amazing that we can discover new biology by using a computer alone," says Doxey.

His lab then teamed up with Overall, who specializes in both these enzymes and in proteomics, which is the study of proteomes. A proteome is the complete sets of proteins expressed by a genome, cell, tissue or organism. Proteomics includes looking at how enzymes break down proteins (proteolysis). (Overall Lab website: [www.clip.ubc.ca](http://www.clip.ubc.ca))

Dr. Ulrich Eckhard, a postdoctoral scientist in the Overall Lab, modelled one of the flagella enzymes in 3D to better understand its properties, and then made the enzyme artificially. Using modern techniques of protein engineering and proteomics—proteomics techniques that were originally developed in the Overall Lab—Eckhard and Dr. Giada Marino, another postdoctoral scientist from the Overall Lab, then identified

thousands of cut sites that these enzymes had made in proteins encountered by bacteria during the infection process.

Bacterial flagella are filaments, each composed of about 20,000 protein units (flagellins) that link together and form structures about 10 micrometres long—roughly one-tenth the width of a human hair. While flagella can differ structurally, most help with propulsion, and in some cases, they can attach bacteria to host cells. The discovery of flagella that function as enzyme scaffolds has revealed that some of them can also break down tough bonds in cells and tissues.

Overall says, "We found that many bacteria have repurposed their flagella to function as protein-degrading machines. There are thousands of these enzymes per individual flagellum, making each potentially the largest enzyme structure known. As they move the bacteria along, the flagella can also dissolve the proteinaceous material nearby. This may speed infection, or sometimes the breakdown products can be 'eaten' to nourish the invading bacteria."

To test the action of these new enzymatic flagella, these scientists examined *Clostridium haemolyticum*, a pathogen that has numerous flagellum on one cell, and that is highly fatal in cows and sheep. They isolated the flagella and found that they are capable of breaking down proteins found in cow liver—precisely where the organism infects the animal.

The researchers also found the enzymes in other bacteria that inhabit the human gut. Further research is needed to determine whether they play a beneficial or a harmful role in humans.

Research to understand the role of flagella enzymes will improve understanding of how bacterial pathogens cause disease. This could lead to, for example, using these enzymes in biotechnology to degrade structures such as biofilms, which are sticky colonies of harmful bacteria associated with more than 80 percent of infections.

†Eckhard U, Bandukwala H, Mansfield MJ, Marino G, Cheng J, Wallace I, Holyoak T, Charles TC, Austin J, Overall CM, Doxey AC. (2017). Discovery of a proteolytic flagellin family in diverse bacterial phyla that assembles enzymatically active flagella. *Nature Communications*, 8(521). doi: 10.1038/s41467-017-00599-0.



## Highlights: Research Day 2018

The 11th annual Research Day, held on January 23, 2018, gathered experts together to address a range of topics—a 360-degree review—on oral health disparities.

Only six percent of Canadians have government-sponsored dental insurance, and one in three Canadians does not have access to dental professionals. Oral health disparities are even more significant among First Nations people, the working poor, those with disabilities, refugees and frail elders. Their dental care needs remain unmet, while they suffer unnecessary pain and discomfort.

The keynote address was delivered by Dr. Paul Allison, professor and dean of the Faculty of Dentistry at McGill University. Allison's research interests include the psychosocial and behavioural aspects of oral health and oral health care. He presented on improving access to oral health care in Canada.

Dr. Bruce Wallace, a UBC Dentistry alumnus of Craniofacial Science and now assistant professor at the School of Social Work at the University of Victoria, was invited to present, along with UBC Dentistry faculty: Dr. Jolanta Aleksejūnienė, associate professor; Dr. Mario Brondani, associate professor and director, Dental Public Health; Dr. Leeann Donnelly, assistant professor; Dr. Kavita Mathu-Muju, assistant professor; and Dr. Shan Sun, clinical assistant professor.

The event took place in the Great Hall of the Alma Mater Society Student Nest and was well attended by faculty, students and staff.

UBC Dentistry is grateful to Silver Sponsors Hu-Friedy, Scotiabank, Sinclair Dental and Sunstar, and to Bronze Sponsor Straumann, for supporting Research Day 2018.

How the best perform

**Hu-Friedy**

**Scotiabank**

**Sinclair**  
Dental / Dentaire

**SUNSTAR**

GUINI BUTLER GUIDOR

## Villa Cathay Dental Clinic Opens

Residents of Villa Cathay Care Home will no longer need to travel off-site for dental treatment. Thanks to over \$100,000 in donations, they now have access to a modern dental clinic on-site.

Moreover, the UBC Geriatric Dentistry Program (GDP) has the operatory it needs for students to provide specialized care to over 150 geriatric residents in the long-term-care facility. UBC students—dental, dental hygiene, and graduate prosthodontics and periodontics—began curricular rotations in the new clinic this past fall.

The UBC Geriatric Dentistry Oral Health Clinic opened on September 25, 2017, on the lower level of the care home. The room previously served as a dental clinic but was decommissioned years ago. While Villa Cathay undertook the renovations to make the space functional, the new equipment—an A-dec 511 dental chair, a delivery unit, dental instruments and a full range of dental supplies—as well as some necessary retrofitting expenses, were provided through support from generous donors. Under the aegis of the UBC GDP, Dr. Ken Chow, a long-time supporter of UBC Dentistry, was instrumental in garnering donor support for the new equipment. Read more about Dr. Chow's connection to the project on page 22.

“Building on the success of the dental clinic at the Simon K.Y. Lee Seniors Care Home, UBC will implement the same proven infrastructure model at Villa Cathay Care Home, providing oral health care to geriatric residents in an environment that feels safe and is familiar to them,” says Dr. Chris Wyatt, professor and director of the Geriatric Dentistry Program.

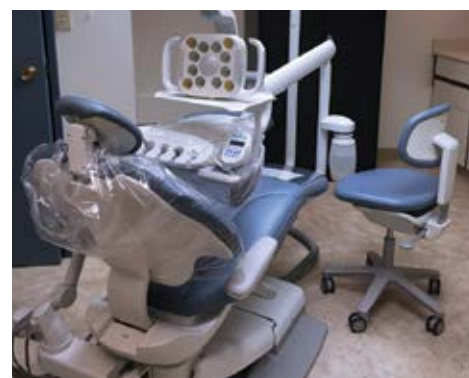
The presence of a dental clinic in a geriatric facility also supports ongoing research in the fields of gerontology and oral health care. The

Geriatric Dentistry Program has earned a reputation for excellence in education, research and provision of specialized geriatric oral health care and is poised to meet the needs of seniors—Canada's fastest growing population. Read more about how UBC's geriatric dentistry education is meeting this need on page 16.

Future expansion of the dental services offered by the GDP at Villa Cathay may include non-curriculum volunteer-based clinic days, as well as serving seniors who live in the neighbourhood. Villa Cathay also plans to bring in more adjunct health services and expand their health care facility, which may entail relocating the dental clinic.



Opening day of the new dental clinic at Villa Cathay Care Home was celebrated by many leaders in the dental community. From left to right: Dr. Jason Choi, president of the Chinese Canadian Dental Society of BC; Ms. Jane Young and Mr. Davood Moradi, president and chief executive officer of David Mitchell Co. Ltd; Mr. Michael Adamson, Ms. Yoyo Koo and Mr. David Ebert from the Timothy C. Kerr Family Foundation; Dr. Ken Chow; and Dr. Anthony Li, on the board of directors, Chinese Canadian Dental Society of BC. Missing: Mr. William P.J. McCarthy, and Mr. Ken and Mrs. Julie Park.



An A-dec 511 dental chair awaits residents of Villa Cathay Care Home.



## Organizations Collaborate to Offer Free Oral Cancer Screening in Surrey

The Pacific Oral Health Centre (POHC) in Surrey hosted a free oral cancer screening camp on September 24, 2017. The Rotary Club of Surrey-Newton organized the event, with help from the BC Oral Cancer Prevention Program (BC OCPP) and POHC. UBC Dentistry faculty, students and alumni were among the more than 50 volunteers, which included dentists and dental hygienists from the local community.

More than 400 people were screened for oral cancer. Six people presented with highly suspicious lesions and were referred to the BC OCPP's Next Gen Oral Prevention and Screening Community Clinic, which has clinic sites at UBC and at POHC. Another 35 people were identified for further assessment and possible follow-up. Those identified for further assessment and biopsies receive these services at no charge.

The screening camp also provided education and counselling on oral health best practices, as well as time for addressing individual concerns and questions.

Providing low-cost care to vulnerable and low-income individuals and families is a mandate of the POHC. Dr. Harinder Dhanju, president of the centre's founding society, stresses the need to bring academic and research specialists to the doorstep of Fraser Valley communities and to the people who most need their expertise.

BC OCPP clinical scientist and UBC alumnus Dr. Ajit Auluck explains the importance of locating the camp in Surrey and serving the community directly: "We collected 40 years of data and information and found that South Asians in BC have the highest risk for oral cancer compared to other ethnic minorities and even the general population. We also did a location-based study that confirmed Surrey had the highest rates for oral cancer, which reinforced the results from the first study."

Dr. Denise Laronde, UBC associate professor and BC OCPP acting director, organized clinical volunteers for the screening camp. They included four of her graduate students, two dental hygiene students, several UBC

alumni dental hygienists, and a graduate from UBC's Oral Medicine and Oral Pathology residency program. Laronde says this camp was an important step toward serving the South Asian community, which faces the province's highest risk for oral cancer. Laronde's research at UBC with the BC OCPP follows people with precancer to determine risk factors of cancer progression.

Rotary Club of Surrey-Newton president Harbhajan Singh Parhar understands that oral cancer is a serious health issue for the South Asian community that does not get enough attention. "We wanted to rectify that and bring this important issue to the forefront," he says, adding: "The club has always tried to address the needs of our local community by bringing together individuals and institutions that can best serve as catalysts for change."



## UBC Health Honours Associate Dean for Outstanding Leadership in Interprofessional Professional Development



Dr. Leandra Best

UBC Health has selected Dr. Leandra Best, Dentistry senior associate dean, as the 2017 winner of the Award for Outstanding Leadership in Advancing Interprofessional Professional Development. This award honours an outstanding individual or health care team that promotes professional development in the areas of collaborative teaching among different health care professionals and/or collaborative patient-centred practice.

In the Faculty of Dentistry, Best oversees the Doctor of Dental Medicine (DMD) curriculum and leads a significant curriculum renewal project. She has initiated and facilitated the

development and scheduling of numerous interprofessional education (IPE) activities by engaging faculty and staff. These IPE learning experiences for students have been designed to meet accreditation and competency requirements and to fulfill the Faculty's and the university's strategic plans.

Best has co-authored numerous cases to engage students' interest in the oral health relevancy of the biomedical, clinical and behavioural sciences. She has served as Dentistry's representative on the UBC Health Curriculum Committee and on the iEthics Curriculum Working Group, which developed an ethics curriculum that serves as a model template for other IPE topics common to UBC's various health sciences programs. She also arranged protected time in the DMD program to incrementally implement IPE sessions in iEthics, eHealth, Indigenous Health Cultural Competency,

and Resiliency. Recently, Best joined the new UBC Health Integrated Professionalism Curriculum Working Group, with the intent to augment interprofessional professionalism content in the UBC Dentistry curriculum and other health disciplines curricula.

Best and colleagues in Dentistry, Pharmaceutical Sciences, Medicine and Physical Therapy collaborated to implement additional IPE learning activities for their respective students, including inquiry-based cases and hands-on neuroscience laboratory activities. Moreover, Best played a key leadership role to successfully integrate dental and dental hygiene students in learning and clinically applying head and neck anatomy, local anaesthesia, patient assessment and periodontal examinations/management, thereby enhancing students' mutual respect for, and understanding of, their professions.

Read more about IPE at UBC Dentistry in the *Impressions* magazine article "Interprofessional Education at UBC—Strengthening Collaboration Among Health and Human Services Professions" at [bit.ly/2E68kHw](http://bit.ly/2E68kHw)



Dr. Rosamund Harrison (C), professor emerita, with Lt.-Gov. Judith Guichon and Premier John Horgan, at the Twenty-Eighth Investiture Ceremony of the Order of British Columbia on December 14, 2017.

## BC's Highest Recognition Conferred on Prof. Emerita

Dr. Rosamund Harrison, professor emerita, was appointed to the Order of British Columbia, the province's highest form of recognition. The investiture ceremony was held at Government House in Victoria on December 14, 2017.

Harrison is a nationally and internationally recognized leader in the field of pediatric dentistry and early childhood oral health promotion. She was honoured for enhancing pediatric dentistry education at UBC and championing policy change to improve oral health of children in low-income, new immigrant and Indigenous communities.

Of the 16 exceptional civic leaders appointed to the Order of British Columbia this year, the Honourable Judith Guichon, lieutenant governor of British Columbia, and chancellor of the Order, said: "For 28 years, the Order of British Columbia has recognized exceptional individuals whose hard work, generosity of spirit and outstanding achievements have contributed immeasurably to the well-being of our communities."

Read a detailed description of Dr. Rosamund Harrison's achievements honoured by the Order of British Columbia at [bit.ly/2Dzt910](http://bit.ly/2Dzt910)

View official photos from the Intergovernmental Relations Secretariat, taken at the investiture ceremony, at [bit.ly/2DwnjOr](http://bit.ly/2DwnjOr)

## UBC Winners of the CADR-NCOHR Student Research Awards 2017 – 2018

Five graduate students from UBC Dentistry were among the 17 winners of the CADR-NCOHR Student Research Awards for 2017–2018.

These awards are sponsored by the Canadian Association for Dental Research (CADR) and by the Network for Canadian Oral Health Research (NCOHR). Awards are presented to winners at the Annual General Meeting of the CADR, which will be held in conjunction with the American Association for Dental Research (AADR) annual meeting in Fort Lauderdale, Florida, in March 2018.

The following students from UBC Dentistry received travel awards to present their research at the March 2018 AADR/CADR meeting:

### Senior—Basic Science Category

Jiarui Bi, PhD candidate (year 3)  
Research title: Suppression of  $\alpha\beta6$  Integrin Expression by Polymicrobial Oral Biofilms  
Supervisor: Dr. Hannu Larjava

Adrian Danescu, PhD/Dip Ortho candidate (year 2)  
Research title: Directed Mesenchymal Cell Movements Contribute to Midfacial Narrowing  
Supervisor: Dr. Joy Richman

David (Xian Jun) Lu, MSc candidate (year 3)  
Research title: Assessing Quality and Quantity of FFPE DNA Samples Using ddPCR  
Supervisor: Dr. Catherine Poh

### Senior—Clinical Science Category

Kelly Liu, PhD candidate (year 2)  
Research title: Deregulated Immune-Related

Gene Expression Indicates Nodal Metastasis in Oral Cancer

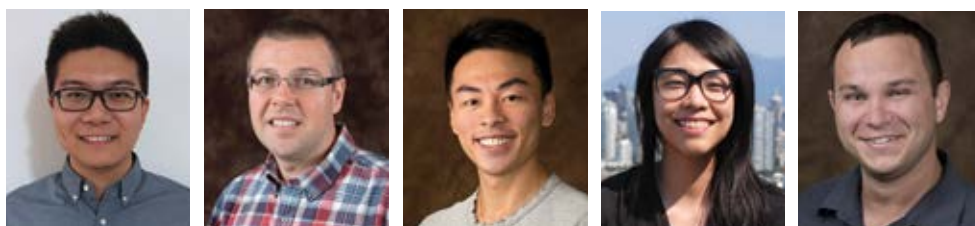
Supervisor: Dr. Catherine Poh

Iben Lucsanzky, MSc/Dip Pros candidate (year 2)

Research title: Fracture Toughness, Flexural Strength and Modulus of CAD/CAM Blocks  
Supervisor: Dr. N. Dorin Ruse

Previous UBC Dentistry students who have won an award in CADR/NCOHR student research competitions in either junior, senior basic science or senior clinical categories since 2007 are:

- Muizz Wahid, DMD candidate (Nancy Ford supervisor), 2016
- Hai-Sle Moon, MSc candidate (Don Brunette supervisor), 2015
- Sara Hosseini-Farahabadi, PhD 2014 (Joy Richman supervisor), 2013
- Leila Mohazab, DMD 2014 (Hannu Larjava supervisor), 2011
- Darlene Tam, BDS 2008, MSc 2014 (Catherine Poh supervisor), 2010
- Angela Wong, MSc/Dip Pros 2013 (Chris Wyatt supervisor), 2010
- Heather Szabo-Rogers, PhD 2007 (Joy Richman supervisor), 2008
- Maryam Sharifzadeh-Amin, MSc 2002, PhD 2007 (Rosamund Harrison supervisor), 2007
- Mario Brondani, PhD 2008, MPH 2012 (Michael MacEntee supervisor), 2007



From left to right: Dr. Jiarui Bi, Dr. Adrian Danescu, David (Xian Jun) Lu, Kelly Liu and Dr. Iben Lucsanzky.



# UBC Dentistry Proteomics Expert Receives International Recognition



Dr. Christopher Overall (2nd L) stands next to Dr. Juan J. Calvete (2nd R) from the Instituto de Biomedicina de Valencia—CSIC (Spanish National Research Council); they are flanked by Drs. José Luis Capelo Martínez (L) and Carlos Lodeiro Espiño (R), both from the New University of Lisbon.



Dr. Christopher Overall (R), with HUPRO president Dr. Michael Snyder from Stanford University, receives the Discovery in Proteomic Sciences Award at the 16th HUPRO World Congress.

Dr. Christopher Overall, professor and Canada Research Chair in Protease Proteomics and Systems Biology, was twice honoured by international research communities in 2017. Overall has UBC appointments in the Faculty of Dentistry Department of Oral Biological & Medical Sciences, and in the Department of Biochemistry and Molecular Biology and the Centre for Blood Research, both in the Faculty of Medicine.

## Proteomass Scientific Society Award

Overall received a Proteomass Scientific Society Award during the 5th International Congress on Analytical Proteomics, which took place in Costa de Caparica, Portugal, from July 3 to 6, 2017. He was also a plenary speaker, presenting the talk titled “Quantitative Proteomics and Systems Biology Analysis of Proteolytic Networks In Vivo. Deciphering Human Disease Mechanisms.”

A statement from the society cites Overall’s “outstanding contribution in pioneering the understanding of the processes that explain the architecture of living organisms.”

An international leader in proteomics, Overall is recognized for his seminal contributions to the field of degradomics (the term he coined for the systems-level investigation of protein turnover by proteolysis) and in developing polymers for proteomics. His focus has been on understanding the role of key proteases, including matrix metalloproteinases, cathepsins and immune cell proteases in various diseases and pathologies, particularly in infection, inflammation and cancer.

The Proteomass Scientific Society, administrated by the Bioscope Group at the New University of Lisbon in Portugal, is a research collaboration whose article contributions are accrued to participating partner institutions (35) across Europe, North and South America, and Australia.

## HUPRO Discovery in Proteomic Sciences Award

The Human Proteome Organization (HUPRO) presented the Discovery in Proteomic Sciences Award to Dr. Christopher Overall

at the 16th HUPRO World Congress, held in Dublin, Ireland, from September 17 to 21, 2017. HUPRO is an international scientific organization that represents and promotes proteomics, the large-scale study of proteins, particularly their structures and functions.

Overall gave his award lecture, titled “Protein TAILS Tell Remarkable Tales,” at the general assembly of the meeting to 1,321 delegates from over 30 countries.

“Proteomics is the ‘human genome project of proteins,’” Overall says. “Proteins are what make all cells, tissues and organisms grow, have shape, form and function. The human proteome is the product of the human genome that gives us life and makes us human. By understanding and identifying all proteins expressed in humans, much will be learned of how we grow, develop, maintain life and respond to disease and illness throughout our lives.”

Overall, with his team of researchers at UBC, has pioneered a suite of proteomic techniques known as degradomics and terminomics. Using terminomics has opened new doors toward understanding many diseases and the body’s responses in fighting illness.

“Having learned about the ends of proteins, known as termini, we now know that the function of many key proteins in the immune system and in growth factors is to switch between ‘on’ and ‘off’ states,” Overall says. The switching features of a protein make for accurate biomarkers of disease, which aids in diagnosis and monitoring treatment.

Recently, the Overall Lab has applied terminomics to human dental pulp in the centre of teeth (the “nerve” of teeth) and to dentin-producing odontoblast cells on the periphery of pulp. This research is currently at press in the *Journal of Dental Research*. Other forthcoming research includes new insights into the processes underlying chronic inflammatory diseases, including periodontitis, rheumatoid diseases and lupus, as well as rare immunodeficiency disorders.

## Stay Connected to UBC Dentistry

Visit [www.dentistry.ubc.ca/news](http://www.dentistry.ubc.ca/news)

Follow news on Twitter @ubcdentistry (<http://twitter.com/ubcdentistry>)

Read or download past issues of *Impressions* at [www.dentistry.ubc.ca/impressions](http://www.dentistry.ubc.ca/impressions)



## Faculty of Dentistry External Awards and Recognition in 2016 – 2017

RECIPIENT	AWARD/RECOGNITION
Dr. Leandra Best, Clinical Professor, Senior Associate Dean	Award for Outstanding Leadership in Advancing Interprofessional Professional Development, UBC Health
Dr. Greg Chang (DMD 1986), SuperChef Cookery for Kids; Dr. Leeann Donnelly, Assistant Professor, UBC Faculty of Dentistry; Dr. Gail Hammond, Instructor, Faculty of Land and Food Systems	Practice Education Team Award (2016), UBC Health
Dr. Georgios (George) Giannelis, Assistant Professor; Director, Graduate Periodontics Program	Award for Outstanding Teaching and Mentoring in Periodontics, American Academy of Periodontology
Dr. Rosamund Harrison OBC, Professor Emerita	Order of British Columbia, Lieutenant Governor of British Columbia
Zul Kanji, Director, Dental Hygiene Degree Program; Jessica Morris, BDSc 2016	CJDH Research Award for best literature review, Canadian Dental Hygienists Association
Dr. Christopher Overall, Professor; Canada Research Chair in Protease Proteomics and Systems Biology	Discovery in Proteomic Sciences Award, Human Proteome Organization Proteomass Scientific Society Award, Proteomass Scientific Society
Dr. Charles Shuler, Professor; former Dean, Faculty of Dentistry	Award of recognition, Indo-Canadian Dental Association
Dr. Walaah Ahmed, PhD/Dip Pros candidate	Research Fellowship Grant (2016), American College of Prosthodontists
Dr. Jiarui Bi, PhD candidate	Travel Award, Senior—Basic Science Category, 2017-2018 Student Research Award for “Suppression of $\alpha v \beta 6$ Integrin Expression by Polymicrobial Oral Biofilms” (Bi J; Hannu Larjava supervisor), Canadian Association for Dental Research and the Network for Canadian Oral Health Research
Dr. Adrian Danescu, PhD/Dip Ortho candidate	Travel Award, Senior—Basic Science Category, 2017-2018 Student Research Award for “Directed Mesenchymal Cell Movements Contribute to Midfacial Narrowing” (Danescu A; Joy Richman supervisor), Canadian Association for Dental Research and the Network for Canadian Oral Health Research
Dr. Mona Hamoda, PhD candidate	Graduate Student Research Excellence Award, and First Place, Graduate Student Research Award, for “Long-Term Side Effects of Sleep Apnea Treatment With Oral Appliances” (Hamoda MM, Almeida FR, Pliska BT), American Academy of Dental Sleep Medicine
Kelly Liu, PhD candidate	Travel Award, Senior—Clinical Science Category, 2017-2018 Student Research Award for “Deregulated Immune-Related Gene Expression Indicates Nodal Metastasis in Oral Cancer” (Liu K; Catherine Poh supervisor), Canadian Association for Dental Research and the Network for Canadian Oral Health Research
Leigha Rock, PhD candidate	Frederick Banting and Charles Best Canada Graduate Scholarships Doctoral Award, Canadian Institutes of Health Research
Dr. Peter Walker, MSc/Dip Pros 2017	First Place, Postdoctoral (Resident) Competition (2016) for “CAD-on’ Crowns—A Fracture Mechanics Characterization” (Walker P; N. Dorin Ruse supervisor), American College of Prosthodontists
Dr. Rashi Chaturvedi, MSc/Dip Perio candidate	Ranked in the top four percent of all graduate periodontics residents in North America, In-Service Examination, American Academy of Periodontology
David (Xian Jun) Lu, MSc candidate	Travel Award, Senior—Basic Science Category, 2017-2018 Student Research Award for “Assessing Quality and Quantity of FFPE DNA Samples Using ddPCR” (Lu D; Catherine Poh supervisor), Canadian Association for Dental Research and the Network for Canadian Oral Health Research
Dr. Iben Lucsanzsky, MSc/Dip Pros candidate	Travel Award, Senior—Clinical Science Category, 2017-2018 Student Research Award for “Fracture Toughness, Flexural Strength and Modulus of CAD/CAM Blocks” (Lucsanzsky I; N. Dorin Ruse supervisor), Canadian Association for Dental Research and the Network for Canadian Oral Health Research
Dr. Charis Luk, MSc/Dip Pedo candidate	Sunstar/AAPD Postgraduate Research Fellowship, American Academy of Pediatric Dentistry
Dr. Vincent Senini, MSc/Dip Perio candidate	First Place poster award, Clinical Category, for “Photodynamic Therapy in the Treatment of Periodontal and Peri-Implant Disease” (Senini V, Hatzimanolakis P, Putnins E), American Academy of Esthetic Dentistry Nobel Biocare Student Member Annual Meeting Scholarship, American Academy of Periodontology
Dr. Zhejun Wang, MSc/Dip Endo candidate	First-ever recipient, STAR Network Academy Fellowship, International Association for Dental Research
Dr. Yuuya Kohzuka, international student, Showa University, Japan	Graduate Student Research Award for “Difference in Dental Arch Size Between Japanese and Caucasian Patients With Obstructive Sleep Apnea: An International Comparison Study” (Kohzuka Y, Taga H, Almeida F, Tsuike S), American Academy of Dental Sleep Medicine
Iris Feng, then BDS candidate, now MSc candidate	ImpactBC Scholarship in Health Care Research and Development (2016), UBC Health
Nathan Lee, DMD 2017	First-place, Student Clinician Research Program, for “Effectiveness of Cryotherapy for Oral Precancers—A Pilot Study,” Canadian Dental Association/Dentsply Sirona
Emily Thong, DMD 2017	Professor Jessie Gordon MacCarthy Memorial Scholarship (2016), UBC Health
Allison Clark, DMD 2019 candidate	Dr. Bud Sipko Family Fund Scholarship, Richmond Community Foundation
Brett Livingstone, DMD 2019 candidate	Dr. Bud Sipko Family Fund Scholarship, Richmond Community Foundation
John Sharp, DMD 2019 candidate; UBC Thunderbirds Men’s Field Hockey Team	Academic All-Canadian (2016), UBC President and Vice-Chancellor Santa Ono
UBC Interprofessional Continuing Education team members: Kathryn Booth, Program Assistant; Katia Despot, Senior Education Manager; Kristina Hiemstra, Director; Cynthia Minh, Program Assistant; Jo Nam, Senior Education Manager; Cris Ohno, Financial Processing Specialist; Taylor Peterson, Marketing Coordinator; and Samantha Wong, Registration Clerk	Award for Outstanding Leadership in Advancing Interprofessional Professional Development (2016), UBC Health



Allison Clark and Brett Livingstone, both third-year DMD students, each received a Dr. Bud Sipko Family Fund Scholarship, administered by the Richmond Community Foundation. This recognizes their dedication to the community through involvement in a variety of work and volunteer experiences in Richmond, BC, as well as commitment to their studies.

Keep up-to-date on all awards and achievements—including the annual Dean’s Night, graduation and teaching awards—at [dentistry.ubc.ca/awards](http://dentistry.ubc.ca/awards)

## Graduate Periodontics Student Wins AAED Poster Competition and Receives AAP Nobel Biocare Scholarship



Dr. Vincent Senini

Dr. Vincent Senini won first place in the clinical category for his poster presentation at the 2017 Interdisciplinary Summit of the American Academy of Esthetic Dentistry (AAED). The summit took place in San Diego, California, from August 3 to 5, 2017.

Senini's research poster is titled "Photodynamic Therapy in the Treatment of Periodontal and Peri-Implant Disease." Photodynamic therapy (PDT) is an adjunctive treatment in which bactericidal agents are produced in the treatment area through light application. The aims of the project were to review existing literature to determine the degree to which adjunctive PDT benefits periodontal debridement, and to provide clinical recommendations for using this therapy.

Co-investigators on the project include professor Dr. Edward Putnins and clinical associate professor Penny Hatzimanolakis, both in the Department of Oral Biological & Medical Sciences.

Senini was also selected by the American Academy of Periodontology (AAP) for a 2017 Nobel Biocare Annual Meeting Scholarship. It was awarded for his involvement in periodontal research.

## Online Stories Worth Clicking

### Dental Student Placements—Gaining Valuable Professional Experience

The Canadian Dental Association's Oasis Discussions interviews Kerri-Lyn Chong, a fourth-year dental student, about her Summer Student Practitioner Program placement and her international exchange program placement in Japan.

Watch the video at [bit.ly/2r2eGoW](http://bit.ly/2r2eGoW) (where there is also a print story) to learn about Kerri-Lyn's experiences and her thoughts about being involved in dental student organizations and volunteering in community care clinics.



### Dental Therapists—An Approach to Facilitating Access to Oral Health Care

The Canadian Dental Association's Oasis Discussions interviews Dr. Kavita Mathu-Muju, a pediatric dentist and assistant professor in the Department of Oral Health Sciences at UBC, about three articles she co-authored. The articles cover: a global literature review of the use of dental therapists as members of the dental team; a retrospective case study of a Saskatchewan program that used dental therapists in school-based programs to facilitate oral care for children; and a critique of the American experience with dental therapists.

Watch the video at [bit.ly/2Dpqvlz](http://bit.ly/2Dpqvlz) (where there is also a print story) to learn about Dr. Mathu-Muju's perspectives on dental therapists.



### Outstanding British Columbians: Dr. Rosamund Harrison Appointed to the Order of British Columbia

The Canadian Dental Association's Oasis Discussions interviews Dr. Rosamund Harrison, pediatric dentist and professor emerita, about receiving the Order of British Columbia and about working to improve children's oral health, doing community-based research and mentoring students.

Watch the video at [bit.ly/2BkMjIQ](http://bit.ly/2BkMjIQ)





## Assignments: Full-Time Faculty

*Since last summer, there have been several changes in administrative roles at the Faculty of Dentistry. A new senior associate dean has been appointed, and two interim positions related to DMD Admissions and to Student Services were filled after Dr. David Sweet OC stepped down as director of Students. A new associate dean for Admissions and Student Affairs will be appointed once a search has been conducted. Also, Dr. Edward Putnins has announced he will be stepping down as director of Research, Graduate & Postgraduate Studies.*



W. Leandra Best, DMD

W. Leandra Best was appointed senior associate dean for the Faculty of Dentistry, effective July 1, 2017.

Since joining the Faculty in 1999, Best has taught extensively in all four years of the DMD program, worked closely with the Faculty of Medicine as year one and two DMD coordinator, co-authored numerous problem-based learning (PBL) cases and facilitated many faculty development workshops. She has received numerous dental education research-related grants and has presented posters and workshops at national and international conferences.

Best has received a number of awards: Dentistry Teaching Award (2004), Killam University Excellence in Teaching Award (2006), 3M ESPE ACFD National Teaching Award (2007) and Award for Outstanding Leadership in Advancing Interprofessional Professional Development (2017).

She oversees the DMD curriculum, its extensive

renewal project and students' academic progress. She is faculty liaison for the American Dental Education Association Commission on Change and Innovation in Dental Education, a UBC representative with the Association of Canadian Faculties of Dentistry's Academic Affairs Committee, and a chair or member on numerous UBC and Dentistry committees. And, Best was elected an American College of Dentists Fellow (2013) and an International College of Dentists Fellow (2014).

As senior associate dean, Best will be working on strategic planning and special projects within the Faculty of Dentistry.



Ingrid Emanuels, BSc, DMD

Ingrid Emanuels has been serving as interim acting director of Student Services. Emanuels began her career at the Faculty of Dentistry in 2005. She is a clinical associate professor, the DENT 410 Restorative Dentistry I module coordinator, and coordinator of the Student Mentor Team.



Karen Gardner, DMD, MEd, FCP

Karen Gardner has been serving as interim acting chair of DMD Admissions. She started teaching in the Faculty of Dentistry in 1998. Gardner is a clinical professor and DENT 430 Integrated General Practice III module coordinator.



Edward Putnins, DMD, MRCD(C), MSc, PhD, Dip Perio

Edward Putnins will be stepping down as director of Research, Graduate & Postgraduate Studies on April 1, 2018. He will take an administrative leave for 12 months and return as a faculty member.



David Sweet OC, DMD, PhD, DABFO

David Sweet OC stepped down as director of Students on June 30, 2017. He is currently on an administrative leave for 12 months and will return as a faculty member.

## Promotions: Full-Time Faculty



Nancy L. Ford, BSc, PhD

Nancy L. Ford has been promoted to the rank of associate professor with tenure in the Department of Oral Biological & Medical Sciences.



Lari Häkkinen, DDS, PhD

Lari Häkkinen has been promoted to the rank of professor with tenure in the Department of Oral Biological & Medical Sciences.



David MacDonald, BDS, BSc(Hons), LLB(Hons), MSc, DDS(Edin), FDSRCPS(Glasg), DDRRCR(UK), FRCD(C)

David MacDonald has been promoted to the rank of professor with tenure, retroactively effective July 1, 2013, in the Department of Oral Biological & Medical Sciences.

## Significant Grant From the Vancouver Foundation to UBC Dentistry Principal Investigator



Dr. Leeann Donnelly

The Elizabeth Fry Society of Greater Vancouver (EFry), UBC's School of Population and Public Health (SPPH) and the Faculty of Dentistry share a deep commitment to reducing health inequities for women, girls and children who are at risk and involved in or affected by the justice system. For these individuals, there is a clear gradient in health, which closely relates health status to social and economic factors such as early childhood experiences, access to education and income. There is also compelling evidence that early mother-infant bonding supports positive future outcomes for the child.

Dr. Leeann Donnelly, assistant professor in the Department of Oral Biological & Medical Sciences, together with co-investigators at EFry

and the SPPH garnered close to \$250 thousand in a Vancouver Foundation Field of Interest Test Grant. This grant will fund enhancement of the Growing Great Kids (GGK) Out of Homelessness program at EFry: past participants in GGK will be trained and employed as peer support staff, to work alongside trained GGK facilitators. This initiative will support women and children to restore their health and well-being while sharing their invaluable lived experience and insights toward developing innovative approaches that have the potential to shift the paradigm of mother-child separation within correctional settings and beyond.

Donnelly explains that this project will provide a better understanding of how the health and oral health of these women and children are impacted, so that future strategies can be meaningfully developed and incorporated into the initiative.

Two project objectives are of significant interest to Donnelly. One is to identify systemic barriers that continue to leave women at the margins of society. The other is to assess how the opportunity to interact with peers effects a variety of social and well-being outcomes, including social isolation, connection in community, sense of self-agency and ability to attach to children.

Donnelly is an expert in the development and evaluation of community-engaged programs that are designed to further understanding and improvement of the oral health—and overall systemic health—of special-care populations.

## CIHR Funds Periodic Researchers to Advance Scarless Wound Healing

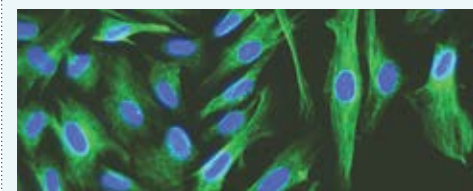
The Canadian Institutes of Health Research (CIHR) has awarded Drs. Lari Häkkinen and Hannu Larjava, both professors in the Department of Oral Biology & Medical Sciences, funding of just over \$852,000 over five years. Häkkinen and Larjava will investigate oral mucosa as a source of cells with regenerative potential in skin.

The investigators explain that scar formation following injury to skin is a common, unwanted outcome of the wound healing process. Clinically, scars can range from fine lines to expansive, disfiguring hypertrophic or keloid scars. Regardless of the type of scar, they can have considerable psychosocial impact and/or lead to physical complications for the individual involved. At least 45 million patients in the United States alone undergo procedures that could benefit from therapies that reduce scar formation.

Häkkinen notes that steady progress has been made during the past decades to identify factors that may reduce scar formation. "In spite of these advances," he says, "no effective therapy to predictably prevent scar formation exists today." He also points out that "studies from several laboratories have indicated significantly faster wound healing in oral mucosa than in skin."

"Our findings at UBC," explains Larjava, "have provided the first systematic evidence that oral mucosal wound healing also results in significantly reduced scar formation as compared to skin wounds. Importantly, connective tissue cells, called fibroblasts, in skin and in oral mucosa have different properties that may contribute to the different wound-healing outcomes."

In the proposed preclinical study, Häkkinen and Larjava will develop novel bioengineered skin substitutes carrying oral mucosal fibroblasts to test whether the fibroblasts can be used to promote wound healing and prevent scar formation in skin. "This study will pave the way for the development of novel clinical applications using oral mucosal fibroblasts to promote fast and scarless wound healing in skin," Häkkinen says.



Oral mucosal gingival fibroblasts may have potential to promote skin wound healing.

## Best Published Dental Hygiene Literature Review Goes to Student and Prof.



From left to right: Sophia Baltzis (CDHA president), Jessica Morris, Dr. Salme Lavigne (CJDH scientific editor) and Zul Kanji.

Jessica Morris, BDSc 2016, and Prof. Zul Kanji, director of the UBC Dentistry Dental Hygiene Degree Program, won the 2017 Canadian Journal of Dental Hygiene (CJDH) Research Award for best literature review published in the *Canadian Journal of Dental Hygiene*. The article is titled "Exploring How the Quality of the Client-Dental Hygienist Relationship Affects Client Compliance."<sup>†</sup>

Morris was a degree-completion student at the time she and Kanji co-authored the paper. She contributed to the paper as part of her degree requirement within Kanji's fourth-year academic writing course, DHYG 462 Literature Review II.

The award was given on October 21, 2017, at the Canadian Dental Hygienists Association (CDHA) Global Dental Hygiene Conference in Ottawa, Ontario.

<sup>†</sup>Morris JE, Kanji Z. (2016). Exploring how the quality of the client-dental hygienist relationship affects client compliance. *Canadian Journal of Dental Hygiene*, 50(1): 15-22.

## Researchers at UBC Dentistry Received \$2.7M in CIHR Funding as Part of \$43M to the University

*On January 24, 2018, a total of \$372 million was awarded by the Canadian Institutes of Health Research (CIHR) nationally to support Canadian researchers to study the full spectrum of health issues affecting the lives of Canadians. Fifty-nine projects at UBC and its affiliated health authority research centres received \$42.4 million in research grant funding, of which close to \$2.7 million will go to several researchers at the Faculty of Dentistry. Another Faculty researcher will benefit from a \$495,000 grant to a multi-centre project led by McGill University.*

Dr. Dieter Brömme



Dr. Dieter Brömme, professor and Canada Research Chair in Proteases and Diseases, and his team will receive \$956,250 over five years to develop new drug strategies for preventing osteoporotic fractures. Current osteoporosis treatments have various shortcomings such as poor bone quality and several skeletal and non-skeletal side effects. His team will build on previous research to examine the shortcomings of promising inhibitors targeted at cathepsin K—a bone-degrading yet multifunctional enzyme that when totally blocked leads to undesirable side effects. They aim to develop potent, efficacious and side-effect-free osteoporosis drugs.

Dr. Hugh Kim



Dr. Hugh Kim, assistant professor and principal investigator at the UBC Centre for Blood Research, received \$856,800 over five years to advance understanding of the role of platelets in inflammation, with a view to developing improved and less-invasive treatments for periodontal (gum) disease. His study will investigate platelet-specific molecules (cytokines) and determine whether shutting down the function of these molecules might help to prevent tissue damage caused by gum disease. This is a unique approach to studying this very common condition and will potentially benefit dental patients in Canada and worldwide.

Dr. Hannu Larjava



Dr. Lari Häkkinen



Dr. Mario Brondani



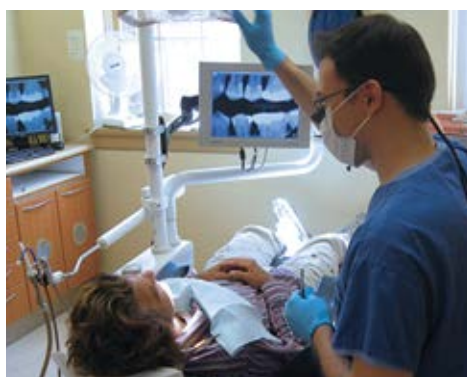
Drs. Hannu Larjava and Lari Häkkinen, both professors and periodontal disease researchers, received \$879,750 over five years to study the function of epithelial alpha-v-beta-6 integrin in periodontal disease. Humans with this protein mutated and mice that are deficient in this molecule both develop periodontal disease. This integrin functions in the epithelial cells to reduce inflammation. However, there is a loss of this integrin in

periodontal disease tissue, which is believed to promote inflammation and bone loss; thus, periodontal disease presents as acquired integrin deficiency. The investigators propose to determine the mechanisms through which the expression of this integrin is down-regulated in periodontal disease tissue. Furthermore, they hope to develop new therapies to restore this integrin in diseased tissue, thus reducing inflammation and bone loss. Preliminary data obtained in the lab of these investigators have already shown that blocking one pathway that down-regulates alpha-v-beta-6 integrin expression leads to significant reduction of periodontal inflammation and bone loss in an experimental model.

Dr. Mario Brondani, associate professor and director of Dental Public Health, is part of a multi-centre project involving five Canadian universities to examine access to oral health care for those who are marginalized or have difficulties in accessing dental offices freely, specifically those who use wheelchairs. The project, led by Dr. Christophe Bedos from McGill University, received \$495,000 over five years. Brondani will be part of a national research strategy focused on a few dental clinics previously identified across Canada as having a champion dental team with special interests and skills to meet the specific needs of people in wheelchairs. For the 4.4 million Canadians with disabilities, dental health is presently an almost unsolvable problem: although vulnerable to dental disease, these individuals often encounter insurmountable obstacles to receiving dental care. The project will involve participation with dentists, dental hygienists, dental assistants and patients.



# Preventable Dental Problems Land Many People in Emergency Rooms



More than 12,300 visits to BC emergency rooms (ER) every year for non-traumatic dental problems could be prevented if people had better access to dental care, according to new UBC research.

Dr. Mario Brondani, director of the dental public health program in the Faculty of Dentistry and the Faculty of Medicine's School of Population and Public Health, and Dr. Leeann Donnelly, assistant professor in the Faculty of Dentistry, recently examined the barriers British Columbians face in accessing dental care.

In a study<sup>†</sup> published in fall 2017 in the *Canadian Journal of Public Health*, Brondani examined the cost of ER visits for preventable dental problems like tooth decay.

Additionally, for a study<sup>††</sup> published in May 2017 in *PLOS ONE*, Brondani and Donnelly conducted interviews with 25 people with mental illness and addiction issues who reported feeling stigmatized when trying to access dental services.

Soon after the fall publication, *UBC News* asked the investigators about their studies. Read below for their responses.

## What barriers do people face in accessing dental care in BC?

MB: The main barrier is affordability as almost one third of Canadians do not have dental insurance.

LD: We found that those who are marginalized due to their mental health status and substance use face additional barriers related to how they are treated at the dentist office. Feeling stigmatized in this setting, as well as in other health care settings, was a strong deterrent to seeking care, even when finances were not an issue.

## Why are people ending up in ER for tooth problems?

LD: If people don't get access to preventive or timely dental care for problems like gum disease and tooth decay, it often results in minor and treatable dental issues becoming a much larger problem. These problems are often accompanied by excruciating pain and lead people to seek care in an ER.

MB: Once people go into the ER, they are often treated for pain and infection; that is, they are prescribed painkillers and antibiotics. And they are told to go see a dentist, as hospitals do not have the expertise or proper equipment. Although these visits are infrequent and covered by the medical care system, they don't address the issue that caused the problem in the first place: common toothaches and abscesses caused by dental cavities. The ER visits do little to stop the problem; they just put a Band-Aid on it.

## What is the cost of emergency dental care and how could we better address this problem?

MB: ERs are an important part of the health care system, but they should not be a place

for dental care. In our study, we found that people were visiting the ER with dental problems throughout the day, not just at night or on weekends when dental offices may be closed. This indicates that people may be relying on ERs for the consequences of preventable diseases, and these visits cost unnecessary health care dollars. We found that ER visits for preventable dental conditions cost BC about \$1.5 to \$3 million annually. The operational costs of maintaining an ER do not justify their use for non-traumatic dental problems. Going to a dentist should not hinge upon your ability to afford the care. The mouth is part of the body, and oral health should be part of our overall health care.

LD: Approaching the problem through a health equity lens might be a place to start. Patients need to feel welcome; they should not feel shunned or stigmatized for their current situation, because this might compel them to avoid care and ultimately end up with an emergency.

We have been running a project between UBC Dental Hygiene and a community-based mental health organization in Burnaby for seven years. A mobile dentistry clinic is set up weekly, all year long, so that residents can get free preventive care from fourth-year hygiene students and referrals for needed dental treatment. Due to their mental health conditions, this population tends to be suspicious, anxious and apathetic toward dental professionals. We've found that with this program patients are more willing to access dental care, and some patients are now seeking care from the students and from dentists in private practice. Much of this has to do with being 'comfortable' with dental professionals.

<sup>†</sup>Brondani MA, Ahmad SH. (2017). The 1% of emergency room visits for non-traumatic dental conditions in British Columbia: Misconceptions about the numbers. *Canadian Journal of Public Health*, 108(3). doi. 10.17269/cjph.108.5915.

<sup>††</sup>Brondani MA, Alan R, Donnelly L. (2017). Stigma of addiction and mental illness in healthcare: The case of patients' experiences in dental settings. *PLOS ONE*. doi. 10.1371/journal.pone.0177388.

# *The Booming ‘Grey Wave’—* UBC DENTISTRY AT THE EDUCATIONAL FOREFRONT OF GERIATRIC ORAL CARE

BY HEATHER CONN

Mention “geriatric dental care” and negative stereotypes can abound: feeble seniors in wheelchairs, with full dentures, wasting away in an institution with no dental care. But in today’s world where “80 is the new 60,” baby boomers are living longer and better, thanks to advanced care and improved oral health. They are aging with at least 70 percent of their natural teeth—and they need knowledgeable dental professionals who will treat their probable complex dental needs over the long haul.

For the first time, our country has more seniors than people under the age of 15, according to a 2016 Statistics Canada census. As part of this tidal “grey wave,” the nation’s fastest-growing group is people 100 years or older. The mean age of seniors in a Providence Health Care facility in BC is 83 to 86, says Chris Wyatt, UBC Dentistry professor and prosthodontics program director.

UBC’s Geriatric Dentistry Program (GDP) provides dental services for more than 2,700 geriatric residents in 27 long-term-care

facilities on the Lower Mainland. Consider how this aging population and its oral care needs have increased in just one decade, from 2002 to 2012:

- the number of long-term-care residents accessing dental care almost tripled, from 894 to 2,668
- dental exams increased by half, from 996 to 1,504
- five times as many treatments were provided, from 201 to 1,073

In response to these changes, UBC Dentistry recently restructured and enhanced its dental geriatric content. Thanks to a new dedicated curriculum and recent research at UBC on geriatric care (see sidebar on page 19), the Faculty of Dentistry stands at the educational forefront of Canada’s response to the dental needs of a frail, elderly population.

In September 2017, the Faculty introduced the first of two new curriculum modules that focus solely on an elderly patient group; this is

part of a two-year rollout. The new Dentistry 430 Dental Geriatrics I for third-year undergraduates began in September 2017. A new fourth-year companion course, Dentistry 440 Dental Geriatrics II, will follow in the fall of 2018.

Also for the first time, UBC Dentistry has integrated geriatrics curriculum into its graduate students’ periodontics and prosthodontics clinical courses; this, too, started in September 2017. For graduate periodontics students, geriatric clinical and didactic courses began in 2011. But now, knowledge gained from research and from GDP clinical work has been integrated more deeply into the curriculum of both specialty areas, says Wyatt.

Current and future dentistry and dental hygiene students will now have thorough, concentrated training in care for vulnerable seniors. Shunhau To, program manager of UBC’s geriatric clinic, says: “We have graduates who are interested in geriatrics and want to serve that population. That didn’t happen before.”



For decades, UBC Dentistry covered geriatric dental care only in bits and pieces as a small component of different courses. No dedicated training or clinical and didactic content addressed this patient group until 2010. Now the new Dentistry 430 Geriatrics I module teaches third-year students a team-based, compassionate approach to patient-centred elder care, says To.

Both UBC dentistry and dental hygiene students are learning to spend time with elderly patients, to build caring relationships with them, and to view them as more than just an oral health challenge. Students are learning to feel at ease with frail seniors' complex dental and medical conditions, including missing teeth, limited mobility, anxiety, dementia and Parkinson's disease.

In 2015, UBC Dentistry served 40 patients over age 100; their five most frequent medical conditions were hypertension, dementia, osteoarthritis, osteoporosis and fractures. Each of these patients has at least two medical

conditions and is taking at least three or four prescribed medications.

*"The more we expose students to clinical experiences, the greater their awareness and comfort level in providing care for seniors," says Leandra Best, clinical professor and senior associate dean.*

Students learn to understand and deliver collaborative interprofessional oral care to geriatric patients in both long-term-care settings and private practice. In third year, they observe how a dentist works with family members to decide on treatment. By fourth year, they understand how treatment can become a team effort involving a dentist, dental hygienist, nutritionist and nurse or doctor working together with the family.

Fourth-year students perform hands-on geriatric patient care in community settings, supervised by UBC faculty and other dentists. "We're making a difference by training

students and exposing them to years of commitment to community service and outreach," says To.

As a key part of community outreach, both dentistry and dental hygiene students are doing rotations at free clinics in two Vancouver seniors' facilities: Villa Cathay Care Home and Simon K.Y. Lee Seniors Care Home. The students also rotate once a week to observe and assist with patient care at UBC's Nobel Biocare Oral Health Centre.

The dental team overseeing these new undergraduates in clinical rotations has reported, according to To: "Students are much more respectful [to patients] than they've ever been. They're aware of the issues and can see and appreciate the differences and the challenges [in geriatric care]."

Assistant professor Leeann Donnelly says: "They [students] might go in thinking that someone with a mental illness is crazy and come out wanting to advocate for that individual."

From left to right: Dr. Chris Wyatt, Shunhau To, Dr. Leeann Donnelly, Dr. Leandra Best and Dr. Mario Brondani.



Fourth-year dental hygiene students do clinical work and preventive oral health care education for the elderly in the long-term-care home Broadway Lodge. Dental hygienists at UBC Dentistry have long had a strong focus on geriatric patients, having had geriatric course and clinical care requirements since 2001, says Donnelly.

The aim of the new Geriatrics I is to give dentistry students a clinical, social and psychological view on aging. They learn in small groups, blending both didactic and in-class activities with workshops and guest lectures. “We’re quite excited about this geriatric dentistry content being restructured and enhanced and giving it an actual focused presence in the curriculum,” says Best. “We have passionate faculty members who are promoting it.”

The modules are designed around five core competency areas: patient-centred care (holistic understanding of the patient, and appropriate assessment, diagnostic and

treatment-planning skills); professionalism (best practices, high ethical standards and a personal commitment to health and well-being); communication and collaboration (e.g., establishing a therapeutic relationship with patients and their families); practice and information management (e.g., evidence-based decision-making); and health promotion (addressing social factors that affect the patient’s health).

*“This focused curriculum is important for us,” says Wyatt. “No other dental school in Canada has such a broadly integrated, geriatric-focused curriculum.”*

He adds: “We think our students should be prepared to treat the geriatric population. It’s where we need to go. It’s something we want to build upon.”

Mario Brondani, UBC Dentistry associate professor who coordinates the geriatrics modules, says that for the first time, students are discussing issues such as palliative care,

informed consent and interprofessional care in a geriatrics-specific course. Previously, second-year students received some of the content now in Dentistry 430, but Brondani augmented the material and moved it to third year. By then, he says, students are more mature and have more medical knowledge and clinical experience to apply to what they’re learning. He adds, “By then, it’s not just theoretical. Keen students also get involved in research.”

A required text for Geriatrics I is the 2011 book *Oral Healthcare for the Frail Elder: A Clinical Perspective*, which is edited by Chris Wyatt, Frauke Müller and retired UBC Dentistry professor Michael MacEntee, and includes content written by Mario Brondani and Leeann Donnelly. Reading assigned chapters, students learn about issues from oral pain to dry mouth and medications, and how body image impacts social interactions.

“We are still developing content for Dental Geriatrics II,” says Brondani. Fourth-year students will visit long-term-care facilities and continue with the integrated, multidisciplinary approach of dental geriatrics, as well as discuss more advanced knowledge and clinical practice.

*Wyatt says: “We’ve had a really good response from facilities and students. Students are now better prepared to deliver appropriate care to an aging population.”*



## Geriatric Dentistry Research

Cutting-edge research bolsters UBC's commitment to provide the best dental care possible for our aging population. Why do specific dental challenges and outcomes occur in a frail, aging population? How do medical, social, financial and family factors influence dental care decisions for the elderly? What are successful dental treatments for geriatric patients?

Using scientific evidence from recent studies, UBC's Geriatric Dentistry Program (GDP) is answering some of these questions while further exploring others. Research results will not only enhance UBC's geriatric dentistry curriculum, but will deepen students' knowledge applied in clinical rotations.

In the late 1990s, UBC Dentistry geriatric research focused on oral disease and prevention, such as caries in older patients, examining the links between oral health and a patient's overall health. Today, the GDP is researching dental challenges and outcomes, trying to document and understand variable conditions that will determine which treatments will best serve a frail geriatric patient, says UBC Dentistry professor Chris Wyatt.

Wyatt directs the GDP at 27 long-term-care facilities. Some of their elderly residents were the subjects of a 2017 pilot study that examined the survival rate of dental restorations in frail older adults. Wyatt and Chayanee Chatvanichkul, a visiting scientist from Thailand, wanted to know: How long do dental restorations last in frail older adults? If they last longer than average in a very challenging geriatric dental situation, why is that? What successes can GDP document?

In their small patient group, Wyatt and Chatvanichkul found that 64 percent of dental restorations had survived over a six-year period. They now plan to add their 2003-to-2016

data to draw conclusions from broader statistical analysis. The resulting knowledge will help justify specific treatments of patients. Wyatt says: "That's where the future is on the research end: [to determine] what treatment is best based on the longevity of a restoration."

In another 2017 study, Wyatt and Diego Ardenghi, an MSc graduate student in prosthodontics, conducted semi-structured interviews with 12 family members of frail, elderly patients. They wanted to explore the impact of UBC's Geriatric Dentistry Program on patients' relatives. They discovered that although patients' relatives were worried about their loved one's oral health, families reported that the GDP reduced their stress by providing easily accessible dental care.

UBC Dentistry associate professor Mario Brondani is a core member of a new team whose research results will enhance how geriatric research is conducted at UBC and both provincially and nationally. Representing Dentistry, he'll join UBC researchers from Nursing, Family Practice, Sociology, Social Work, Kinesiology, Occupational Science, Health and Exercise Sciences, and other specialists to examine the topic: "Re-Imagine Aging: Creating Interdisciplinary Connections for Research Collaboration and Training."

Their goal is to create a virtual, supportive, interdisciplinary environment that elevates aging research beyond what is possible within only a single discipline. This will likely involve online shared resources and a planning meeting over the next year to include other UBC researchers, says Brondani. They will apply their research results to help develop a healthy aging strategy for BC and to give input into Canada's national seniors strategy.

As part of his PhD completed in 2007, Brondani wanted to

understand the impact of oral disorders on the life of elders. He explored what values, beliefs and behaviours older adults held in relation to their oral health. He held focus group discussions among 42 residents, ages 64 to 93, at retirement homes and seniors' centres. Based on data analysis, he concluded that participants had their own views on what a healthy mouth entails and adjusted their expectations and sought social support to accept some oral impairment and disability. For example, patients found that missing teeth did not always disrupt daily functioning; therefore, a full set of new dentures might not always be an ultimate goal.

A 2002-2007 study by the GDP followed 139 older patients in long-term-care facilities (i.e., 17 percent of residents) for five years. Treatment was recommended for 97 percent of them, but only 60 percent consented to receive care. Wyatt wants to know, simply: why? What factors influence whether families will consent to complex dental treatment for their elderly relative? Economic pressures could be at play, but sometimes the family simply concludes that getting a bridge, for example, is not appropriate for someone who's 90. "There's something other than money at stake there," he says.

In the same five-year study, the GDP found that 40 percent of caries-free patients developed caries over the five years. During the same period, 43 percent of patients developed periodontal disease. Future research studies will explore this, Wyatt says. "This [research] is something that we want to build upon."

UBC Dentistry's ongoing research will continue to enrich new geriatrics curricula and students' clinical rotations. Alumni will be well equipped to provide the best oral care for all generations.

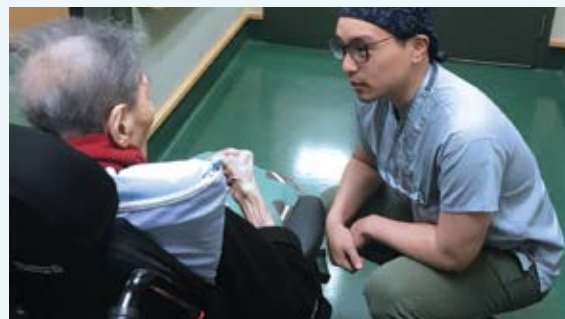


PHOTO BY JANE MERLING

Dr. Nicholas Tong, supervising dentist on the day at Simon K. Y. Lee Seniors Care Home, listens to an elderly patient. Tong is currently an MSc candidate (year 1) undertaking geriatric dentistry research.

# *At the Intersection of Medicine and Dentistry—* **UBC ORAL MEDICINE AND ORAL PATHOLOGY (OMOP) SPECIALTY**



## **OMOP SPECIALISTS WORK IN HOSPITAL LABORATORIES AND RESEARCH INSTITUTIONS:**

VGH Department of Pathology and Laboratory Medicine

- Interpreting 5,500+ specimens per year submitted by dentists and physicians from across the province to the BC Oral Biopsy Service

- Consulting with BC's anatomic pathologists on jaw specimens

BC Cancer Research Centre (BCCRC) and Simon Fraser University (SFU)

- Leading clinical research in early detection and treatment

- Conducting basic science research in genetics and population health

**UBC's OMOP specialists publish world-renowned research results.**



## **OMOP HOSPITAL-BASED CLINICS IN BC SAW, IN 2016:**

- 434 new cases of oropharyngeal cancer

- 250 new cases of oral squamous cell carcinoma

- 300 new cases of oral dysplasia (precancerous changes)

**OMOP specialists also develop new technologies for early detection of oral cancer (e.g., the VELscope®) and assist in surgical treatment.**



## **OMOP SPECIALISTS WORK IN THE COMMUNITY:**

- Screening for oral cancer at outreach clinics

**OMOP specialists are champions of the mantra: Early detection saves lives. (An 80 percent survival rate at five years compared to 20 percent for late-stage diagnosis.)**



## **OMOP TRAINING:**

- Four-year UBC Dentistry program delivered through hospital-based services at Vancouver General Hospital, BC Cancer Agency (BCCA) Vancouver Cancer Centre Department of Oral Oncology, and St. Paul's Hospital.

**The OMOP program at UBC is one of three in Canada.**



## OMOP AREAS OF EDUCATION AND APPLICATION:

- Anatomic Pathology
  - bone and soft tissue pathology
  - dermatopathology
  - head and neck pathology
  - lymphoma pathology
- Dermatology
- Hospital Dentistry
- Internal Medicine
- Leukemia/Bone Marrow Transplantation
- Rheumatology

OMOP specialists possess a unique body of knowledge.

## OMOP SPECIALISTS TREAT:

- Oral mucosal diseases (e.g., mucosal lesions)
- Salivary gland disorders (e.g., dry mouth)
- Temporomandibular disorders (e.g., jaw joint pain)
- Orofacial pain (e.g., trigeminal neuralgia; burning mouth syndrome)
- Neurosensory disorders (e.g., altered taste sensations)

Patients may also be medically complex and need dental management due to complications related to conditions like diabetes mellitus, HIV or rheumatoid arthritis.

Patients are referred by dentists/dental specialists and physicians/physician specialists.

### What Other Medical Specialists Say About OMOP Specialists and the UBC Program

*“We have found the oral medicine residents to be an extremely welcome addition to our St. Paul’s Hospital Dermatology rotation. They promote the interdisciplinary aspects of our field and provide valuable insights with respect to oral mucosa manifestations so that we can better diagnose and manage our patients.”*

— Dr. Aaron Wong, Dermatology Residency Program Director in the Division of Dermatology, St. Paul’s Hospital

*“There has been a wonderful symbiosis between the Oral Medicine and Oral Pathology residents and the Anatomical Pathology (AP) residents. They work in the same room, teach each other and learn from each other. Having someone trained in dental medicine is a huge asset for our AP residents, who often deal with oral or perioral specimens—we have a very busy group of head and neck surgeons in Vancouver.”*

— Dr. Steve Rasmussen, Anatomic Pathologist at Vancouver General Hospital

*“At the BC Cancer Agency (BCCA) we provide oral cancer screening, cancer therapy, surveillance and management of pre- and post-radiotherapy complications. With improvements in cancer care and outcomes, survivors are living longer, thus requiring longer-term surveillance and management. Furthermore, there is an increasing incidence of oral and oropharyngeal cancers, which means more clinicians are required. The OMOP training program [at UBC] has not only provided clinical services for our patients, but trainees have also been involved in multidisciplinary research projects. Many have participated in an ongoing salivary hyposalivation project that has had local and international impact on improved quality of life for patients receiving head and neck radiotherapy.”*

— Dr. Jonn S. Wu, Radiation Oncologist, Chief Medical Informatics Officer, and Provincial Head and Neck Tumour Group Chair at the BC Cancer Agency

### An Oral Medicine Specialist in Private Practice Shares Some Case Results

*A patient, who had been on acyclovir for years, finally learned that she actually had angina bullosa hemorrhagica, which did not require medication.*

*A 24-year-old man with a four-year history of recurrent major and herpetiform aphthous ulcers, who suffered for three to four weeks with each recurrence, finally found a quick and effective treatment.*

*A 60-year-old female from the BC Interior, with an 18-month history of oral pain, had seen rheumatology, ENT (ear, nose and throat) and family medicine specialists on numerous occasions with no improvement. She travelled four hours to see an oral medicine specialist and within a week her pain was gone.*

*A young woman in her 20s, who had been in a motor vehicle accident and suffered for two years unable to open her mouth to eat, felt hopeless. She is finally able to open her mouth fully, eat and smile.*

*Conditions as simple as oral candidiasis and as complex as trigeminal neuralgia are being missed by medical doctors. Oral medicine identifies and treats them.*

— Dr. Maryam Taleghani, Certified Specialist in Oral Medicine, in private practice, Vancouver, BC

Content courtesy of Dr. Eli Whitney, program director, Oral Medicine-Oral Pathology Residency.

## Donors to UBC Dentistry—Sharing Their Values, Making a Difference



### Dr. Ken and Mrs. Susan Chow Contribute to the Needs of the Geriatric Community

Seniors are the fastest-growing age group in British Columbia. While life expectancies are increasing, functional health still decreases. Deteriorating oral health poses a serious risk to the overall health and well-being of vulnerable seniors. A new initiative at the Villa Cathay Care Home features an on-site dental clinic that allows frail residents to access care in an environment that feels safe and familiar. The Chinese Canadian Dental Society of British Columbia, a long-standing partner of UBC Dentistry, named the new project as the beneficiary of their 2017 annual gala, with proceeds supporting the Geriatric Dentistry Program and the new dental operatory at Villa Cathay. Contributing to the community has been a central mandate of the society's efforts, and providing care to geriatric patients is a responsibility that stirs the passion of many of its members.

Dr. Ken Chow was instrumental in garnering additional support for the project. Other passionate benefactors included Mr. Ken and Mrs. Julie Park, Mr. William P. J. McCarthy, Peterson Group Foundation, Adamson Family Private Giving Foundation, Timothy C. Kerr Family Foundation, the Koo Family, and business sponsors David Mitchell Company, A-dec and Sinclair Dental. Chow felt an immediate affinity.

He says, "I chose to be part of the initiative as both a personal and professional commitment. The financial support from my wife Susan and me is dedicated to our respective grandmothers, who had a tremendous impact on our lives."

The modern on-site dental clinic provides crucial care, but also engages the dental profession at large. Chow explains: "As an active member in the dental community, I want to bring awareness to our responsibility in providing the very best education experience and teaching environment to dental students while nurturing their sense of social responsibility."

Curricular rotations through the clinic give UBC Dentistry students an opportunity to provide care for patients who are too frail to be treated at either the Nobel Biocare Oral Health Centre or the graduate specialty clinic. Exposure to treating geriatric patients is an important learning experience, with a rippling effect into the future. Chow says, "Oral health care for seniors is critical as they become more physically and mentally dependent. Seniors deserve the same level of care, with dignity. That is what we would hope for as we get older. The UBC Geriatric Dental Program provides treatment to this vulnerable population and a specialized education rotation to dental students—our future oral health care professionals. Ultimately, having our dentists feel comfortable in treating our seniors with the utmost compassion will have a lasting effect on our society."



### Al Heaps & Associates Supports Students and Alumni Connections

A sense of community is what draws Al Heaps & Associates to UBC Dentistry. Al Heaps & Associates has become a trusted name in Canada for the transition and valuation of professional dental practices. For company president Henry Doyle, supporting all aspects of the dental profession is a crucial part of giving back to the community.

"At Al Heaps & Associates, our business is centred on dentists from graduation to retirement," Doyle explains. Providing financial assistance and recognition to dental students helps set the foundation for a productive and satisfying career in dentistry. Ongoing support of student learning helps to advance the practice of dentistry in British Columbia to the cutting edge of the discipline.

The Al Heaps & Associates Research Award in Dentistry was established to forward these notions. The company also participates in the UBC Dentistry Alumni Partnership Program, which gives alumni more opportunities to connect back with their alma mater. And in April 2017, Al Heaps & Associates furthered their commitment to education by naming an open operatory in the Nobel Biocare Oral Health Centre.

Doyle says, "It is our pleasure to be involved in giving back to the community and enhancing the clinical experience of students."



## Dr. Colin Wiebe Champions the Dr. Hannu Larjava Research Fund

In honour of Dr. Hannu Larjava's 25th anniversary as the head of Periodontics at UBC Dentistry, his former students established the Dr. Hannu Larjava Research Fund in celebration of his commitment, passion and leadership. (See page 25 for a complete list of donors.) The new fund will strengthen academic scholarship and support clinical research training of graduate periodontics residents.

One of the greatest challenges faced by all Canadian universities is a lack of government funding and continuous cutbacks, which directly impacts periodontal student residents. Individual student research projects cost between \$5,000 and \$10,000, and project costs and training relies on funding from sources outside the regular Faculty program budgets. Dr. Larjava's former students saw the value of helping future periodontal residents by strengthening support for their outstanding academic work.

Dr. Colin Wiebe, MSc/Dip Perio 1997 (in the photo on the right), project leader behind the new fund, says, "As an alumnus myself, I would safely say that we have all professionally benefitted from our clinical education at UBC Dentistry. My interest in contributing to the Dr. Hannu Larjava Research Fund initiative was sparked by the need for research funding, given the state of the economy. I do believe research is an important and necessary component of the training for periodontal specialists, whether they are going to work in a university setting or in private practice. Dr. Larjava is a great researcher, teacher and mentor, so contributing to research and honouring him at the same time is an incredible opportunity."



## Synergy Business Lawyers LLP Recognizes Leadership With Dental Student Award

Synergy Business Lawyers LLP established a new award that was presented this past Dean's Night to Kerri-Lyn Chong, DMD 2018 candidate. The Synergy Business Lawyers LLP Student Leadership Award recognizes a fourth-year dental student who possesses outstanding leadership qualities and a generous spirit of mentorship, collaboration and friendship while maintaining high academic performance. The philosophy of these values is one that Synergy Business Lawyers LLP sees as a driving force.

Founding partner Brian Rudy believes that "recognizing outstanding contribution to one's peers and profession is important. Selfless contributions by student leaders cultivate the important attributes of our future business and professional leaders. Student leaders sacrifice their free time without reward, and while we know that dividends will be paid in the future, our Synergy Business Lawyers LLP Student Leadership Award provides important recognition to student leaders, and highlights the importance of leader-type behaviour in the profession and in our community."



## Monarch Instar Fund Sustains Education and Care for Children

Monarch Pediatric Dental Centre has generously supported UBC Dentistry since 2005. The team's passion for mentorship, student learning and providing care to pediatric patients is evident through their legacy of philanthropy. Recently, Drs. John Hung, Elsa Hui-Derksen, Mark Casafrancisco (DMD 2005), Peter Chan, Jennifer Yee, Jonathan Hung (DMD 2012) and Frederick Cheung of the Monarch team partnered with UBC Dentistry to establish the Monarch Instar Fund.

The goal of the fund is to develop a long-term strategy to promote oral health education while delivering dental professional care to children in BC. The families of children treated with assistance from the Monarch Instar Fund are unable to bear the cost of dental anomalies that are not covered by existing funding programs. The fund also provides financial assistance for educational and research opportunities in the pediatric dentistry field to undergraduate students and postgraduate residents at UBC Dentistry.

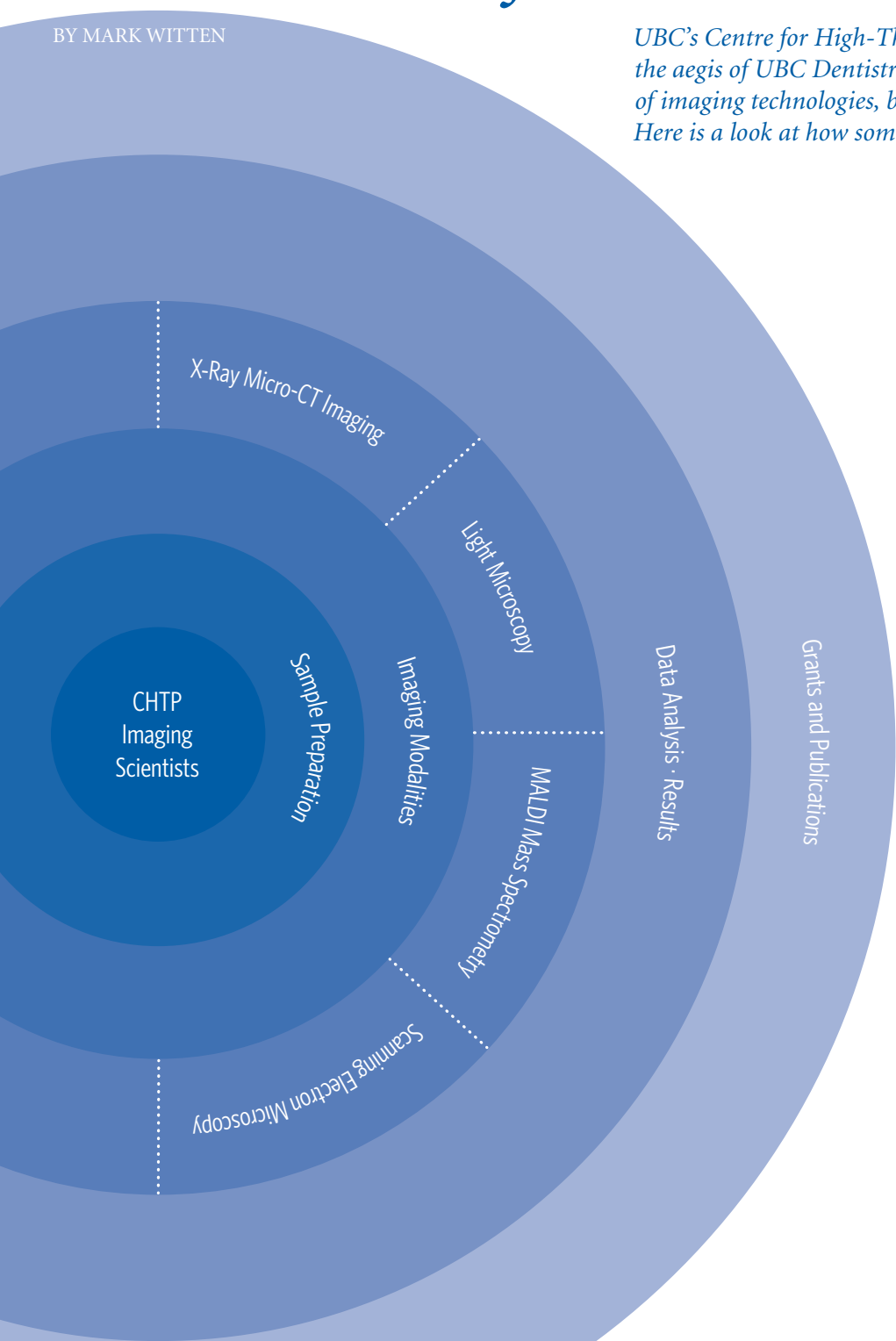
Dr. Marc Casafrancisco elaborates: "The Monarch Pediatric Dental Centre team is committed to student learning and service to the community. We believe in the winning combination of providing no-cost treatment for children in need and mentorship to dental students. Our partnership with UBC Dentistry throughout the years has become a source of great inspiration and motivation to support the next generation of dentists. Establishing the Monarch Instar Fund is a sustainable initiative that promotes student clinical education and dental care to children with challenging pediatric cases. Our goal is to enrich the UBC Dentistry student and postgraduate educational experience and the lives of children and families in need."



# Rings of Success: Imaging Scientists at the Core of the CHTP

BY MARK WITTEN

*UBC's Centre for High-Throughput Phenogenomics (CHTP), under the aegis of UBC Dentistry, is home to not only a comprehensive suite of imaging technologies, but also a team of expert imaging scientists. Here is a look at how some recent studies benefited from their expertise.*



## MICRO-CT (MICRO-COMPUTED TOMOGRAPHY) IN VIVO SCANNER

### TriFoil eXplore CT 120

#### Researchers

Dr. James Johnson Lab; Dr. Søs Skovsø, postdoctoral fellow; UBC Department of Cellular and Physiological Sciences, Faculty of Medicine

#### Summary

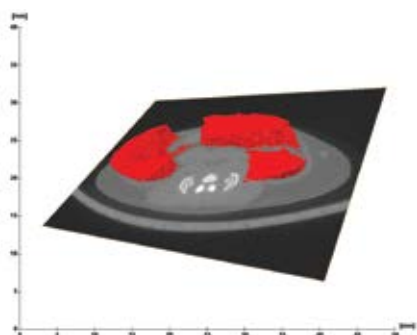
The study found that reducing insulin production and secretion in mice made obese by a high-fat diet caused significant weight loss within five weeks. The data obtained through in vivo micro-CT scanning of soft tissues provided the first genetic evidence that obesity can be reversed by acutely and modestly reducing insulin production.

#### Value add of CHTP

Dr. Skovsø worked closely with a CHTP imaging scientist on both the micro-CT imaging and data analysis, and the project was able to use a pre-approved protocol for micro-CT scanning of soft tissues like fat and muscle. For Dr. Skovsø and other researchers in Dr. Johnson's lab, using micro-CT at CHTP provided greater accuracy and specificity compared to other methods such as micro-DEXA. It allowed the researchers to look at changes in fat distribution in the same mice over time. This enabled them to accurately visualize and measure changes, in both the harmful and less harmful types of abdominal fat, that resulted from lowering insulin levels. It also showed that lowering insulin production to normal levels reverses weight gain in adult mice fed a high-fat diet.

## Publication

Page M, Skovsø S, Cen H, Chiu A, Dionne D, Hutchinson D, Lim G, Szabat M, Flibotte S, Sinha S, Nislow C, Rodrigues B, Johnson JD. (2017). Reducing insulin via conditional partial gene ablation in adults reverses diet-induced weight gain. *The FASEB Journal*. doi: 10.1096/fj.201700518R.



Micro-CT image (grey) with fat deposits highlighted red.

## MICRO-CT (MICRO-COMPUTED TOMOGRAPHY) SPECIMEN SCANNER

SCANCO Medical  $\mu$ CT100

### Researcher

Dr. Nesrine Mostafa, then MSc candidate, now assistant professor in prosthodontics, UBC Department of Oral Health Sciences, Faculty of Dentistry

### Summary

Dr. Mostafa's study used micro-CT scanning to systematically assess and compare the marginal fit of crowns using digital technology vs. crowns formed using a conventional lab approach. The study found digitally fabricated crowns showed better fit as compared to conventionally fabricated crowns. (Mostafa continues to access the CHTP for her current research.)

### Value add of CHTP

This is one of the first studies to assess the marginal fit of ceramic crowns using a micro-CT scanner and a systematic 2D and 3D analysis. Micro-CT allows a thorough evaluation of crown margins at multiple locations without destroying the samples. It produces 2D and 3D data sets that can be used for quantitative analysis and for visualization by specifying cement thickness. It also allows assessment of the same sample before and after using differing testing variables.

## Publication

Mostafa Z, Ruse N, Ford N, Carvalho R, Wyatt C. (2018). Marginal fit of lithium disilicate fabricated crowns using conventional and digital methodology: A three-dimensional analysis. *Journal of Prosthodontics*, 27(2): 145-152. doi: 10.1111/jopr.12656.



Dr. Nesrine Mostafa was awarded second place at the ACP Resident Poster Competition at the 45th American College of Prosthodontics Annual Meeting in Orlando, Florida, October 21 to 24, 2015.

## OPT (OPTICAL PROJECTION TOMOGRAPHY) SCANNER

Bioptronics 3001 M

### Researchers

Dr. Don Sin Lab, UBC Centre for Heart Lung Innovation; Dr. Jen-erh Jaw, postdoctoral fellow, UBC Experimental Medicine Program, Faculty of Medicine

### Summary

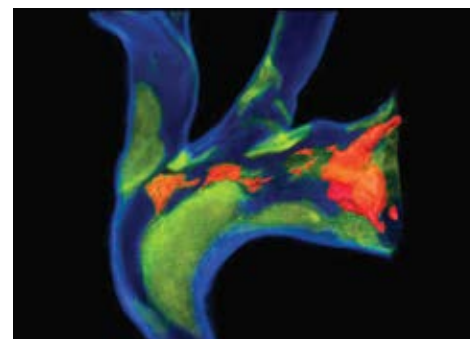
A mouse model of plaque rupture was established in which lung exposure to lipopolysaccharide (LPS) leads to lung inflammation and causes acute plaque destabilization. The study also showed that, in this model, circulating neutrophils play an important role in both lung inflammation and plaque rupture. This model could be useful for screening therapeutic targets to prevent acute vascular events related to lung inflammation.

### Value Add of CHTP

A CHTP imaging scientist advised Dr. Jaw that OPT would be the best equipment to use for measuring the size and vulnerability of plaques at different stages after exposure to LPS. Technical support for carrying out the experiment was also provided. OPT is an ex vivo micro-imaging tool that doesn't require tissue sectioning and thus preserves the architecture of the blood vessel. By combining the OPT technique with histological findings, the researchers provided convincing evidence that acute lung inflammation induces plaque rupture.

## Publication

Jaw J, Tsurata M, Oh Y, Schipilow J, Hirano Y, Ngan D, Suda K, Moritani K, Tam S, Ford N, van Eeden S, Wright J, Man SF, Sin DD. (2016). Lung exposure to lipopolysaccharide destabilization. *European Respiratory Journal*, 48(1): 205-215. doi: 10.1183/13993003.00972-2015.



Vulnerable atherosclerotic plaque (green) can rupture to form blood clots (red) in the aorta of a mouse. This image was generated by optical projection tomography.

## MALDI (MATRIX-ASSISTED LASER DESORPTION/IONIZATION) MASS SPECTROMETER (MS)

Thermo Scientific LTQ Orbitrap XL

### Researchers

Helen Burt Lab; Dr. David Plackett, research associate; UBC Faculty of Pharmaceutical Sciences

### Summary

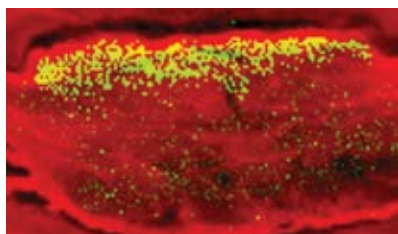
A promising new treatment for superficial bladder cancer has been developed by UBC Pharmaceutical Sciences, the Centre for Drug Research and Development (CDRD) and CDRD Ventures Inc. (CVI). The treatment uses a chemically modified hyperbranched polyglycerol (HPG) as a drug carrier to achieve higher concentrations of the anti-cancer drug docetaxel (DTX) in the bladder wall than when this drug is administered alone in solution. MALDI-MS imaging showed the distribution and concentrations of DTX in surface layers of pig bladder tissue were higher when using an HPG formulation. The findings were comparable with results obtained previously using an established radiolabelled drug method, providing a useful and complementary alternative to the use of radiolabelled or other quantitative methods for measuring drug distribution and concentrations.

**Value add of CHTP**

MALDI-MS imaging offered a convenient way to visually map and compare the distribution of the new and commercial drug formulations that couldn't be provided by other methods. The imaging scientist's expertise in MALDI-MS also provided a detailed quantitative analysis of the concentrations of the various drug formulations at different tissue depths and locations to complement the qualitative analysis from visual mapping. MALDI-MS imaging is label-free, so it could be used to study drug distribution in the human body in clinical trials.

**Publication**

Plackett D, Mugabe C, Lin S, Ford N, Liggins R, Burt H. (2016). Hyperbranched polyglycerol-docetaxel treatments for bladder cancer and the characterization of treated bladder tissue using MALDI-MS imaging. Abstract presented at the International Conference on Nanomedicine and Nanobiotechnology in Paris, France, September 28 to 30, 2016.



MALDI-MS image of pig bladder tissue.

**FIB-SEM (Focused Ion Beam Scanning Electron Microscope)****FEI Helios NanoLab 650 DualBeam****Researchers**

Dr. Brian Leander Lab; Dr. Gregory Gavelis, postdoctoral fellow; UBC Departments of Botany and Zoology, Faculty of Science

**Summary**

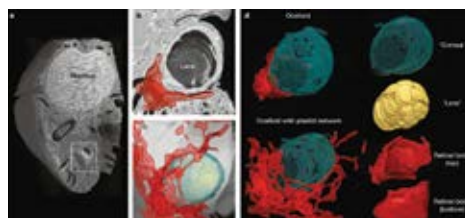
Single-celled marine plankton, called warnowiid dinoflagellates, evolved a miniature version of a multicellular eye, possibly to help see prey better. The study showed this planktonic predator has an eye-like ocelloid structure, which contains a collection of subcellular organelles that look very much like the lens, cornea, iris and retina of multicellular eyes found in humans and other larger animals.

**Value add of CHTP**

A CHTP imaging scientist advised Dr. Gavelis that FIB-SEM could provide extremely high resolution images of a unicellular organism in its natural state and that cryofixation of samples would provide the most accurate and detailed reconstruction of a 3D model. The use of FIB-SEM enabled 3D reconstruction of the ocelloid structure and its component parts, including the mitochondrial cornea-like layer, vesicular lens and retinal body. The imaging scientist provided the technical support for the FIB-SEM imaging and 3D reconstruction.

**Publication**

Gavelis G, Hayakawa S, White III R, Gojobori T, Suttle C, Keeling P, Leander B. (2015). Eye-like ocelloids are built from different endosymbiotically acquired components. *Nature*, 523: 204-207. doi: 10.1038/nature14593.



3D reconstruction and modelling representation of the eye-like ocelloid structure of a marine plankton from FIB-SEM data.

**FIB-SEM (Focused Ion Beam Scanning Electron Microscope)****FEI Helios NanoLab 650 DualBeam****Researchers**

Dr. Curtis Berlinguette Lab, UBC Department of Chemical and Biological Engineering, Faculty of Applied Science; Kevan Dettelbach, PhD candidate, UBC Department of Chemistry, Faculty of Science

**Summary**

The Berlinguette lab is focused on solar energy conservation and ways of storing solar energy using thin film materials. The thicknesses and metal loadings of amorphous nickel, iron and iridium oxide films widely used for solar fuel electrocatalysis were determined by cross-sectional SEM and X-ray fluorescence (XRF) spectroscopy measurements. XRF measurements provided a strong linear correlation with the thicknesses determined by cross-sectional SEM. These results highlight that the non-invasive XRF technique is demonstrated to be far superior to the widely used electrochemical surface area (ESA) technique for reporting on thickness and metal loading of thin metal oxide films.

**Value add of CHTP**

It can be a challenge to measure the thickness of nanometre-scale thin films of low-conductance materials. Cross-sectional SEM

**CHTP  
IMAGING  
SCIENTISTS**

Dr. Nancy Ford,  
Director, CHTP

Associate Professor, UBC Department of Oral Biological & Medical Sciences, Faculty of Dentistry; PhD, Medical Biophysics, University of Western Ontario

- Is the director of the CHTP, where her work involves optimizing images, minimizing X-ray exposure and navigating massive data sets.
- Research areas and specialties include micro-CT, X-ray imaging, physiological gating, small animal imaging, image quality and cone beam CT.



accurately determined the thickness of a series of films at the nanometre level on iridium-coated glass samples, which would be impossible to measure with other methods. The CHTP imaging scientist recommended dealing with conductance issues by sandwiching the films between two iridium layers. Using the high resolution SEM, the film thicknesses were imaged and measured, and the backscattered electron imaging capabilities of the machine easily distinguished the thin layer from the iridium layers. This method, which allowed the researchers to get accurate thickness measurements rapidly, can be applied to a wide variety of thin film materials.

#### Publication

Dettelbach K, Kolbeck M, Huang A, He J, Berlinguette C. (2017). Rapid quantification of film thickness and metal loading for electrocatalytic oxide films. *Chemistry of Materials*, 29(17): 7272-7277. doi: 10.1021/acs.chemmater.7b01914.



Members of the Berlinguette lab using the FEI Helios NanoLab 650 DualBeam.

#### FIB-SEM (Focused Ion Beam Scanning Electron Microscope)

##### FEI Helios NanoLab 650 DualBeam

#### Researchers

Dr. David Wilkinson Lab; Baizeng Fang, senior research scientist; UBC Department of Chemical and Biological Engineering, Faculty of Applied Science

#### Summary

Photocatalytic conversion of CO<sub>2</sub> into a clean energy fuel is a promising avenue for sustainable development. In this study, a one-pot template-free synthesis strategy was used to fabricate CuO-incorporated TiO<sub>2</sub> hollow microspheres in large scale. These were explored for the first time as a catalyst for photodriven conversion with the aid of H<sub>2</sub>O, of CO<sub>2</sub> to CH<sub>4</sub> fuels. Because of its unique structural characteristics, the catalyst demonstrates much higher photocatalytic activity toward CO<sub>2</sub> reduction with H<sub>2</sub>O into CH<sub>4</sub>, compared with a current state-of-the-art photocatalyst. Also, the simple synthesis strategy would enable large-scale production of the hollow microspheres.

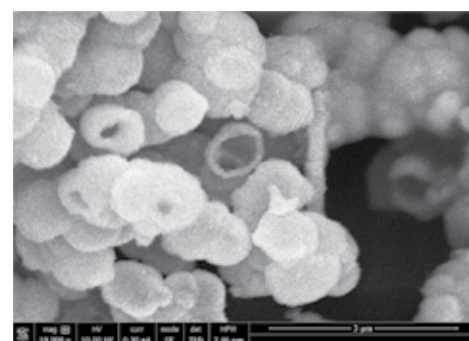
#### Value add at CHTP

FIB-SEM provided the extremely high resolution scanning needed to visualize and explore the surface morphologies of these TiO<sub>2</sub> hollow microsphere catalyst samples in the nanoscale range. SEM allowed the

researchers to look at the newly created catalyst structures with various magnifications and to confirm that TiO<sub>2</sub> hollow microspheres formed and performed as predicted.

#### Publication

Fang B, Xing Y, Bonakdarpour A, Zhang S, Wilkinson D. (2015). Hierarchical CuO-TiO<sub>2</sub> Hollow Microspheres for Highly Efficient Photodriven Reduction of CO<sub>2</sub> to CH<sub>4</sub>. *ACS Sustainable Chemistry & Engineering*, 3(10): 2381-2388. doi: 10.1021/acssuschemeng.5b00724.



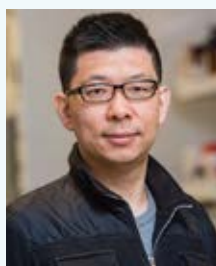
FIB-SEM image of the surface morphology of a TiO<sub>2</sub> hollow microsphere catalyst sample.



Dr. Gethin Owen,  
Technical Director of  
Electron Microscopy

PhD, Cell Biology, AO Research Institute, Davos, Switzerland

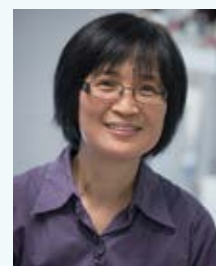
- Manages the SEM facility and has more than 20 years' experience using scanning and transmission electron microscopy as an imaging scientist, researcher and graduate student.
- Provides specialist FIB-SEM imaging services, user training on sample preparation and operating equipment, project design and novel technique development.



Dr. Guobin Sun, X-ray and  
Optical Imaging Technician

PhD, Cellular and Molecular Biology, UBC

- Provides full-service technical support, training and consulting to users on Zeiss PALM, Olympus LEXT confocal, Nikon Eclipse Ci and Leica SP5 X microscope systems.
- Skilled in micro-CT and OPT imaging, and provides a full range of support, training and consulting services on these instruments to users.



Shujun Lin, MALDI Mass  
Spectrometry Technician

MSc, Biochemistry, Memorial University

- Set up, operates and maintains the Thermo Scientific LTQ Orbitrap XL mass spectrometer.
- Lin has more than 10 years' experience using MALDI-MS and provides full-service support for users, including sample preparation, data acquisition, imaging data processing and interpretation of results.

## Meet the Imaging Scientists at the CHTP



**Dr. Nancy Ford, Director**

Associate Professor, UBC Department of Oral Biological & Medical Sciences, Faculty of Dentistry; PhD, Medical Biophysics, University of Western Ontario

Dr. Ford is the director of the CHTP, where her work involves optimizing images, minimizing X-ray exposure and navigating massive data sets. Her research areas and specializations include micro-computed tomography (micro-CT), X-ray imaging, physiological gating, small animal imaging, image quality and cone beam CT. Her research focuses on optimizing and accessing imaging protocols for preclinical and clinical computed tomography. Her previous research experience includes working as a research assistant in a digital mammography research group at Sunnybrook Hospital in Toronto, a postdoctoral fellowship in the Imaging Research Labs at the Robarts Research Institute in London, Ontario, and a position, from 2006 to 2011, as assistant professor in the Department of Physics at Ryerson University.

"The centre," says Ford, "has a whole variety of sophisticated imaging instruments available in the same place, including the only MALDI mass spectrometer, the only focused ion beam scanning electron microscope and the only micro-computed tomography specimen and in vivo scanners on the UBC campus. We have a team of imaging scientists with specialized expertise and knowledge. They are dedicated full-time to supporting and training users, and optimizing the techniques to help researchers get the best-quality images and data. The limits of science are pushing forward to visualize smaller and smaller structures. Researchers need to use these more sophisticated and challenging techniques and equipment to solve today's and tomorrow's research problems."



**Dr. Gethin Owen, Technical Director of Electron Microscopy**

PhD, Cell Biology, AO Research Institute, Davos, Switzerland

Dr. Owen manages the electron microscopy imaging facility and provides specialist imaging services, consulting, user training, project design and novel technique development. He has more than 20 years of experience using scanning and transmission electron microscopy in basic research investigations for both biological and material samples. His previous research experience includes postgraduate work at AO Research Institute, Davos, Switzerland, and postdoctoral fellowships at the New York Structural Biology Center, New York, USA, and the UBC Department of Oral Biological & Medical Sciences, Faculty of Dentistry.

"All of us working at CHTP have an interest in the research users are doing and with our research background can understand the concepts pretty easily. We can advise on the best sample preparation and imaging methods to collect the best-quality data. This is a collaborative kind of work. For example, we often provide technical assistance to prepare and image samples that are difficult, or almost impossible, to image at high resolution because of their constitution. When the researchers agree to use an alternative method that we propose, they not only benefit by getting reliable, high-quality data, but results that would otherwise be impossible to obtain," says Owen.

## Local Implant Symposium Supports Oral Cancer Research at UBC



Mr. Neal Russell (L), general manager of Protec Dental Laboratories, and Dr. William Liang (R) present a cheque from the proceeds of the 2018 Implant Symposium to Dr. Denise Laronde (2nd R) and UBC Dentistry dean, Dr. Mary MacDougall, for oral cancer research at UBC.



Mr. Andrew Gillies (L), education coordinator for the AAID Vancouver MaxiCourse, Canadian Dental Implant Training Centre, and Dr. William Liang (R) present a cheque from the Canadian Dental Implant Training Centre to Dr. Denise Laronde (2nd R) and UBC Dentistry dean, Dr. Mary MacDougall, for oral cancer research at UBC.

Protec Dental Laboratories and Canadian Dental Implant Training Centre Inc., organizers of the 2018 Implant Symposium on the latest implant technologies and philosophies, came up with a win-win way to support oral cancer research. All proceeds from the symposium, held on February 17, were donated to the UBC Oral Cancer Prediction Fund.

The Oral Cancer Prediction Fund supports the work of UBC researchers, including Dr. Denise Laronde, associate professor at UBC Dentistry, who are part of a team of scientists at the BC Oral Cancer Prevention Program.



**Guobin Sun, X-ray and Optical Imaging Technician**  
PhD, Cellular and Molecular Biology, UBC

Dr. Sun has been managing the light microscopy section at CHTP since 2013, and he also manages the micro-CT and optical projection tomography (OPT) imaging equipment and services. Sun provides full-service technical support, training and consultation to users on Zeiss PALM, Olympus LEXT confocal, Nikon Eclipse Ci and Leica SP5 X microscope systems, micro-CT specimen and in vivo scanners, and the OPT scanner. He gained five years of fluorescent imaging experience as a graduate research assistant and research advisor in the cell biology lab of Dr. Catherine Pallen, professor and associate member, UBC Department of Pathology and Laboratory Medicine.

"We're a core facility with many different imaging modalities and diverse users. When researchers come here, they want to get data. We have the equipment and expertise to help them get the best-quality data as quickly as possible, which facilitates and accelerates their research. We can advise users on which imaging method will provide the best measurements of samples and get the highest quality imaging for their purpose," explains Sun. He notes that researchers can use different imaging instruments at the CHTP for the same project, to obtain more data and strengthen their results.



**Shujun Lin, MALDI Mass Spectrometry Technician**  
MSc, Biochemistry, Memorial University

Shujun Lin operates and maintains the Thermo Scientific LTQ Orbitrap XL mass spectrometer, which she set up at the CHTP in 2014. Lin has more than a decade of experience using MALDI mass spectrometry methods to detect peptides, hormones, lipids and drug metabolites in biological specimens, and to determine their relative abundance and distribution in various tissue sections. She has over 20 years of experience using mass spectrometry at the CHTP, the UBC Biomedical Research Centre, Biovail Contract Research (Toronto) and Louisiana State University.

"Users bring us tissue samples and we do the full service," says Lin. "I do everything from setting up protocols, sample preparation, data acquisition, imaging data processing and interpretation of results. Our service is fast, and users appreciate that."

Their research has taken a giant step toward understanding the complex stages of malignant transformation, giving clinicians and their patients better information for treatment options.

This world-renowned research team has created the only validated method for predicting oral cancer risk. Not all patients with oral lesions showing dysplasia (cell abnormality) will progress to oral cancer; however, predicting which low-grade dysplasias (mild or moderate) are at risk is still challenging. Further understanding of molecular changes associated with progression

is needed, as is an effective and efficient test to predict oral cancer progression.

Dr. William Liang, director of the Canadian Dental Implant Training Centre, was honoured to present two cheques to Dr. Denise Laronde, associate professor at UBC Dentistry: one for \$13,000, from symposium proceeds, and the other a \$30,000 contribution from the Canadian Dental Implant Training Centre, which offers the AAID (American Academy of Implant Dentistry) Vancouver MaxiCourse. "I chose to support Dr. Laronde's project this year simply because it is much needed," Liang says.

"It is a topic of research that garners very little commercial interest and support, and any contribution, big or small, may be pivotal to discovering new knowledge and saving someone's life."

Liang expressed gratitude to the distinguished speakers at the symposium, who [in addition to Liang] donated their time and expertise: Drs. Sonia Leziy, Edward Lowe, Jonathan Ng and Samson Ng—all UBC Dentistry alumni. He also thanked symposium attendees for their support and acknowledged cash donations from Protec, BioHorizons, Henry Schein, Velscope and Orbit Imaging.



# Dr. Derek Decloux: From Military Boot Camp to Special Needs Dentistry

In 2011, when then Canadian Armed Forces captain Derek Decloux graduated from UBC Dentistry with his Doctor of Dental Medicine degree, he shed his student scrubs, as did all his classmates. Instead of donning a fresh set of professional clothes to enter a dental practice, however, Derek reached for his military garb and jumped back into boot camp. That summer he needed to complete the final segment of Basic Military Officer Qualification (BMOQ) with the Canadian Armed Forces (CAF).

Derek took the BMOQ training in his home province of Ontario, with other recently graduated students from across the country.

*“I was slotted in with infantry, pilots, nurses, pharmacists and dentists, all from other schools, and it was fun to meet them—but the training was not cushy,” he says.*

Morning physical training started at 5:10 a.m. The day was further filled with weapons training, hand-to-hand combat exercises and leadership skills sessions. Participants learned how to take orders and how to give orders. At the end of seven weeks, there was a final challenge that involved rescuing someone, in the field or from a fire.

As gruelling as it may sound, Derek approached the BMOQ as an adventure. And he had known his path to dentistry would be in the military: “My grandfather was also a dental officer with the military, so for me, it was a natural choice.”

Once he had become a commissioned officer, Capt. Derek Decloux had one more step to complete before he could practise dentistry in the military: the four-week Basic Dental Officer’s Course. This course, which was taught by senior dental officers in different ranks and specialties, covered policies and procedures. In short, Derek explains, he learned “how to ensure your treatment plan will be successful in the military.”

He served for four years at a Canadian Forces Base in the Toronto area. Then, soon after marrying Kristyn in the summer of 2014, he retired from the military, and in fall 2015, started the University of Toronto’s graduate Dental Anaesthesia program. His interest in this specialty was piqued during dental school at UBC. He recalls, “I enjoyed learning local anaesthesia and sedation from Dr. Brian Chanpong and knew then that I wanted to do advanced training.” He also pursued externships at the University of Toronto and Ohio State University.

Derek is drawn to the patient population for the anaesthesiology specialty: half are children, a quarter are adults with dental anxiety, and the remainder require special needs dentistry. For Derek, it is an opportunity to help people who otherwise may not see a dentist. To illustrate, he gives an example of a child with autism whose behaviour changed notably because of dental pain: “After treatment,” he says, “the child is back at baseline and happiness is restored to the whole family.”

In January 2018, Derek visited UBC to work on his graduate research project. His research grant was tied to UBC, so it worked well logistically to collect his data in Vancouver rather than in Toronto. His study involves using an ultrasound-guided technique to see the nerve of the lower jaw, to more accurately determine the target for freezing.

After graduating from the University of Toronto, Derek plans a combination of teaching, hospital-based dental anaesthesia and private practice dental anaesthesia. He stays connected with many alumni in the Toronto area—there are about half a dozen former classmates he sees regularly. This summer he plans to take a continuing education course in Edmonton with many of his former classmates.

Derek and Kristyn bought a house in Hamilton, Ontario, last year and will soon celebrate their son Remy’s one-year birthday.



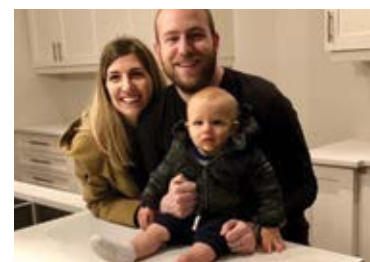
Members of the Class of 2011 who live in the Toronto area and regularly get together, from left to right: Daniel Nosyk, Caroline Cannon, Amy Bellamy, Mike Magnusson and Derek Decloux.



Fellow classmate Capt. Chris Mills (L) stands with Derek Decloux shortly after graduating in 2011.



Derek Decloux with his grandfather, Dr. Stanley Weiler, in an operatory at UBC Dentistry.



Derek Decloux with his wife Kristyn and son Remy in the kitchen of their new home in Hamilton, Ontario.

# ALUMNUS PROFILE

## Jenny Jamen and Leanne Olson: A Dental Hygiene Partnership On the Move



Jenny Jamen (left) and Leanne Olson.

Leanne Olson and Jenny Jamen, both 2011 baccalaureate graduates from UBC's Dental Hygiene Degree Program, are passionate about their calling, and when opportunity struck, they 'hit the road' with their profession.

Together they operate Strictly Prevention Inc., a mobile dental hygiene service. Strictly Prevention specializes in delivering oral care to those who experience difficulty accessing conventional preventive dental care due to cognitive or physical barriers. The philosophy of care is to provide comprehensive, gentle dental hygiene services for elders and those with special needs in the comfort and surroundings of the patient's own home.

The two entrepreneurs keep a busy Monday-to-Saturday schedule serving people throughout the Metro Vancouver area. On their precious downtime, each enjoys outdoor activities and spending time with friends and family.

We asked Leanne and Jenny a few questions about their time in school and their nascent career paths:

### What advice would you give your younger self if you could go back in time and provide counselling?

Leanne: Be selective in what you spend time stressing out about. Even in those moments where you can't imagine getting through—whether your worry is about a huge work/school load, finances, family or just life—it will be OK!

Jenny: Take care of yourself. Eat well and exercise. This sounds simple, but it is all too often forgotten. We cannot expect to provide exceptional care to individuals if we are not taking care of ourselves. Make the time for personal health and wellness.

### What advice would you give a new graduate entering the dental hygiene profession?

Leanne: Visualize where you will be post-graduation and start practising behaviours that will set you up to succeed in your final months pre-grad and well into your career. It may be increasing your efficiency, becoming more independent in your community practice or focusing on improving your personal health and wellness, to be at your best in whichever avenue you choose.

Jenny: If you have an opportunity to be a temporary hygienist, take the opportunity. You will build connections and learn how different offices operate. This will allow you to understand which office settings work best for you. Being exposed to a wide variety of settings will make a positive impact on job security and longevity.

### How did you meet and become business partners in Strictly Prevention?

Leanne: We met our first day at UBC. We had an instant connection and have been close friends since. By our fourth year we both knew that we would embark on an entrepreneurial venture together, but we didn't know exactly what that would look like, or when it would happen. However, we both had a keen interest in working with geriatric patients.

Jenny: We started working with Strictly Prevention, which was run by Ashifa Dharamsi, one of our clinical instructors at UBC. Ashifa was planning a sabbatical and looking for help to manage her client pool. Leanne and I started working together and quickly realized that we had a similar approach to care, our values and work ethic aligned, and this area of care was our calling. Soon after we became partners and bought the mobile practice from Ashifa.

## Coming Soon: 50 Years of Dental Hygiene Education at UBC

In September 1968, the first dental hygiene students began studying at the UBC Faculty of Dentistry. Learn more about the 50-year history of dental hygiene education at UBC in the fall 2018 issue of *Impressions* magazine.

If you are a dental hygiene graduate from UBC and have memories or photos you'd like to share, send them to [alumni@dentistry.ubc.ca](mailto:alumni@dentistry.ubc.ca), and if sharing on social media, use the hashtag #ubcdentalhygiene50

To ensure you receive alumni announcements, including more information about celebrating 50 years of dental hygiene education at UBC, sign up for UBC Dentistry's Alumni eNews at [dentistry.ubc.ca/subscribe-enews](http://dentistry.ubc.ca/subscribe-enews)



# Off the Campus in Kenya and Vietnam

*Enriched learning in global settings nurtures awareness back home. Students in the Doctor of Dental Medicine and Dental Hygiene programs travelled to Kenya and Vietnam in 2017.*

Since 2011, the Sinclair Dental Travel Fellowship Program has supported 39 UBC Dentistry students and their participation in travel clinics. Student participants learn that dentistry is a valuable skill transferable to almost anywhere in the world and that helping those less fortunate can bring satisfaction back home—on the job and in their own communities.

These international rotations expose students to front-line dentistry in impoverished

communities, and create significant memories. Not only do these placements enhance the students' all-round experience, but they provide intense clinical experience in a global setting and nurture an ethos of philanthropy.

In June 2017, a group of DMD 2018 candidates—Amir Asghari, Andrew Dawn, Sarah Hutchinson, Kimberly Paterson and Alex Radu—travelled to Kakamega County, in western Kenya, as part of an international volunteer elective.

They joined the Semiahmoo Dental Outreach (SDO) team, a group of volunteer dental professionals, many of whom are International College of Dentists Fellows. The group, which

provided mentorship and direct supervision to the then-third-year dental students, included Dr. Ken Stones and DMD Class of 1987 alumni Les Ennis, Janis Boyd, David Larsen and Joan Eaton, as well as soon-to-be Fellows Drs. Nancy Vertel (MSc/Ped 2013), Melanie Mattson, Grant Rawstron and Robert Wolanski. A mobile clinic was set up in Ihonje Primary School, located in the town of Mumias, where 532 children were treated over a five-day period.

The SDO team partnered with the African Canadian Continuing Education Society (ACCES), a Canadian registered charity committed to education and community development programs in Kenya. Education

## Kenya



Kimberly Paterson, Amir Asghari, Dr. Joan Eaton, Dr. Janis Boyd, Alex Radu, Andrew Dawn and Sarah Hutchinson are part of the outreach team that treated over 100 patients a day at the clinic in Ihonje Primary School, located in a sugar cane farming region.



Andrew Dawn treats a pediatric patient, while a mentor looks on. The team worked with local community health workers who aided in translation, managed the long lineups of children and provided preventive aspects of care.



Alex Radu provides treatment to a pediatric patient during one of their 10-hour workdays.



Mentor Dr. Ken Stones assists Kimberly Paterson with care. Dr. Stones is part of the Semiahmoo Dental Outreach team. Though the team has embarked on countless outreach missions in the past, including volunteer trips to Vietnam and the Philippines, this was the first time the team travelled to Kenya.



Sarah Hutchinson performs an extraction on a patient. The African Canadian Continuing Education Society (ACCES) coordinated bus transport to bring children from other schools to the clinic at Ihonje Primary School, so that more local children could receive treatment.



Mentor Nancy Vertel and Amir Asghari. Many of the children were in constant dental pain and missed school as a result. Providing dental care and relief to these children greatly improves their quality of life.



A makeshift clinic was set up at Ihonje Primary School for five days to accommodate the volunteer rotation. The team used their clinical skills to reduce pain and discomfort, but a heavy focus was placed on education and prevention during this volunteer trip, toward creating a permanent shift in personal oral health care.



## OFF THE CAMPUS

and prevention are an integral part of the outreach team's mission.

The children who were treated ranged in age from five to 16, and none had ever seen a dentist. The children did not have prior knowledge of dental disease prevention and many were in constant dental pain.

Read on for some insight from each of the volunteers' post-trip reflections:

### Kimberly Paterson

This dental mission trip enhanced my clinical skills in both pediatric dental care and extractions. I am now better able to communicate, manage and provide quality dental care for my child patients in clinic. The dentists were also wonderful in teaching me how to extract teeth using minimally invasive procedures and how to provide excellent wound care.

Leaving the children on the final day was both the highlight and greatest challenge of the trip. Despite a week of dental checkups and extractions, the children remained so excited and thankful. The most difficult part was not being able to follow up with any of them after their treatment. Although we left pain medications and antibiotics, it was hard knowing that if anyone developed a post-operative complication I would not be there to help them. This was a heartbreaking realization.

### Amir Asghari

Going to Kenya for the summer of 2017 has been the highlight of my dental school experience. It was the best feeling to offer something we had been practising and studying for three years to the Kenyan people, a majority of whom had never seen a dentist before. Working long days with many great mentors really added to our dentistry skills. There are a lot of experiences and a lot of knowledge gained from this trip that we can use in the future. The cases we encountered in Kenya for treatment, though, may be cases we will never encounter here in Canada or at UBC.

### Sarah Hutchinson

I have known for some time that, following dental school, I would like to help those less fortunate by volunteering both locally and abroad. My time in Kenya has solidified this view; I saw that it is indeed possible to help others despite not having an established dental clinic. Bringing all the supplies and instruments with us was challenging and involved a lot of organization, but was very much worth the effort. The biggest challenge our group encountered was our limited ability to treat the vast number of people in need. Hundreds of people came each day hoping to receive treatment, but we could only see about a hundred patients each day. Another challenge we faced on a daily basis was the equipment bought locally: there were considerable issues with the required compressors, and we often had to perform treatment without using suction or handpieces.

### Andrew Dawn

The learning experience went far beyond the clinical experience. Seeing children without any evidence of past dental care was a reminder of the poverty that is in our world. The work we did may have to last them for the rest of their lives. The one-on-one mentorship and professional coaching we received from the volunteer dentists was an invaluable opportunity. We performed more extractions in one week than we will in all four years of dental school!

### Alex Radu

The volunteer rotation demonstrated that dentistry can be taken across borders. The dentists that accompanied us are outstanding clinicians who want to create positive change in the world. I witnessed and learned first-hand that dentistry is so much more than just fixing teeth. This experience was an amazing bridge to connect me with people from another culture while providing a vital service to them. I was tremendously inspired by the children, who walked for hours to visit our clinic. Countless children, with jigger-infected feet, walk miles and miles on a daily basis to get to school. I can only imagine the hardships some of these children face.

## KENYA TRIP STATISTICS\*

EXAMINATIONS

**532**

EXTRACTIONS

**485**

RESTORATIONS

**156**

SILVER DIAMINE FLUORIDE

**102**

SEALANTS

**14**

FLUORIDE TREATMENTS  
IN THE CLINIC

**70**

FLUORIDE TREATMENTS  
OUTSIDE THE CLINIC

**600**

TOOTHBRUSHES  
GIVEN OUT

**500**

\*Statistics provided by Dr. Les Ennis.

For close to two weeks during the winter holiday break in December 2017, Yolanda Lan and Rebecca Piccolo found themselves on a trip that would change their lives. The two fourth-year students in the Dental Hygiene Degree Program were participating in the UBC Dental Hygiene International Service Learning Initiative in Vietnam. The volunteer rotation in Ho Chi Minh City was made possible by the Sinclair Dental Travel Fellowship Program. The students were accompanied by Sherry Priebe, BDS (DH) 2003, MSc 2009, and professor Zul Kanji, MSc, EdD (candidate), RDH, and director of the UBC Dental Hygiene Degree Program.

The students engaged enthusiastically in the ongoing collaborations between the University of British Columbia and several institutions in Ho Chi Minh City. They provided instruction and preventive care for oral cancer patients, presented seminars and demonstrations to students at a university, conducted oral cancer screenings, and provided oral hygiene care to children at orphanages.

There were many moments of revelation for our two students. These included witnessing advanced stages of cancer and its crippling impact on the patients' quality of life, and providing care for young children living with disabilities who have been affected by Agent Orange exposure. These experiences will have a lasting effect on Rebecca and Yolanda's professional careers.

Read on for a view into how the trip impacted the volunteers:

#### Yolanda Lan

Prior to this service learning trip, I had not been exposed to cancer cases in real life. Seeing and palpating late-stage malignant lesions during our visit at the Oncology Hospital allowed me to appreciate the cancer screening that dental hygienists participate in. I also learned that the best care strategy includes advocating for the patients. During our visits to the orphanages and shelters, instead of trying to provide clinical therapy for everyone, we triaged for emergency treatments but used most of our time to educate the facility

residents and caregivers. Communication with the staff and residency clients built rapport and gave residents the opportunity to ask questions and raise awareness of their own oral health. As a long-term outcome, research has shown that this strategy provides greater continuation of oral health care when compared to clinical therapy alone.

#### Rebecca Piccolo

The entire trip was an eye-opening experience, but what resonated with me most was the first orphanage we attended, the Francis Shelter. The poor conditions of the residence and the lack of staff at this orphanage, which was filled with children and adults living with disability, were difficult to take in upon first arriving. This was something I had never been exposed to, but I was prepared to begin care and attempt to make some difference. Our main functions of care were to triage, for restorative dentistry and dental hygiene care, the residents who were confined to their beds, and to provide education to the orphanage staff that supported us. A fast-paced, intensive delivery of care allowed us to treat every resident in the orphanage.

## Vietnam



Yolanda Lan delivers oral hygiene care at the Francis Shelter, with Zul Kanji and Rebecca Piccolo. Andrew Tsang, DMD 1997, an alumnus who lives in Ho Chi Minh City, looks on, giving a thumbs-up. A majority of the shelter residents have developmental disabilities or cerebral palsy.



Sherry Priebe, Yolanda Lan and Rebecca Piccolo visited the Oncology Hospital, where they participated in cancer screenings. This 2017 trip marked the third year of the UBC Dental Hygiene International Service Learning Initiative in Vietnam. The project contributes to oral cancer education and research while strengthening international partnerships.



Rebecca Piccolo provides oral hygiene care to a child at the Thien Phuoc orphanage, where many children suffer genetic deformities and other devastating effects of Agent Orange. Triageing the children was a priority so that every individual could be treated.



The team also facilitated an interactive oral health care presentation to children at the Sunflower Orphanage for girls. Rebecca and Yolanda told the children a story about the importance of brushing their teeth, and then they played games to demonstrate the importance of dental hygiene. A highlight for the children was practising their brushing skills on giant dentoforms.







THE UNIVERSITY  
OF BRITISH COLUMBIA

Faculty of Dentistry  
Alumni

# CLASS NOTES AND EVENTS

Share your news with classmates, faculty and friends. Look for reunion announcements and events for all alumni. Submit alumni stories and keep in touch at [dentistry.ubc.ca/alumni](http://dentistry.ubc.ca/alumni)

## 1960s



Imre Rokus  
DMD 1968  
Jeffery Williams  
DMD 1976

Imre (on the left) and Jeffery are photographed with Dr. Mary MacDougall, the new dean of UBC Dentistry, as they arrive at the alumni wine reception following the TODS meeting in Kelowna last October.

## 1970s



Debra MacNeil  
Dip DH 1976  
Kimberley Laing  
BDS 2004

Debra (on the left) and Kimberly (on the right) attended the second annual Dental Hygiene Alumni CE & Reception at the Nobel Biocare Oral Health Centre last November. Both enjoyed the evening and cheered Brenda Currie Dip DH 1976, BDS 2004, MSc 2007, who received an Alumni Builder Award at the event. Debra and Brenda were classmates in 1976.



Ed O'Brien  
DMD 1978

Ed presented Sarah Berkey DMD 2018 (candidate) with the International College of Dentists Plaque commemorating her UBC Dean's Night award "in recognition of scholarship attainment and general character in third-year dentistry."



Tony Li  
DMD 1979

Tony (right) and Dr. Jonathan Hung, along with other guests, enjoyed UBC's Lunar New Year Dinner on January 23, 2018.

## 1980s



John Lee  
DMD 1981

John welcomed his son, Janson Lee DMD 2017, to practice.



Angie Loo  
DMD 1985  
Angelique Leung  
DMD 1988  
Ray Fong  
DMD 1989

Angie, Angelique and Ray (in the photo from left to right) were guests at the UBC Lunar New Year Dinner on January 23, 2018.

### FOLLOW ALUMNI ENGAGEMENT ON TWITTER

Follow UBC Dentistry Alumni  
[@ubcdentalumni](https://twitter.com/ubcdentalumni)  
[www.twitter.com/ubcdentalumni](http://www.twitter.com/ubcdentalumni)



Greg Chang  
DMD 1986

Greg and his SuperChefs Cookery for Kids program were recognized with a Canada 150 Community Award for Outstanding Service. Greg writes: "Special Day yesterday, with my 'quarterback' Nicole accepting the Canada 150 Community Award from MP Randeep Sarai for our SuperChefs Cookery efforts in Surrey Centre riding. This award is shared with the entire SuperChefs team: sponsors, donors, counsellors, volunteers, partners, advisory board, children and parents. I'm ecstatic for the success of the program, now in its 10th-anniversary year, to inspire health and wellness in Surrey and beyond. Thanks to Nicole and my SuperChefs family for the support and for stepping in when I have other commitments. Thanks to all of you for your help over the years!"



Les Ennis  
DMD 1987

Les (second left) and Dr. Ken Stones (left) led DMD students on a fourth-year travel elective to Kenya this past summer. They are seen in the photo along with the students, UBC faculty member Zul Kanji and representatives from Sinclair Dental, which established the Sinclair Travel Fellowship Fund to sponsor student travel opportunities such as this. Read more about this trip on page 34.



## 1990s



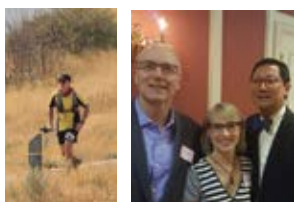
Jeff Coil  
DMD 1992

Jeff and Deborah Szabo MSc/Dip Endo 2018 (candidate) enjoyed fishing in Haida Gwaii last July. They were on rotation performing endodontic treatments.



Ivy Yu  
DMD 1996

Ivy stopped by the UBC Dentistry booth at the UBC Homecoming event in September to see the new cargo van for community outreach programs and try out one of the portable chairs.



Colin Wiebe  
MSc/Dip Perio 1997

Colin shared a photo of his participation in the Lost Soul Ultra Marathon—his first 100-miler!—this past September. “I did my first 100-mile trail ultra-marathon run (Lost Soul Ultra) in the coulees of Lethbridge, Alberta, and got third place in my age category.” The following month, on October 5, 2017, he met the president of UBC, Santa Ono, at a Calgary alumni event.

#### PLANNING A REUNION?

For great ideas about reunion dinners, themes, locations and class gifts, contact Rosemary Casson, manager, Alumni Engagement, at 604-822-6751 or [alumni@dentistry.ubc.ca](mailto:alumni@dentistry.ubc.ca)

## 2000s



Arv Sooch  
DMD 2000

Arv hosted Spaghetti for Six in January for five DMD students. Lots of spirited discussion surrounding “life after school” took place, with Arv offering to stay connected with the students going forward.



Diana Lin  
MSc 2008

Diane and third-year dental hygiene students participated with the Vancouver Coastal Health (VCH) Healthy Living Program in the Live Well with Diabetes Conference on November 19, 2017. At this interprofessional event, spearheaded by Diabetes Canada and the BC Podiatric Medical Association, the group promoted awareness of the two-way relationship between oral health and diabetes, and offered mouth screening. Pictured from left to right: Diana Lin and students Janelle Rumball, Jamie Jiang, Leanne Lee and Shivalika Katyal.



Jessica Dube  
Dip DH 1985, BDSc 2004,  
MSc 2009

Jessica visited with student Leo Lee DMD 2018 (candidate) and UBC Dentistry dean Dr. Mary MacDougall at the UBC Dentistry Volunteer Recognition event this past November.

## 2010s



Allison Skrenes  
DMD 2011

Allison and her husband Arsham have a baby boy named Makalu, born on August 8, 2017, in Calgary. Also pictured are Makalu's brother Tyrian and sister Nyala.



Nicole Chien  
BDSc 2012

Nicole married Moses Tang last July. The group photo shows Nicole's classmates from 2012 in attendance (from left to right): Jaclyn Lui, Trish Morales, Sharon Leung, Nancy Nguyen and Jhustine Tolentino. Jason Tao DMD 2013, standing beside Trish, also helped the couple celebrate.



Vince Lee  
MSc/Dip Pros 2016

Vince was the UBC Dentistry alumni representative at the November graduation ceremony at the Chan Centre. In the photo, he is with Dr. Mary MacDougall, dean of Dentistry, who also participated in the ceremony.

#### KEEP IN TOUCH

[www.dentistry.ubc.ca/alumni](http://www.dentistry.ubc.ca/alumni)



Donna Lee  
MPH/Dip DPH 2017

I am the oral health promotion specialist for the Government of Nunavut Department of Health dental division situated in the territory's capital, Iqaluit. I am thrilled and honoured to be part of an amazing team promoting oral health for the territory's 25 Inuit communities. I work directly with the territory's chief dental officer and collaborate closely with the population health team.

Nunavut is Canada's newest territory, with a population of 38,243 people spread over two million square kilometres of land and water. Living in the far North has its challenges, as communities are totally reliant on air and/or freighter ships (only in the summer months) for food and supplies. The temperature can be as cold as -70 °F with the wind chill factor (yes, you read correctly!), and such frigid temperatures with snow blizzards can delay flights from delivering cargo. My first week here, there was no milk in any of the stores. However, the land and the people are extremely beautiful and the sky is endless, with breathtaking northern lights. I hope to spot (from afar) a polar bear hunting for seal!



### Alumni Builder Awards

Several UBC Dentistry alumni have been awarded the Alumni Builder Award, which was created to commemorate the 100th year of *alumni UBC*. The award recognizes a cross-section of alumni, from all UBC faculties, who have significantly contributed to the university and have enriched the lives of others.

The recipients from the Faculty of Dentistry are: Brenda Currie Dip DH 1976, BDSc 2004, MSc 2007; David Hemerling DMD 1993; Liz

Johnson-Lee DMD 1992; Angelique Leung DMD 1988; Doug Nielsen DMD 1972; Sherry Priebe BDSc 2003, MSc 2009; David Sweet OC DMD 1978; and Andrew Tsang DMD 1997.



In the photo from left to right: David Hemerling, Liz Johnson-Lee and Doug Nielsen received their awards at the UBC Dentistry Volunteer Recognition event on November 2, 2017.



David Sweet OC was presented with his award by UBC president Santa Ono as part of the Order of Canada 50th Anniversary: BC Celebration event on November 29, 2017. David, an Officer of the Order of Canada since 2008, participated in the full-day-and-evening event that culminated in a reception with the president.



Sherry Priebe (centre) and Brenda Currie, with Dental Hygiene Degree Program director Zul Kanji, were given their award at the Dental Hygiene Alumni CE & Reception event on November 17, 2017.

### SHARE

Send an alumni story or update for "Class Notes" to [alumni@dentistry.ubc.ca](mailto:alumni@dentistry.ubc.ca)



Andrew Tsang was recognized with an Alumni Builder Award by UBC president Santa Ono and Dentistry dean Mary MacDougall at an *alumni UBC 100* event in Hong Kong on December 9, 2017.

Angelique Leung will receive her award on March 10, 2018, at the Tooth Fairy Gala hosted by the British Columbia Dental Association.

## Almost Alumni



Kerri-Lyn Chong  
Dustin Trudeau  
DMD 2017

Kerri-Lyn, Dental Undergraduate Society president, and Dustin, vice-president, were invited to UBC's Lunar New Year Dinner on January 23, 2018. UBC president Santa Ono highlighted UBC Dentistry's Villa Cathay Care Home project in his remarks, and the students were pleased to meet him.



Alison Ashworth  
Yolanda Lan  
BDSc 2018

Alison and Yolanda volunteered at the UBC Dentistry booth at UBC Homecoming last September 16, 2017.





Kartik Suri  
DMD 2019

Kartik travelled to India this past winter through the Global Health Initiative (GHI), a student-led program supported by the UBC Faculty of Medicine. The GHI invites students from a wide variety of faculties to improve health outcomes in rural communities around the world. Kartik was the sole dental student among five medical students on this team.

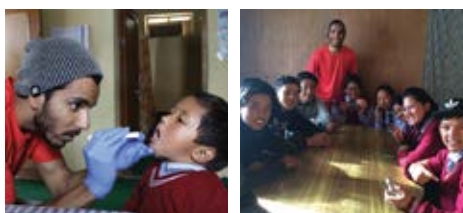
The GHI team contributed to the ongoing Spiti Health Project, begun in 2006, in the village of Rangrik. The project serves children at the Munsel-Ling School, a boarding school run by a local non-governmental organization and supported by charities abroad. Rangrik is in the Spiti Valley, a remote, high-altitude desert area in the Indian Himalaya, near the border with Tibet. Though geopolitically part of India, it is culturally Tibetan.

“We were at 3,700 metres, with about 17 percent oxygen. You walk for about a minute and begin gasping for air—a very different experience from home,” Kartik reports. For seven to eight months of the year the community is closed off to the rest of the world because of snow. The closest sizable centre is 12 hours away across rocky terrain on a packed-dirt road. “We travelled at night in complete darkness. It was a bittersweet experience—scared for our lives, but the Himalayan terrain lit by moonlight was enchanting.”

Each visiting GHI team builds upon the work of previous teams. Earlier teams provided urgent dental care, but Kartik was aware that caries prevalence remains high. His goal on the five-week trip was to change local oral health practices through community-engagement strategies—collecting data on caries prevalence and conducting surveys to gauge existing oral health views and practices. On the ground, he worked with the principals, directors, wardens, teachers and students to design sustainable programs around oral health education, toothbrush storage and distribution systems, and tooth-brushing routines.

“I left knowing that, in a very short period

of time, I had made an impact,” Kartik says. “Even though my role was to empower the community to drive change, they empowered me. I gained immeasurable confidence working with the children, community members and other UBC students. I encourage future UBC dental students to be part of continuing the oral health work at the school through the GHI initiative, or to seek similar opportunities. As cliché as it may sound, they taught me that with a little bit of passion, motivation and hard work, you can make a lasting impact on the lives of people around you.”



## Recent Events



### Nanaimo Alumni CE & Reception

Mario Sertic and Renate Simmons, both DMD 1999, show off their UBC Dentistry sweatshirts at the reception in Nanaimo on September 29, 2017.



### Victoria Alumni CE & Reception

Cody Lin DMD 2016 and Bernard Bild DMD 1983 share a moment after the CE event in Victoria on September 30, 2017.



### Build It or Buy It?

Ebin Thaliath DMD 2016 and Zoltan Keresztes DMD 1982 joined many other alumni in Surrey on October 5, 2017, for a panel discussion about building, buying or renovating a dental practice. Panelists were from Al Heaps & Associates, Scotiabank, Sinclair Dental, Madaisky & Company Business Lawyers, David Mitchell Co. Ltd. and MNP, all members of the UBC Dentistry Alumni Partners program. More events addressing the topic question “Is it time to build, buy, renovate or sell your practice?” are planned for 2018 under the banner Build Buy Sell. Look for dates under “Events for Alumni” on page 41.



### Alumni Wine Reception at the TODS Meeting, Kelowna

Andy MacDonnell DMD 1994, MSc 1990 (left) and his wife Maria (right) welcome Dr. Mary MacDougall, the new dean of UBC Dentistry, to Kelowna and the alumni wine reception following the annual TODS Meeting on October 20, 2017.



### Community Outreach Volunteer Celebration

At Cecil Green Park House on November 2, 2017, Dean MacDougall thanked students, alumni, faculty and other mentors for their commitment to community outreach. Faculty member Dr. Komkham Pattanaporn was recognized for her leadership.





### Dental Hygiene Alumni CE & Reception

Over 120 dental hygiene alumni gathered on November 17, 2017, for CDE presentations on oral cancer by Dr. Denise Laronde (on the right) and Leigha Rock PhD (candidate), pictured in the photo with Zul Kanji, director of the Dental Hygiene Degree Program. Also, the Class of 2018 was invited to explore their career options while enjoying quality networking time.



### VDDS Midwinter Clinic

On November 24, 2017, faculty and staff from UBC Dentistry visited with alumni and other members of the dental community at the Vancouver & District Dental Society Midwinter Clinic annual conference and trade show. The 2017 theme was "Pearls of Peak Performance," and 'Captain Morgan' (a swashbuckling fictitious figure named after a 17th-century Welsh privateer of the Caribbean) was invited to hand out pearl beads to visitors at the UBC Dentistry trade-show booth. Pictured with Captain Morgan is Brian Standerwick BSc 1983, DMD 1988. (Fun fact: Brian is the infamous pirate's dentist in real life!) More fun photos can be seen at [bit.ly/2GwIIVG](http://bit.ly/2GwIIVG)



### Adventure & Learn Hawaii 2018

Attendees of UBC Dentistry's Continuing Dental Education event, January 29 to February 2, 2018, gather outside the Fairmont Kea Lani in Maui for a group photo. Many attending the CE courses were from the DMD Class of 1988, who were also celebrating 30 years since graduating from UBC.

## Events for Alumni

### BUILD BUY SELL (ABBOTSFORD)

Thursday, April 12, 2018 · 6 - 8:30 pm

Best Western Plus Regency Inn & Conference Centre, Abbotsford, BC

Take advantage of a panel of business experts in the field of buying, building, renovating or selling a dental practice at this unique one-stop-shop event. For more information and to register, visit [dentistry.ubc/bbsabbotsford](http://dentistry.ubc/bbsabbotsford)

### ALUMNI RECEPTION AT THE ONTARIO DENTAL CONFERENCE

Friday, April 27, 2018 · Time TBA

Real Sports Bar and Grill, Toronto, ON

To register, visit [dentistry.ubc.ca/ontariorsvp](http://dentistry.ubc.ca/ontariorsvp)

### DINNER WITH THE DEAN IN THE BIG APPLE

Saturday, April 28, 2018 · 7 pm

Patrizia's of Manhattan, 462-466 2nd Avenue, New York, NY

Meet Dr. Mary MacDougall, the new dean of UBC Dentistry, in New York City. All alumni welcome. For more information and to register, email [alumni@dentistry.ubc.ca](mailto:alumni@dentistry.ubc.ca)

### BUILD BUY SELL (KELOWNA)

Thursday, May 10, 2018 · 6 - 8:30 pm

Delta Hotels Grand Okanagan Resort, Kelowna, BC

Take advantage of a panel of business experts in the field of buying, building, renovating or selling a dental practice at this unique one-stop-shop event. For more information and to register, visit [dentistry.ubc/bbskelowna](http://dentistry.ubc/bbskelowna)

### MEDTALKS—EMERGENCY: DRUG USE AND ADDICTION IN THE 21ST CENTURY

Thursday, April 19, 2018 · Time TBA

UBC Robson Square, Vancouver, BC

Join experts from UBC, including Dr. Leeann Donnelly, an alumna and assistant professor from the Faculty of Dentistry, for a multidisciplinary panel discussion. For more information and to register, email [alumni@dentistry.ubc.ca](mailto:alumni@dentistry.ubc.ca)

## Stay in Touch

The alumni office at UBC Dentistry can help you stay connected with your fellow graduates, plan and promote reunions, and keep you informed of upcoming educational opportunities. To learn more, contact Rosemary Casson, manager, Alumni Engagement, at 604-822-6751 or [alumni@dentistry.ubc.ca](mailto:alumni@dentistry.ubc.ca)

Stay connected to more than 3,000 alumni. Share your news, thoughts or comments. Visit [dentistry.ubc.ca/alumni](http://dentistry.ubc.ca/alumni)

### COMMUNITY PARTNERS



Colgate

PATTERSON  
DENTAL/DENTAIRE

### ALUMNI PARTNERS



Al Heaps & Associates Inc.



THE AURUM GROUP



DAVID MITCHELL



Dentsply Sirona

MADAIISKY & COMPANY  
Business Lawyers



MNP ACCOUNTING CONSULTING TAX



Sinclair Dental / Dentaire

*Thank you to all our volunteers.* **DENTAL UNDERGRADUATE SOCIETY EXECUTIVE** · Jessie Cho BSc 2018 · Kerri-Lyn Chong DMD 2018 · Maxine Harjani BSc 2018 · Tom Hoos DMD 2018 · Viktoria Kirsten DMD 2018 · Winnie Law BSc 2018 · Anika Lee DMD 2019 · Kevin Liu DMD 2020 · Emma Marler DMD 2018 · Kaitlin Olson DMD 2018 · Nicole Pasin BSc 2018 · Kimberly Paterson DMD 2018 · Alyssa Podrebarac DMD 2020 · Eric Rocca DMD 2018 · Raphael Samaniego DMD 2020 · Steve Schadinger DMD 2018 · Kayley Sewak BSc 2018 · Jackie Tong BSc 2018 · Dustin Trudeau DMD 2019 · Michael Wong DMD 2019 · Matthew Yeung DMD 2019 · Geoffrey Young DMD 2018 **SPAGHETTI FOR SIX** · Angie Loo DMD 1985 · Amin Shivji DMD 1993 · Lange Soo DMD 1987 · Arv Sooch DMD 2000 **SUMMER STUDENT PRACTITIONER PROGRAM** · Dr. Hassan Adam · Kristopher Bouwmeester DMD 2009 · Janis Boyd DMD 1987 · Jonathan Brown DMD 1992 · Christopher Bryant DMD 1991 · Erin Burley DMD 2005 · Dr. David Burwash · Dr. Babak Chehroudi · Dr. Hui-Kuan Chen · Dr. Andrew Cheng · Eugene Chien DMD 2017 · Heather Chisholm DMD 1984 · Dr. Ho-Young Chung · Jessica Church DMD 2014 · David Ciriani DMD 1987 · Dr. Christopher Ciriello · Kelly Davidoff DMD 2007 · Dr. Blair Day · Dr. Monica Devtsch · Dr. Harinder Dhanju · Dr. Vincent Drouin · Dr. Amin Ebrahim Soltani · Dr. Edward Edwards · Dr. Cindy Feng · Dr. Herbert Fisher · Matthew Francisco DMD 2013 · Dr. Robert Gillian · Dr. Sheldon Goldberg · Dr. Corina Gottschling · James Hsia DMD 1981 · Anderson Hsu DMD 2014 · Mehrdad Jamei-Fard DMD 2011 · Dr. Scott Kaplan · Dr. Aman Kataria · Dr. Diane Kjørven · Mark Kwon DMD 1997 · Dr. Peter Lam · Daniel Lee DMD 1997 · Dr. Paul Lee · David Li DMD 2008 · Dr. Chung Lui · Jasdip Minhas DMD 2005 · Dr. Anne Muirhead · Dr. Cindy Nagel · Dr. Anita Orendi · Jennifer Parrott DMD 2007 · Natalee Peeters DMD 1997 · Mirko Pellizzari DMD 1997 · Sonny Phangura DMD 2014 · Wallace Pon DMD 1977 · Jeannine Ray DMD 2001 · Anastasios Rinquinha DMD 2016 · Dr. Bob Rishiraj · Jaspal Sarao DMD 2010 · Kevin Shen DMD 2015 · Dr. James Singer · Dr. Pavitar Jeet Singh · Dr. Allan Skoronski · Alnoor Somji DMD 1982 · Stanley Soon DMD 1978 · Holly Stamer DMD 2007 · Dr. David Stevenson · Gary Tao DMD 2001 · Jason Tao DMD 2013 · Dr. Michael Thomas · Dr. Bruce Tucker · Dr. Marcia Urdang · Dr. William Vansickle · Ashok Varma DMD 1983 · David Waller DMD 1986 · Richard Wilczek DMD 1981 · Ellen Wu DMD 2003 · Dr. Anthony Young · Dr. Billy Yu **UBC ALUMNI ASSOCIATION ADVISORY COUNCIL** · Ed O'Brien DMD 1978 **VOLUNTEER COMMUNITY CLINIC PROGRAM—VOLUNTEER CLINICS** · Houman Abtin MSc/Dip Endo 2011 · Mike Allan DMD 2018 · Chief Joe Alphonse · Amir Asghari DMD 2018 · Alison Ashworth BSc 2018 · Crystal Au BSc 2018 · Tony Bae DMD 2013 · Chris Barlow DMD 1989 · Heather Bates BSc 2018 · Michelle Bedard · Shahriar Behmanesh DMD 2019 · Bob Blacker · Emery Bland DMD 2010 · Belinda Boyd · Dr. Bill Brymer · Bonita Buddee · Jesse Chahal DMD 2018 · Jonathan Chan DMD 2018 · Kathy Chatten · Austin Chen DMD 2020 · Dennis Chen BSc 2015 · Ling Chen DMD 2020 · Min Cho DMD 2017 · Emily Choi BSc 2017 · Kerri-Lyn Chong DMD 2018 · Caroline Chu DMD 2019 · Paul Chung DMD 2019 · Dr. Christine Constabel · Darren Dahlman DMD 1992 · Andrew Dawn DMD 2018 ·

# THANK YOU

Joanne Dawson · Linda DeCiantis · David DeSantis DMD 2019 · Amarjot Dev DMD 2018 · Jessica Dube Dip DH 1985 BSc 2004 MSc 2009 · Loren Earmme DMD 2021 · Nouran El-Bulkiny BSc 2018 · Lisa Enns · Jackie Fawcett · Iris Feng BSc 2017 · Shannon Fitz BSc 2018 · Anna Carissa Flores BSc 2019 · Michael Frew DMD 2019 · Manvir Grewal BSc 2017 · Cecil Grinder · Marcus Hackman DMD 2019 · Shikha Hans · Christine Hao DMD 2018 · Rosaline Harry · Christine Haslock DMD 2021 · David Hemerling DMD 1993 · Brianne Henderson DMD 2019 · Lala Hennessey · Inhye Heo DMD 2018 · Ming Ho DMD 2017 · Darren Huang DMD 2018 · Ying Huang DMD 2020 · Sarah Hutchinson DMD 2018 · Alex Hyatt DMD 2018 · Heidi Jang DMD 2020 · Connie Jasper · Jamie Jiang BSc 2019 · Navdeep Johal BSc 2017 · Elizabeth Johnson-Lee DMD 1992 · Patrick Kanda DMD 2012 · Sadaf Kashani DMD 2019 · Zoltan Keresztes DMD 1982 · Alice Kim DMD 2017 · Charles Kim DMD 2019 · Jamie Kim DMD 2020 · Junghoo Kim DMD 2018 · Rose Kim DMD 2021 · Sara Kim DMD 2018 · Matt King DMD 2019 · Viktoria Kirsten DMD 2018 · Eric Kong DMD 2017 · Nicole Kwong DMD 2019 · Yolanda Lan BSc 2018 · Dave Larsen DMD 1987 · Alan Lau DMD 1988 · Kevin Lauwers DMD 2005 · Brian Lee DMD 2019 · Junkyung Lee DMD 2020 · Leanne Lee BSc 2019 · Leo Lee DMD 2018 · Nathan Lee DMD 2017 · Teresa Lee DMD 2018 · Kelvin Leung DMD 2016 · Natalie Leung BSc 2019 · Zachary Lim DMD 2018 · Sean Lin DMD 2017 · Ginny Liu BSc 2018 · Kenny Liu DMD 2021 · Brett Livingstone DMD 2019 · Marcus Lo DMD 2018 · Cecilia Loewen DMD 2018 · Henry Louie DMD 1988 · Lucy Lu DMD 2019 · Hayia Mahmood BSc 2017 · Sunny Makkar DMD 2019 · Kendra McCrea DMD 2019 · Alia McLure DMD 2018 · Jose Mendoza · Sahara Mistry DMD 2020 · Dr. Steve Mottahed · Emily Munro BSc 2017 · Quyen Ngo BSc 2017 · Michael Nicholls DMD 1985 · Doug Nielsen DMD 1972 · Susan Nielsen · Mark Norris DMD 1979 · Jihyoon Oh DMD 2020 · Kaitlin Olson DMD 2018 · Scott Panther DMD 2021 · Jason Park DMD 2018 · Nicole Pasin BSc 2018 · Parisa Pezeshkfar DMD 2016 · Doris Pham DMD 2020 · Emilie Phillips DMD 2020 · Ena Que BSc 2017 · Alexandru Radu DMD 2018 · Neda Rafati DMD 2010 · Raphael Samaniego DMD 2020 · Navraj Sandhu DMD 2018 · Varun Saran DMD 2017 · Sara Sassani DMD 2018 · Steven Schadinger DMD 2018 · Susan Schmitz · Karim Seddik DMD 2018 · Saba Shakeri DMD 2020 · Sue Shang DMD 2018 · Janice Shen BSc 2019 · Kartik Suri DMD 2019 · Andrea Szeto DMD 2019 · Katherine Thomas DMD 2020 · Emily Thong DMD 2017 · Joe Tian BSc 2016 · Jackie Tong BSc 2018 · Hanah Tsao DMD 2011 · Meika Uy BSc 2019 · Lex Vides · Akash Villing DMD 2013 · Dr. Banita Villing · Jimmy Wang DMD 2017 · Caleb Wielemaker DMD 2021 · Michael Wong DMD 2019 · Candace Woodman DMD 2007 · Michael Yang DMD 2019 · Stephen Yoon DMD 2017 · Geoffrey Young DMD 2018 · Rachelle Young DMD 2017 · Moorea Zava DMD 2018 *Those listed with MSc, DMD or BSc years from 2018 through 2021 following their names are candidates for graduation in the specified year. UBC Dentistry appreciates all who volunteered their time. We apologize if your name or organization was missed.*



## CONTINUING DENTAL EDUCATION 2018 - 2019

### MARCH 2018

26 - 30 (MONDAY - FRIDAY)

UBC Orthodontic Symposium 2018

Clear Aligners: The Evolution of Future Orthodontics  
Interdisciplinary Treatment, Orthognathic Surgery  
and the Role of TADs in Clear Aligner Therapy  
Dr. Sandra Tai

Rationale for 3D Imaging in Our Practices: How Can  
It Improve Patient Care?  
Dr. Lucia Cevitanes

Bruised, Broken and Bedeviled Teeth: Managing  
the Unexpected Dental Injury (Parts 1 and 2)  
Dr. Anthony DiAngelis

Location: Fairmont Orchid, Kohala Coast on  
the "Big Island," Hawaii

### APRIL 2018

13 - 15 (FRIDAY - SATURDAY)

Mastering Adult Minimal Sedation: Inhalation  
and Oral Sedation in Dentistry  
Dr. Scott Dickinson, Dr. Mark Donaldson,  
Dr. Jason Goodchild

14 - 15 (SATURDAY - SUNDAY)

Bone Grafting: Ridge Augmentation and Socket  
Preservation With Bone Grafting for Future  
Implant Placement  
Dr. Tassos Irinakis, Dr. Ali Sadeghi,  
of the West Coast Institute

### MAY - NOVEMBER 2018

The Complete Clinician: Comprehensive Treatment Planning and  
Surgical Placement for Implants via Computer Guided Technology

Didactic Session: May 24 - 27 (Thursday - Sunday)  
or September 20 - 23 (Thursday - Sunday)

Clinical Session: October 20 - 21 (Saturday - Sunday)  
or November 3 - 4 (Saturday - Sunday)

Dr. Kevin Aminzadeh, Dr. Tassos Irinakis, Dr. Ali Sadeghi,  
of the West Coast Institute

### JUNE 2018

4 - 8 (MONDAY - FRIDAY)

Cast Gold Restoration  
Dr. Margaret Webb

### FALL 2018

Date TBA

Managing a Successful Dental Practice—Developing  
a Business Worth Smiling About  
Speakers TBA

### SEPTEMBER 2018

29 (SATURDAY)

The Three Endodontic Skills You Need to Know  
to Grow Your Practice  
Dr. John West

### SEPTEMBER - OCTOBER 2018

September 28 - 29 (FRIDAY - SATURDAY)

October 19 - 20 (FRIDAY - SATURDAY)  
Smile Design Excellence 2018  
Live Patient Program  
Dr. Wilson Kwong, Vancouver  
Dental Education Centre

### NOVEMBER 2018

17 (SATURDAY)

Application of Autologous Growth Factors  
(PRF and CGF) in Implant Dentistry  
Dr. Paul Jang

### STUDY CLUBS 2018 - 2019

September 2018 - July 2019

Basic Orthodontics for the General Practitioner  
Dr. Paul Witt

September 2018 - August 2019

Advanced Orthodontics for the General Practitioner  
Dr. Benjamin Pliska

September 2018 - July 2019

UBC-Radiant Advanced Orthodontics for the General Practitioner  
Dr. Paul Witt

October 2018 - May 2019

Advanced Fixed Prosthodontics for the General Practitioner (Part II)  
Dr. Chris Wyatt

For dates, times and locations of study clubs, visit  
[www.dentistry.ubc.ca/cde](http://www.dentistry.ubc.ca/cde)

This calendar is subject to change.  
For updates to course offerings, visit [www.dentistry.ubc.ca/cde](http://www.dentistry.ubc.ca/cde)

## FOR REGISTERED DENTAL HYGIENISTS AND CERTIFIED DENTAL ASSISTANTS

### MAY 2018

5 (SATURDAY)

Fundamental Principles of Periodontal Instrumentation  
Ms. Penny Hatzimanolakis

12 (SATURDAY)

Surgical Assisting and Sterile Set-up for Implants  
and Grafting Procedures  
Ms. Penny Anderson, Ms. Teena Dhensaw,  
Ms. Jody Field

23 - 25 (WEDNESDAY - FRIDAY)

2018 Orthodontic Module Update for Certified Dental  
Assistants and Registered Dental Hygienists  
Dr. Paul Witt

### MAY - JUNE 2018

Orthodontic Module for Certified Dental Assistants  
and Registered Dental Hygienists

May 23 - 25 (WEDNESDAY - FRIDAY)  
Lecture sessions

May 26 - 30 (SATURDAY - WEDNESDAY)  
Clinical session A

June 9 - 13 (SATURDAY - WEDNESDAY)  
Clinical session B

### SEPTEMBER 2018

22 - 23 (SATURDAY - SUNDAY)

A Comprehensive Review of Local Anaesthesia  
for Dental Hygienists  
Speakers TBA

### CDE PARTNERSHIP

September 2018 - June 2019

The AAID (American Academy of Implant Dentistry) Vancouver  
Maxicourse is a structured program consisting of 30 days  
of education over 10 months. For more information, visit  
[www.vancouvermaxicourse.com](http://www.vancouvermaxicourse.com)

FOR FULL DETAILS OF CDE COURSES AND TO REGISTER VISIT [DENTISTRY.UBC.CA/CDE](http://DENTISTRY.UBC.CA/CDE)

ADA C-E-R-P | Continuing Education  
Recognition Program



# MARK YOUR CALENDARS!

## CONTINUING DENTAL EDUCATION 2018

### **Managing a Successful Dental Practice— Developing a Business Worth Smiling About**

Designed for dentists who own their practice, this nine-day program delivered over three months will develop the strategic and operational skills and abilities to ensure an efficient, patient-centred business.

Each topic addressed has built-in exercises that help you focus on your own practice, from identifying your key performance issues, to developing a sound assessment of the current health and future prospects for your practice. There is also peer discussion to identify shared problems and a range of solutions. Guest speakers will deliver seminars on topics such as managing wealth and investment strategies, among others.

Developed and presented in partnership with the UBC Sauder School of Business, the Faculty of Dentistry and the British Columbia Dental Association, this innovative new program is delivered by recognized industry leaders and leading business researchers.

Open to dentists and their staff.  
For fall dates and more details, visit  
[dentistry.ubc.ca/cde](http://dentistry.ubc.ca/cde)

## TRAVEL AND LEARN 2019

### **Adventure & Learn: Hawaii 2019** February 4 – 8 (Monday – Friday)

### **Annual Al Heaps & Associates Inc. Palm Springs Dental Practice Transition Seminar and Golf Weekend 2019** February dates TBA

### **Annual Ski Seminar at Whistler 2019** February 28 – March 2 (Thursday – Saturday)

For more details, visit  
[dentistry.ubc.ca/cde/travel-and-learn](http://dentistry.ubc.ca/cde/travel-and-learn)

## EVENTS FOR ALUMNI

### **Build Buy Sell (Abbotsford)** April 12, 2018 (Thursday)

### **MEDTalks—Emergency: Drug Use and Addiction in the 21st Century** April 19, 2018 (Thursday)

### **Alumni Reception at the Ontario Dental Conference** April 27, 2018 (Friday)

### **Dinner With the Dean in the Big Apple** April 28, 2018 (Saturday)

### **Build Buy Sell (Kelowna)** May 10, 2018 (Thursday)

For more information about these events,  
visit [dentistry.ubc.ca/alumni](http://dentistry.ubc.ca/alumni) or email  
[alumni@dentistry.ubc.ca](mailto:alumni@dentistry.ubc.ca)

## IMPRESSIONS

204 – 2199 Wesbrook Mall  
Vancouver BC Canada  
V6T 1Z3

T 604 827 3335  
E [terrysw@dentistry.ubc.ca](mailto:terrysw@dentistry.ubc.ca)  
[dentistry.ubc.ca](http://dentistry.ubc.ca)

Update your address at [www.dentistry.ubc.ca/alumni](http://www.dentistry.ubc.ca/alumni) or email  
[alumni@dentistry.ubc.ca](mailto:alumni@dentistry.ubc.ca)

**Publisher** Mary MacDougall  
**Editor-in-chief** Terry Wintonyk  
**Writers** Stephanie Chou, Heather Conn, Terry  
Wintonyk, Mark Witten

**Contributors** Rosemary Casson, Stephanie Chou, Nancy  
Ford, Jane Merling, Gethin Owen, Ed Putnins, Eli Whitney  
**Stylistic/copy editor** Vicki McCullough  
**Photography** Paul Joseph  
**Design** Letterbox Design Group

## UBC Faculty of Dentistry

Return undeliverable Canadian addresses to:  
UBC Dentistry (Impressions)  
204 – 2199 Wesbrook Mall  
Vancouver BC Canada V6T 1Z3

