

U_{OF}T DENTISTRY

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MESSAGE FROM THE DEAN

BROADENING OUR REACH

In April, a forerunner of our Faculty, John G. Adams, was commemorated with a plaque, permanently located just a block from the Faculty. The recognition was jointly promoted by the Hospital for Sick Children (SickKids), the Ontario Dental Association, Heritage Toronto and our Faculty of Dentistry. A major proponent of dental public health, especially for children and the poor, Adams opened the first free dental hospital in the city, and was later a mentor to our Faculty's founder, J. B. Willmott.

Our Faculty has been invested in teaching and clinical care outreach throughout its illustrious 140-year history. Alumnus Ashley Lindsay O7, 2T8 BScD, 3T6 MSc, 4T5 Hon LLD, for instance, made his mark on history by bringing dental education to China in 1907. More than 100 years after Lindsay first travelled to China, the Faculty enjoys an international research partnership with Sichuan University, the same institution that evolved from Lindsay's efforts.

While we don't actually perform dentistry in the street, as our new Boundless ad might suggest, we have established outreach programs that give our DDS students opportunities to work in places like Moose Factory. Guided by our strategic priority to initiate new outreach programs in community settings that serve population needs, we recently created two additional clinical opportunities for the DDS stream, one at a clinic affiliated with St. Michael's Hospital, and the other with the Centre for Addiction and Mental Health (CAMH). We are also planning to expand such initiatives.

With our growing commitment to community and international partnerships, it will come as no surprise that we are

still broadening our reach. Two students will be travelling to Uganda in the winter of 2016 to work in small communities through the Bridge to Health program.

I am also very pleased to announce that the Faculty has joined the University's Toronto Addis Ababa Academic Collaboration (TAAAC). Through this program, various University of Toronto medical specialists and other professionals travel to Addis Ababa University to help with training programs, in order to develop a broader sustainable health workforce in Ethiopia. The program,

which already includes several other Faculties, is designed to respond to the overwhelming needs of this country, from a dearth of mental health professionals to a lack of medical and dental practitioners. To illustrate: according to a 2007 FDI World Dental Federation report, Ethiopia has just 65 dentists serving a population of 94 million.

Our partners in Addis Ababa are committed to building a sustainable model of dental education. The Faculty plans to send a first cohort

of faculty members and Clinical Associates to train faculty and students at the Addis Ababa University through month-long rotations this coming academic year.

We hope this is just the first wave of experts we send to Ethiopia, and that we can provide learning and teaching opportunities for our own students — undergraduate as well as graduate — through this knowledge exchange. I invite any of our alumni or community wishing to hear more about this exciting project to get in touch. I also encourage you to visit the TAAAC website: www.taaac.com. ■

DEAN DANIEL HAAS

We recently
created two
additional clinical
opportunities for
DDS students

UP FRONT



Dr. David Lam, Discipline Head,
Oral & Maxillofacial Surgeon

IDENTIFYING CANCER-PAIN GENE

About half of cancer patients experience significant pain, which isn't always adequately treated. Research led by Dr. David Lam, MSc, PhD, Assistant Professor and Head of Oral and Maxillofacial Surgery at the Faculty of Dentistry, has uncovered a gene that triggers the most severe forms of cancer pain — a finding that may yield better pain therapies.

Published in the medical journal *Pain* in May, the study identified *TMPRSS2*, a gene linked to some aggressive androgen-fuelled cancers. Lam discovered that *TMPRSS2*, found on the surface of cancer cells, interacts with nerve-pain receptors. The greater the interaction, the more pain it produces.

Noting that most head and neck cancer patients are men, Lam investigated *TMPRSS2*'s role in prostate cancer. "We know that if you have the *TMPRSS2* gene marker, the prostate cancer is much more aggressive,"

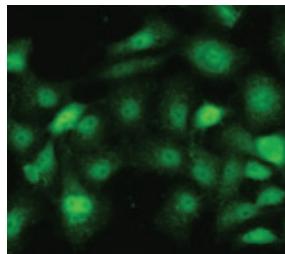


Photo: courtesy David Lam

The gene *TMPRSS2* has been identified as the gene causing cancer pain

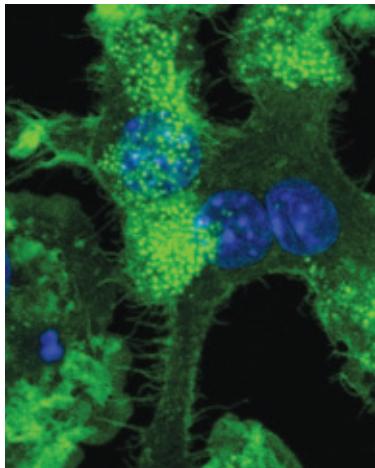
says Lam, a consultant surgeon at the Princess Margaret Cancer Centre and a clinician at the Mount Sinai Wasser Pain Management Centre.

Lam and his colleagues found that the amount of *TMPRSS2* expressed in different cancer cell cultures also directly correlated with cancer-pain severity: head and neck cancers are associated with the highest pain severity, followed by prostate cancer.

Shedding light on *TMPRSS2*'s role in triggering cancer pain may lead to innovative therapies that target the pain gene. Next, Lam will examine what role *TMPRSS2* may play in the aggressiveness and morbidity rates associated with certain cancers.

KEY TO BONE LOSS IN PERIODONTITIS?

As much as \$125 billion is spent annually in the U.S. tackling periodontitis and related bone loss. A human protein, adseverin, has been identified as the key driver behind the bone loss associated with periodontitis, the world's most common osteo-inflammatory disease. The findings, published in June in the journal *FASEB* by researchers at the Faculty of Dentistry, pave the way for preventive treatment models for this ravaging disease.



Large osteoclasts with protein adseverin

Photo: courtesy Yongqiang Wang and Michael Glogauer

“Osteo-inflammation produces larger osteoclasts,” explains Dr. Michael Glogauer 9T3, 9T9 Dip Perio, 9T9 PhD, a professor in the Faculty’s Matrix Dynamics research lab and a lead study author. Larger osteoclasts are responsible for rapid bone loss in periodontal disease and potentially in other bone-related diseases. These “superosteoclasts” cause damage as they form on the bone surface and, once attached, produce enzymes that wear down bone and loosen teeth. “The larger the osteoclasts, the more efficient they are at re-absorbing bone,” says Glogauer.

With co-researcher Dr. Chris McCulloch 7T6, 8T2 PhD, also a professor in the Faculty’s Matrix Dynamics research lab, Glogauer found that adseverin may be critical in generating these destructive osteoclasts. The investigators analyzed the role of cytokines, small proteins released during an immune response, and found that they activated adseverin production.

The study, supported with funds from the Canadian Institutes of Health Research (CIHR), may also yield insights into bone loss related to osteoarthritis and osteoporosis.

The protein Adseverin is responsible for rapid bone loss in periodontal disease and potentially other bone-related diseases



CONNECTING ALUMNI WITH STUDENTS

Complementing our existing mentorship opportunities, a new networking event, *Word of Mouth*, connects alumni seeking to fill associate positions in their practices with graduating students. Interested alumni should contact Sabrina Martinez at sabrina.martinez@dentistry.utoronto.ca.

PET EXAM HELP



Need help studying? Thanks to an expanded collection, the U of T Dentistry Library now has a set of recommended study textbooks for the Practice Enhancement Tool (PET) training in Ontario. Previously only available for short-term loan, now alumni across the province can request the textbooks through inter-library loans at their local libraries.

MESSAGE UNDELIVERABLE?

Don't miss out! Keep up with the latest alumni news and invites by ensuring that we have your current address on file. Please update your address with sabrina.martinez@dentistry.utoronto.ca.



Dean Daniel Haas with Dean Cristina Amon (Applied Science & Engineering) and Dean Catherine Whiteside (Medicine) at the unveiling of the Ted Rogers Centre for Heart Research

MAJOR GIFT FROM ROGERS FAMILY AIDS HEART RESEARCH

Aiming to reduce hospitalization for heart failure by 50 per cent over the next decade, in November 2014 the Hospital for Sick Children, the University Health Network and the University of Toronto announced the creation of the Ted Rogers Centre for Heart Research, funded a \$130 million gift from the Rogers family, the largest monetary gift ever made to a Canadian health-care initiative.

Illustrating Dentistry's diversity and global impact, two of the new Centre's researchers, Professors Paul Santerre and Craig Simmons, will play major roles in cardiac research. Santerre, former director of the Institute of Biomaterials & Biomedical Engineering (IBBME) and winner of the 2014 Earnest C. Manning Award for Innovation, looks to biomaterials solutions for repairing and treating damaged heart tissues. He, along with Simmons, whose research into biomimetic and synthetic heart valves earned him U of T's 2012 McLean Award, are expected to move into the U of T site for the Centre, MaRS II, this fall.

Two of Dentistry's researchers, Professors Paul Santerre and Craig Simmons OTD PhD will play major roles in the Rogers Centre

With facilities in the three participating institutions, the Centre will be the first in the world to marry research, education and innovation in personalized genomic medicine, stem cell research, bioengineering and cardiovascular treatment and management under one umbrella with a single focus: improving heart health across the entire lifespan.

U of T's cutting-edge science will be led out of IBBME, Dentistry's world-renowned academic research arm.

EQUATION FOR IMPLANT SUCCESS

For decades, dentists and manufacturers have had limited options to assess the osseointegration of dental implants. The ability to measure how well and how quickly the metal screws integrate with a patient's jawbone has been lacking.



PhD student Rob Liddell is tackling this challenge. Liddell found a way to measure the rate of osseointegration relative to an implant's surface design using the mathematical construct *Tau*.

Liddell earned a first-place prize for his research at this year's Academy of Osseointegration's Annual Meeting in San Francisco, and he has drawn interest from several implant companies. He's currently developing the first standardized performance-measurement system for dental implants.



ANNOUNCING...

In January, alumnus Dr. Thomas Jon Harle 8T0, 8T9 Dip Prosthodontics, 9T0 MSc D (above) was awarded the Order of Canada. The Ottawa-based specialist was recognized for his work with homeless and vulnerable populations both in Canada and abroad.

SPEEDING UP NEW CANCER DRUG DISCOVERY

Deciphering how cancer cells behave within malignant tumours and then spread would give medical science an edge in tackling the disease with novel targeted therapies.

With this ambitious goal in mind, Dentistry Professors Chris McCulloch 7T6, 8T2 PhD (right) and Craig Simmons are designing a rapid cancer cell assay that recreates cancer cells' natural environment. "This assay uses collagen, which allows the cells to be examined in an environment that mimics the tumour in vivo," explains McCulloch.

The pair partnered with Quorum Imaging, an established leader in the field of microscopy, to develop the innovative tool which may help screen hundreds of different compounds at a time to speed up new cancer-fighting drug development. Their promising research is supported by a prestigious grant from the Canadian Institutes of Health Research (CIHR).



2014-15 STUDENT PARTNERSHIP PROGRAM

The Faculty of Dentistry gratefully acknowledges our partners who supported the student experience.

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FACULTY OF DENTISTRY

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GREAT EXP

Meet some of our newest graduates from 2014-2015



**CLEO
SANMARTIN 1T5**

Post-grad plans: Spending three years in Alberta as an associate in a dental practice

I really love the guidance that the students are given by some of the wonderful clinical instructors that we have at the Faculty."



**RAFAEL LUIS FIORI DE
FIGUEIREDO 1T4 MSC DPH**

Currently: Alberta Dental Public Health Officer

My dream is to be able to make a difference, to contribute by creating and using opportunities to implement effective solutions for population oral health and health care problems."

CONVOCATION 2015

Congratulations to our newest DDS grads

DDS Class of 2015

Anuj Aggarwal
Atyub Ahmad
Eugene Ahn
Yasameen Al-Attar
Amjed Al-Hajjaj
Mir Salmaan Ali Khan
Tarik Awad
Hartley Blumenfeld
Emily Margaret Brown
Sukhman Kaur Chauhan
Johnson Cheung
Christofis Christofi
Jacqueline Phia Chu
Julie Anne Crowell
Isabel Cumandra

Dhaval Dave
Hu Chi Shane Dhar
Tom Chang Xu Ding
Eden DiRuscio
David Philip Bruce Duncan
Nicolas Odysseas
Economopoulos
Rowayda El Deeb
Azza Shawky Elhaddad
Mohamed El-Rabbany
Mounir Elzokm
Brett William Thomas
Empringham
Naghme Farsi
Hayley Galit Faulkner
Benjamin Fielding

Kristina Anne Fielding
Megan Fulford
Jovita Gananam
Nicholas Gillis
Christopher Vaughan
Glover
Sherwin Habibi
Soomin Janet Han
Adam Hellen
Vasile Hrihorisan
Nicholas Irwin
Naamah Jacobs Weltman
Apeksha Jain
Amarpreet Kaur
Ashley Lauren Katchky
Minseon Kim

Gillian Landzberg
Tammy Che-Yan Lu
David Lee
Michael Dennis Leeson
Kristin Le Saux-Farmer
Dai Li
Carmen Lo
Roger Y. Lu
Alexandra Lubelsky
Stephanie Carmen Ma
Erin Manor
Ladan Mansouri
Joel Benjamin Meyerson
Rahul Mishra
Laleh Mohammadian-
bajgiran

Valentina Moiseenko
Ramona Motakef
Yuliya Muratova
Visaki Murugapopathy
Huma Parveen Nagani
Ali Namavarian
Ali Nasser
Manpreet Nayyar
Kelvin Ng
Michael Nightingale
Se Mi O
Maitry Parikh
Ashkan Salehzadeh
Surpreet Kaur Sandhu
Golriz Sanei
Cleo Valentina Sanmartin

Konstantin Savitsky
Amirehsan Sedaghat
Sayar
Vincent Senini
Solmaz Shariat
Joleshna Shrestha
Ryan Shugg
Monika Singer
Laura Tan
Christopher Tassone
Vera Telyakova
Ryan Tsang
Kenneth Richard Duncan
Urquhart
Yona Rachel Vandersluis
Darren Van Winckle

ECTATIIONS



MICHELLE WONG 1T0, 1T4 MSC ANAES

Currently: Assistant Professor, Dental Anaesthesia, U of T; Sunnybrook Health Sciences Centre; and in private practice

"I would like to make a difference, however big or small, for a colleague, student, patient or loved one. I want my life choices and clinical decisions to matter."



MICHAEL NIGHTINGALE 1T5

Post-grad plans: Starting a private practice split between downtown Toronto and smaller towns outside the GTA

The Faculty has made enormous contributions which have shaped not only the dental care that my patients will receive, but how dental care is carried out around the world.

Kelsey Whitney Vinh
Jian Wang
Steffi Yontin Wong
Shuo Yang
Artiom Zatsepin
Zhang Jane Zhang
Angelica Zykus

Master of Science (MSc)

Guy Moshe Aboodi
– *Periodontology*
Majed Marzoq Alsarani
Laith Awamleh
Kinga G. Baskai
– *Prosthodontics*

Peter Bozavikov
– *Endodontics*
Aimee Andres Castro
– *Pediatric Dentistry*
Eugene Chung
– *Periodontology*
Rafael Luis Fiori
de Figueiredo
– *Dental Public Health*
Vaia Bailey Galimanas
– *Periodontology*
Hailey Alyssa Goldberg
Sari Michelle Hershenfield
– *Periodontology*
Maayan Inger
– *Periodontology*

Ashkan Javid
Joonyoung Ji
– *Anaesthesia*
Waad M. Kheder
– *Prosthodontics*
Kevin Knowlton
– *Orthodontics*
Kamil Kolosowski
– *Endodontics*
Gillian Layton
– *Endodontics*
Katherine Kyoung-Jin Lee
– *Oral and Maxillo-
facial Surgery*
Natoosha Natalie Nargaski
– *Orthodontics*

Trang Doan Nguyen
– *Pediatric Dentistry*
Catherine Nolet-Levesque
– *Oral and Maxillo-
facial Radiology*
Jamie Aileen Ong
– *Pediatric Dentistry*
Arezou Ossareh
Vinay Kumar Pilly
– *Dental Public Health*
Henry Pun
Bronsen Schliep
– *Orthodontics*
Anoushe Sekhvat
– *Pediatric Dentistry*

Peter Dat Ta
– *Oral and Maxillo-
facial Surgery*
Daniel P. Turgeon
– *Oral and Maxillo-
facial Radiology*
Rae Varughese
– *Pediatric Dentistry*
Michelle Wong
– *Anaesthesia*
Laurene Dao-Pei Yen
– *Orthodontics*

Doctor of Philosophy (PhD)

Guy Moshe Aboodi
Paola Gondim Calvasina
Mohamed Mahmoud
Kandil
Franco Klingberg
Hamid Mohammadi
Nilesh Talele
Merav Yarkoni-Abitbul

MSc and PhD graduates include those who convocated in November 2014, March 2015 and June 2015.

Every effort was made to ensure the accuracy of this list as of time of press.



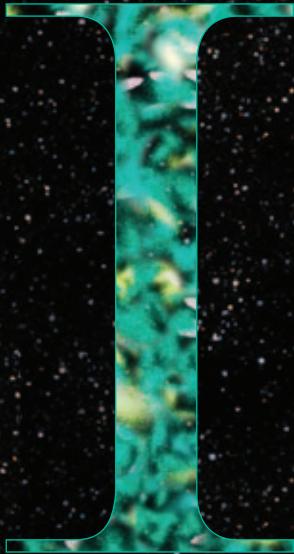
COVER STORY

PLAQUE TO THE FUTURE

BY ERIN VOLLIK

U of T Dentistry's newest research hub aims to transform how medicine predicts, treats and monitors disease in the mouth and the body.

ILLUSTRATION BY ANTHONY TREMMAGLIA



Imagine one day being able to diagnose diabetes, heart disease or even cancer using a saliva sample or bacteria-filled tongue scraping the size of a pinhead. This isn't science fiction but a real possibility, thanks to our growing understanding of the human oral microbiome.

Dentistry's new Oral Microbiome and Metagenomic Research (OMMR) Lab is at the forefront of innovative research that examines the diverse community of bacteria occupying the oral cavity and the novel insights it can provide into disease and health.

Home to over 700 different species of bacteria, the oral microbiome plays a critical role in our overall well-being, and evidence suggests that it has a vital link to infections of the heart, lung, gut and brain. Until recently, research has focused on other microbiome sites of the body, such as the urogenital tract or the gut; unique as a mirror of oral and systemic health, the human oral microbiome has remained relatively unexplored.

TOWARD MORE EFFECTIVE TREATMENTS

The OMMR group brings together a constellation of clinical units and disciplines that currently includes Oral Microbiology, Periodontology and Oral & Maxillofacial Surgery at U of T Dentistry. Working with external partners at Dalhousie University, Western University, the University of Waterloo, as well as running projects with the University Health Network, the OMMR Lab promises to be the first lab in Canada exclusively dedicated to research, education and service in the fields of oral microbiomics and metagenomics.

Part research unit, part clinical service and part educational opportunity, the OMMR Lab draws upon big data analysis — the computation of massive amounts of data mined from genetic information in samples — to distinguish and catalogue different types and numbers of bacteria present in healthy and

diseased states. What this means is that the OMMR Lab will be able to map treatment plans and offer non-invasive patient surveillance — but that's only the beginning.

Through its multidisciplinary, innovative approach, the OMMR Lab will yield promising results both in the research lab as well as “chairside,” explains OMMR Director Dr. Howard Tenenbaum 7T8, 8T2 Dip Perio, 8T3 PhD. “The OMMR/Clinical Program creates an understanding of oral disorders for patients with conditions that have been difficult to manage until now. This will be done by creating new knowledge about the underlying causes of these diseases, thereby permitting the development of bio-targeted therapies that will be more effective than those available currently.”

LIVING SNAPSHOTS OF HEALTH AND DISEASE

The first order of business for the OMMR Lab has been to determine how the core bacterial communities — microorganisms that are consistently present for an individual — drift over time at different sites in a person's mouth. To that end, the OMMR co-Director, Dr. Dilani Senadheera oT7 PhD led ten Dentistry undergrads who volunteered to donate close to 300 plaque and saliva samples over the course of 90 days. DNA harvested from these samples were subjected to DNA sequencing, then sent for analysis by collaborators Dr. Robert Beiko and Michael Hall in the Computer Science Department of Dalhousie University. The team is currently tackling 13 million bacterial sequences from this dataset using various



bioinformatics pipelines and software.

The study offers a first-of-its-kind glimpse into the baseline fluctuations of the oral bacterial communities, which establishes a means for comparing for comparing the oral microbiome in healthy and diseases states. “If we plan to use plaque and salivary bacterial biomarkers for disease prediction and treatment monitoring, then we need to understand how they fluctuate on daily, weekly and monthly intervals at different sites in the mouth,” says Senadheera. Preliminary study results suggest that, while turnover rates of the bacterial community can vary between individuals, the oral microbiome in health remains relatively stable over time, thereby providing an easily accessible, non-invasive sampling site for biomarker monitoring.

CANADA'S FIRST PLAQUE BANK DELIVERS HOPE

With its unique biomarker surveillance, the OMMR Lab could change the way disease is both monitored and tackled. Senadheera's project represents but one small step for the lab's vast data-collection project. With approximately 78,000 visits to its Clinics each year, UofT Dentistry has at its fingertips scores of patients from which to draw samples to help fill a handful of the world's first oral bacteria biomarker catalogues. The plaque bank not only allows researchers to enrich their data pool but also enables them to offer unique clinical translation services by allowing biomarker tracking for disease prediction, monitoring and therapeutic development.

Since officially launching in February, the plaque bank has

collected hundreds of patient samples, obtained over 10 million sequences for biomarker identification and run more than 10,000 quantitative real-time PCR (RT-PCR) reactions, while also collaborating with the services of its satellite partner facility, Dr. Walter Siqueira's saliva bank at the Schulich School of Medicine and Dentistry at University of Western Ontario.

The OMMR Lab also works with the Faculty of Dentistry's Severe Refractory Periodontal Disease Clinic, run by Professor Michael Goldberg 9T1, 9T4 Dip Perio. The only clinic of its kind in Canada, it draws between 70 and 80 patients a year from all over the country. “The Clinic was using immunofluorescence staining to complete its sample analysis,” says Goldberg, who also serves as OMMR's first Clinical Director. And while this has been the standard testing protocol for research into oral diseases, and despite years of dedicated research into severe refractory disease - afflicting an estimated two percent of the population - researchers remain stymied by it.

“It was because of a question Dr. Goldberg asked me that we started the OMMR's bacterial surveillance service component,” says Senadheera of the lab's unique marriage between basic research and clinical translation. “He asked if there was a way [for his clinic to use] bacterial DNA testing to monitor pathogenic species in patient plaque. I had to come up with a way to facilitate this.”

By comparing over three million DNA sequences from plaque obtained from patients with severe gum disease and healthy controls, the OMMR team honed in on ten species whose

Dilani Senadheera experiments with plaque transplantation using the Bioflux artificial mouth.



abundance was dramatically increased in disease states. Besides organisms such as *Porphyromonas gingivalis* and *Tannerella forsythia*, whose links with gum disease have been well-documented for decades, the team identified periodontal pathogens as well. These include novel disease indicators, such as *Porphyromonas endodontalis* and *Fretibacterium fastidiosum*, which the OMMR Lab is currently using for infection monitoring.

PAVING THE WAY FOR PERSONALIZED “COMMUTER” MEDICINE

Adopting next-generation DNA-sequencing analysis and real-time PCR methods to analyse plaque bacteria, Goldberg will use biomarker results for treatment plans and monitoring for patients who don’t respond to periodontal treatment. And while the technique is still quite new, Goldberg predicts that it will offer a much needed long-term “commuter” surveillance system. That is, since the plaque can be collected non-invasively, Goldberg’s remote patients, who may come from as far as Victoria, B.C., will be able to mail their samples rather than hop on a plane.

“We’re still in the early stages,” says Goldberg, “but this will be very good for the patients seen for long periods of time and those with yearly follow-ups.”

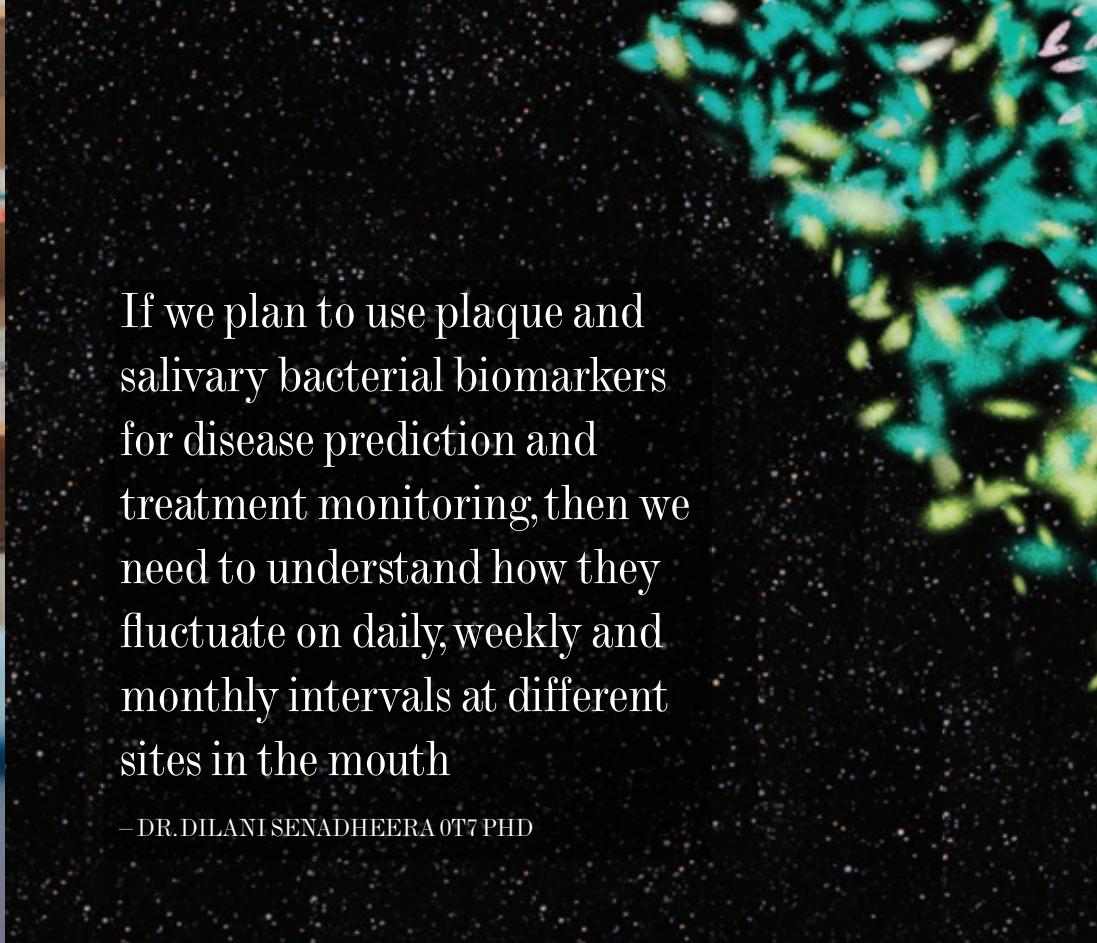
A third collaborative project with gastroenterologist Dr. Johane Allard at the University Health Network — a study tracking oral bacterial changes in morbidly obese patients undergoing gastric bypass surgery — has the OMMR Lab poised to unleash a new form of personalized medicine. In this work, bacterial community profiling by the Senadheera

lab is complemented with immune marker tracking by Dr. Michael Glogauer 9T3, 9T9 Dip Perio, 9T9 PhD, a Professor and Clinical Associate of the OMMR group.

Morbidly obese patients often suffer from a host of health complications, from periodontitis to diabetes. But with gastric bypass surgery and rapid weight loss, it’s expected that there will be concomitant positive changes to the patients’ microbiomes. This is what OMMR researchers will track, from pre- to post-operative bacterial fluctuations and the resulting changes they effect in the patients’ health.

In fact, the OMMR Lab’s non-invasive and easily accessible collection methods represent a novel and rare opportunity for the UHN study to overcome one of the greatest challenges with this patient base: access. With many of these patients suffering from greatly reduced mobility, it’s difficult to bring them in for oral examinations and sampling. Luckily, the mouth represents a far more readily accessible site of sample collection than other sites within the body. In a previous study, the OMMR team had devised a way to collect plaque from patients for regular testing without necessarily requiring dental experts, and enabling patients to collect samples themselves.

The UHN study will track 80 patients for one year, with plaque samples taken from them before, during and after their bypass surgery. Of prime interest to researchers at the Faculty are the linkages between type 2 diabetes and periodontal disease. With four or five sampling points for each patient offering bacterial community snapshots over time, the researchers can



If we plan to use plaque and salivary bacterial biomarkers for disease prediction and treatment monitoring, then we need to understand how they fluctuate on daily, weekly and monthly intervals at different sites in the mouth

— DR. DILANI SENADHEERA OT7 PHD

begin to paint an accurate picture of physiological changes as patients shift from obesity, diabetes and periodontal disease to recovery states wherein the diseases are reversed.

Once a data set has been accumulated from the plaque bank or a study patient base, the OMMR Lab will be able to use machine-learning methods for automated disease prediction.

Big data specialist Dr. Darius Braziumas, who holds a PhD from the University of Toronto’s Department of Computer Science, is helping the team develop risk-assessment software to evaluate a patient’s predisposition to disease.

“We are offering patients a non-invasive clinical-surveillance service,” says Dr. David Lam oTr, oT8 PhD, Head of the Oral and Maxillofacial Surgery Discipline at the Faculty and Co-Clinical Director of the OMMR Lab. Senadheera, Lam and team recently obtained a CIHR Bridge Fund with the Institute for Musculoskeletal Health and Arthritis to study how the oral microbiome and salivary proteome are affected by radiotherapy in patients with head and neck cancers, and to understand the shifts associated with radiation caries in these patient populations.



MOUTH-ON-A-CHIP

With conditions mimicking the human microbiome – including salivary flow – the OMMR’s artificial mouth is currently being used in plaque transplantation experiments using plaque and bacteria derived from human donors.

environment, the team hopes to put the knowledge it gains from growing plaque outside the mouth toward developing new therapeutics for a host of oral illnesses. With support from the Faculty’s Enrichment Endowment Fund, the team has purchased a BioFlux system, a microfluidics flow cell device that can be used to mimic the natural conditions of the mouth, including saliva flow that will allow the OMMR team to run plaque experiments *ex vivo*.

While simulating the human oral cavity isn’t new, what the OMMR Lab is doing with it is both novel and practical: the BioFlux system will allow the researchers to grow plaque biofilms in the presence of saliva derived from human donors.

Experiments are already underway that one day could lead to novel bacterial-plaque transplantation therapies. “Not only can we see how the bacterial biofilm communities in people battling oral diseases behave relative to those in health,” says Senadheera. “But we can also manipulate these by introducing probiotics and antimicrobials, and by

introducing plaque from healthy donors.”

“So many people have discussed this,” says Senadheera “But to do this within the Faculty of Dentistry, and in Canada, and with these cohorts within the OMMR — it will expand our avenues of education and service.” ■

THE NEXT FRONTIER — AN ARTIFICIAL MOUTH

With the creation of an “artificial mouth” in the works, a synthetic environment that will simulate the human oral plaque



Thank you to our alumni, friends and supporters who made the Gala such a successful event.

We proudly honoured Dr. Jack Gerrow 7T9, Dr. Lynn Tomkins 8T1 and the Royal Canadian Dental Corps while raising funds for the Faculty of Dentistry teaching clinics and the Access to Care Fund to help patients in need.



Photos: Visions by David

SAVE THE DATE

SATURDAY, APRIL 2, 2016
Sheraton Centre Toronto Hotel

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and sponsorship:
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A DAY IN THE LIFE

It's the front line for treating people in severe pain. Staffed throughout the school year as well as the summer months, the Faculty's Emergency Clinic provides valuable experience to third- and fourth-year student dentists. But with two recently added operatories, treatment capacity rises dramatically.

It's 9:15 a.m. on a Friday morning. Alicia Clancy, who has just wrapped up her third year of the DDS, gets ready to start her shift. Donning green scrubs, she takes a few moments to set up her chair, No. 400, and preps her workspace according to health and safety protocols.

These small routine tasks make up the ebb and flow of days spent in the Emergency Clinic. But unlike previous years, this year's Summer Clinic starts with two new operatories in a small, additional emergency clinic room, along with two more students to operate them.

While Clancy and her classmate Ioana Leb-Neinstein prep their shared room with its immaculate white walls, cupboards and computer spaces, six of her classmates ready their own workspaces directly across the hall in the main Emergency Clinic room.

The new room boasts two new state-of-the-art *A-Dec 511* chairs that have an automated LED light system with greater magnification, a cure-safe mode and a computer-assisted-hand turbine system that identifies which piece has been activated. The water suction and spray is more



Anuj Aggrawal 1T5 and Valentina Moissenko 1T5 become acquainted with the features of the new emergency room chairs.

“You learn how to quickly determine the problem so you can find a solution.”

—ALICIA CLANCY DDS 1T6

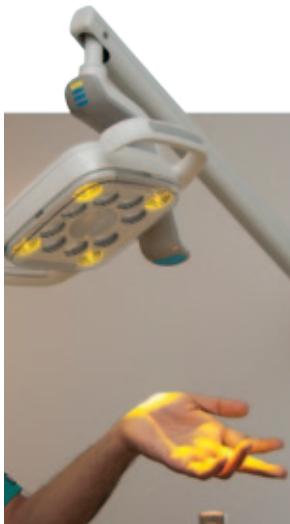


streamlined and lightweight, according to the students, and overall, the chair displays more fluid movement.

Recent graduate Roger Lu 1T5 tested the new equipment during his last rotations in the Emergency Clinic. “Patients probably enjoy the new equipment and the chairs too,” he reports. “The new chairs are faster — they speed everything up. It would be awesome if the Faculty could change them all.”

The new chairs add another type of comfort by increasing substantially the Faculty’s ability to manage its emergency patient load substantially. Raising the number of chairs from eight to ten, the Clinic expects to see 750 more patients in addition to its approximately 3,000 current emergency patients per year — a 20% increase in capacity.

With most hospital emergency rooms ill-equipped to treat oral health emergencies, for many in the community, the Faculty’s Emergency Clinic is one of just a handful of places where people can turn for urgent care.



BRIGHT IDEAS

Along with features that include more room for attachments, the new Emergency Clinic chairs come with a built-in light fit with a protective filter for light-sensitive composites.

And, as the students quickly realize, this is truly a population in need. In terms of demographics, Clancy reports that many of the patients who come through the Emergency Clinic can’t afford regular treatment.

The Summer Emergency Clinic’s mission is very clear, says Assistant Professor Karen Burgess 8T5, 9T5 MSc, 9T5 Dip OP, Director of Oral Diagnosis and Emergency clinics: “We provide urgent care for our Faculty’s 15,000 patients over the summer months when our regular clinics are closed.”

Equally valuable is the deep educational immersion that two more students will experience over the summer months. Clancy faces a steep learning curve at her summer job, but for her, like the rest of the Summer Emergency Clinic cohort, the experience is invaluable.

“You really do learn how to diagnose acute pain,” she says. “You learn how to quickly determine the problem so you can find a solution.” ■

GOAL \$18M

CURRENT DONATIONS \$13.9M

BOUNDLESS IMPACT

The Faculty of Dentistry is making a powerful difference by enhancing the overall health of vulnerable patients, translating new knowledge, tackling key clinical and policy challenges and preparing tomorrow's leaders.

Our impact has broadened with the Boundless Campaign, which has reached a tremendous milestone thanks to donations from almost 2,000 alumni and friends.

boundless.utoronto.ca/dentistry



Only one-third of our patients reported having **ANY FORM OF DENTAL COVERAGE**, compared to 71% of the general population.

12% of our patients reported having visited an ER with **TOOTH PAIN** in the past year.

That's over twice the rate of the general population.



WHO WE



78% of our patients reported a **HOUSEHOLD INCOME OF LESS THAN \$50,000** in 2013.

By comparison 36% of Canadians report this level of household income.

73% of our patients earned **LESS THAN \$30,000**, compared with 48% of the general Canadian population.

58% reported earning **LESS THAN \$20,000** a year, compared with one-quarter of the general Canadian population.

15,000

patients
per
year



One-third of our patients **HAVE POSTSECONDARY EDUCATION**, compared with 64% of the Canadian Population. (Population Source: National Household Survey, 2011).

Our patients are almost four times as likely as other Canadians to be **EMBARRASSED BY THEIR DENTAL APPEARANCE**.

78,000
patient visits per year

SERVE

Last summer, third-year DDS students Jamie Moeller, Nicholas Dunn and Kester Ng, along with Associate Professor Carlos Quiñonez OT9 PhD, conducted a survey of the Faculty of Dentistry's patients. By compiling data that compared Clinic patients with that of the general population, the team developed a current profile of our patients in terms of demographics, socio-economic conditions, and access to dental care.

Our patients are 2.5 times more likely to have **RECENTLY IMMIGRATED** to Canada than the general population.



Studies have demonstrated that this puts them at higher risk of poor oral health, poverty, food scarcity, and a lack of resources.

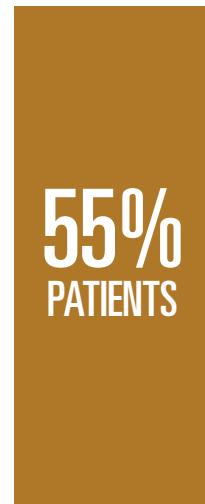
Approximately **50%** of our patients are **OVER THE AGE OF 55**.

The most overrepresented age group among our patients is **65 – 74**, a time when many of them will retire from their jobs and lose their dental benefits.

Our patients are twice as likely to report **PAINFUL ACHING** in their mouth or teeth and **THREE TIMES AS LIKELY** to have had difficulty chewing foods in the last 12 months.

Our patients are three times more likely than the general population to have **WORRIED ABOUT NOT HAVING ENOUGH FOOD** in the past year.

REPORTED AVOIDING RECOMMENDED TREATMENT BECAUSE OF COST



Population Sources: Statistics Canada, Canadian Community Health Survey, 2012; Health Canada, Canadian Health Measures Survey, 2011.



1948

Two decades ahead of its time, the Faculty forms the first Paedodontics Department in Canada.

CELEBRATING 140



1875

The Royal College of Dental Surgeons of Ontario (RCDSO), led by James Branton Willmott and Luke Tesky, opens Canada's first dentistry school at 46 Church St.

1876 The first cohort of seven graduates with a License of Dental Surgery (LDS).

1888 The RCDSO's School of Dentistry becomes officially affiliated with the University of Toronto, which awards the first Doctor of Dental Surgery degrees the next spring.

1921 Conceived by Cal Foote, a member of the Class of '24, the first Dentantics show is performed at Convocation Hall to a crowd of 1,500 on March 10.

1893

C.L. Josephine Wells graduates from Toronto's Dentistry School, and becomes the first woman in Ontario to enter the dental profession.



1923 The "Whiz Bang Class of '23" (in reference to the First World War) is the largest cohort ever with 320 students, mostly ex-servicemen. Many of the students live in small barracks by the waterfront. The class also includes six women, which equals the number of women who were practicing across the province at the time.

1925 Responding to post-war overcrowding, the RCDSO's dental school officially merges with the University of Toronto to form the Faculty of Dentistry. The RCDSO retains the right to legally license graduates for practice.

1933 As College Street undergoes widening, the school's address changes from 240 to 230 (or "Tooth-Hurty") College St.

1946 The Faculty establishes Canada's first dental public health postgraduate training program.

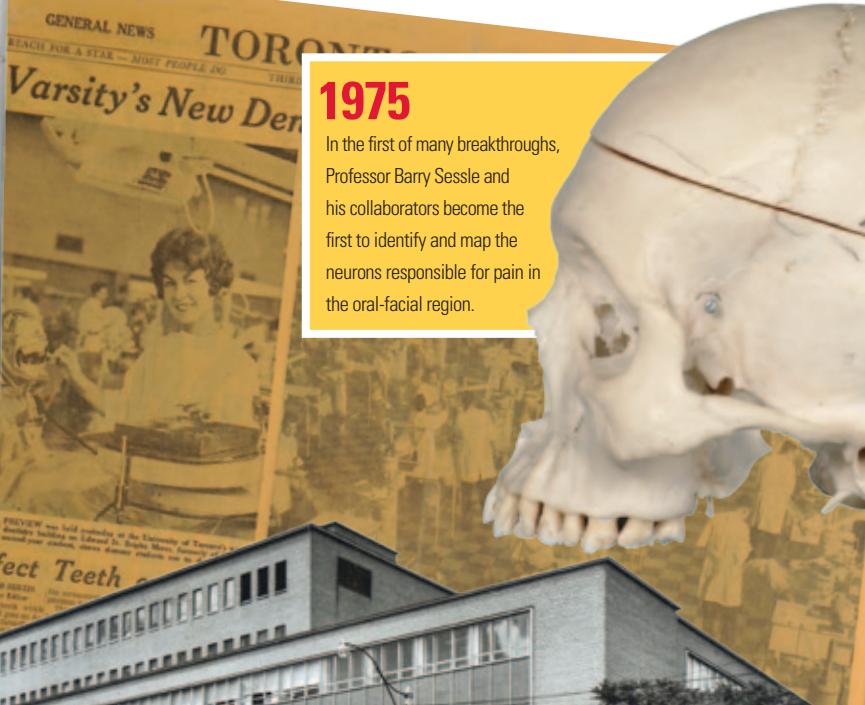


1960

The Faculty establishes the Department of Anaesthesia. Today it remains the only program specific to dental anaesthesia training in Canada.

1977 The Faculty develops the Mobile Dental Clinic for the Disabled. Serving people with disabilities in remote Ontario communities, the unit was directed by Professor Norman Levine 6T0, 6T2 Dip Paedo, 6T7 MSc D.





1975

In the first of many breakthroughs, Professor Barry Sessle and his collaborators become the first to identify and map the neurons responsible for pain in the oral-facial region.

YEARS

OF DENTAL HEALTH EDUCATION



1959

The Faculty of Dentistry moves to a brand new building at 124 Edward St., the site of the famous Old Angelos restaurant.

1982 Professor George Zarb Hon DSc OT9 leads the advancement of implantology during a transformative Toronto conference. This facilitates the worldwide adoption of the "Brånemark system" of osseointegrated dental implants.



1986

Professor Dennis Smith Hon DSc 9T8 founds the Centre for Biomaterials, which promotes cutting-edge biomaterials research across disciplines and institutions with a focus on commercialization.

1993 The Faculty establishes the first Endodontics Specialty Program in Canada.

1994 A group of researchers at the Faculty develops the "Endopore system" of dental implants, an alternative to the Brånemark system.

1995 Canada's first endowed chair in a dental school is established with a gift from SciCan. The Arthur Zwinger Decanal Chair is followed by the Dr. Lloyd and Mrs. Kay Chapman Chair in Clinical Dentistry (2000) and the George Zarb/Nobel Biocare Chair in Prosthodontics (2004).

1998 The Dental Research Institute is formed to accelerate important discoveries in the field of oral health spanning cell signalling, cancer cell behaviour, biomaterials and oral diagnostics.

1999 With the Faculties of Medicine and Applied Science & Engineering, Dentistry forms the Institute of Biomaterials & Biomedical

Engineering (IBBME). This graduate unit goes on to achieve innumerable breakthroughs across a broad spectrum of medical research.

2000 Dentistry's researchers play an integral role in the founding of the University of Toronto's Centre for the Study of Pain, establishing a comprehensive research and education network and yielding new insights into pain mechanisms and management.

2010 U of T Dentistry's latest international research partnership is established with China's Sichuan University, creating exchange opportunities for graduate students and faculty.

2014 IBBME, along with partners, the Hospital for Sick Children and the University Health Network, is awarded \$130 million, the largest charitable gift in Canadian history, to establish the Ted Rogers Centre for Heart Research.

2016

The Faculty will officially launch its new partnership with Addis Ababa Dental School, with U of T representatives visiting Ethiopia's new dental school to assist with the curriculum and teaching development.



HAVE A PIECE OF DENTISTRY HISTORY TO SHARE?

Please send details to Erin Vollick, Communications Officer at Erin.Vollick@dentistry.utoronto.ca

NEW INSIGHTS INTO PERIODONTAL DISEASE

U of T Dentistry is providing novel insights into the mechanisms of disease and exploring new ways to address even the worst cases of periodontitis

BY ANGELA PIRISI

Boasting the oldest periodontology program in North America and the largest in Canada, the U of T Faculty of Dentistry is addressing some of the most pressing matters related to periodontal disease. Through a network of talented researchers and clinicians from intersecting disciplines who bring unique perspectives and expertise to the table, advances in knowledge and more effective therapies are unfolding.

For decades, limited by a lack of understanding of basic disease mechanisms, periodontal disease has vexed dentists and plagued patients. Some of the biggest challenges have related to the question of whether periodontitis is strictly an infection, or a *reaction* to infection. Thanks to advances in microbiology and immunology, new theories emerged about the complicit role of specific oral bacteria and their impact on the innate immune system. “We learned that there are specific species associated with disease,” explains Dr. Jim Yuan Lai oTo MSc Perio, Associate Dean, Clinical Sciences and Discipline Head and Director of the Graduate Specialty program in Periodontology. Moreover, the field learned that, “an imbalanced interaction between the host’s environment and the bacteria makes the teeth more likely to have disease,” he adds.

The dental profession has finally shaken off the well-entrenched belief that bacteria are solely responsible for periodontal disease, suggests Dr. Howard Tenenbaum 7T8, 8T2 Dip Perio, 8T3 PhD, a professor of Periodontology at the Faculty. “Bacteria are necessary but not sufficient on their own to cause periodontitis, so other factors must be involved. For example, the condition of the host — are there problems related to the innate immune system that might explain what’s happening with the cells they use to fight infection?” he says.

NOT THE USUAL SUSPECTS — THE BODY’S ROLE IN DISEASE

The recent realization that it is not bacteria alone but the body reacting — or overreacting — to the presence of bacteria marked a paradigm shift in dentistry’s understanding of periodontal disease. “Now researchers are looking at host modulation and minimizing the amount of destruction that the body has caused to itself,” says Lai.

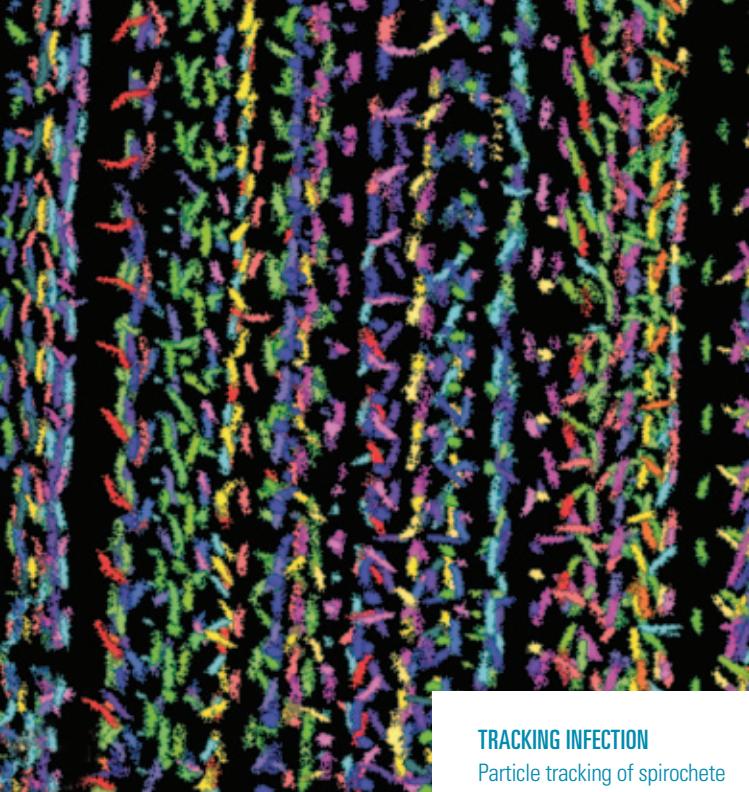
Tara Moriarty, Assistant Professor in the Faculty of Dentistry, is examining host-pathogen interactions, including the mechanistic underpinnings of periodontal disease. Moriarty’s goal is to apply the methods she uses to study Lyme disease (her lab’s main focus) to examine how spirochetes, or other bacteria associated with periodontal disease, behave and travel into the bloodstream. Long, thin and spiral or snake-shaped bacteria, different spirochetal bacteria cause syphilis, Lyme disease and various tropical diseases, as well as periodontal disease.

Marking a significant advance in the field, Moriarty has been able to film bacteria moving through the bloodstream and tissues of living animals using a novel application she developed for intravital microscopy, an advanced imaging tool for the visualization of tissues *in vivo*. “It allows us to watch what they do in real time, so we can see the disease process as it develops, and how host immune cells respond to the bacteria.” Moriarty’s lab is one of the few places in the world conducting this specific research. Another important technical advance in her lab is particle tracking. “It’s a computational way of not only watching and filming how bacteria move, but also being able to digitize it, using software to calculate things such as velocity,” says Moriarty, allowing her lab to track how these bacteria eventually enter periodontal tissues to initiate inflammation.

NEW WAYS TO MANAGE PERIODONTAL DISEASE

“The dilemma we have is that the destruction caused by periodontal disease is subtle and very slow, so it’s hard to detect,” says Lai. “The aim is to become more sophisticated in terms





TRACKING INFECTION

Particle tracking of spirochete bacterial interactions in a system that mimics the vasculature helps the Moriarty lab understand the mechanisms underlying bacterial infections such as periodontitis and Lyme disease.

of diagnostics, by identifying early disease biomarkers and risk factors to detect disease much sooner.”

Professor Michael Goldberg 9T1, 9T4 Dip Perio is helping develop novel diagnostic tools and treatment protocols through the specialized clinic he runs, the Severe/Refractory Periodontal Disease Unit, by reconciling the two extremes in patients: those you expect to see with severe periodontal disease, such as immunocompromised patients with HIV, diabetes or leukemia, and those you don’t.

The specialized clinic has brought to light a baffling contradiction in the minority of patients with unresponsive or severe periodontal disease. “Despite receiving a number of conventional therapies, these patients aren’t responding to treatment,” explains Goldberg. “They continue to lose bone, attachment and potentially teeth.”

Goldberg’s clinic treats stubborn periodontal cases referred from across Canada. Since the clinic opened in 1997, Goldberg has amassed a large collection of clinical data that can fuel new research insights into periodontal disease. At first, he thought they’d see borderline immunodeficient patients and undiagnosed diabetes cases. “So then we looked at patients’ T cells as well, expecting that there were going to be some deficiencies, but we saw the exact opposite — an overactive immune response,” he says. T cell counts were actually elevated, even in those who weren’t ill or fighting infection, leading to the idea that those patients were hyper-responsive to the presence of bacteria, even in minimal amounts.

Goldberg began to explore whether unique bacteria could be present in these stubborn cases. Relying on the Oral Microbiome and Metagenomic Research (OMMR) Lab to run some

data, the answer was yes — *filifactor alocis*, a bacterium not typically affiliated with periodontal disease. Goldberg and his colleagues are now examining how the body responds to the presence of these bacteria.

Based on the evidence that Goldberg gathered from refractory disease patients, he along with Tenenbaum, Glogauer and others began testing host immunomodulation therapies to see if they had a synergistic effect. The experimental treatment protocol involved a combination of Periostat (which reduces collagenase activity and may boast antioxidant activity) and an anti-inflammatory (flurbiprofen). What they found was that patients stopped losing bone — a first for patients with refractory periodontal disease.

Goldberg is also in charge of the Peri-implant Disease Diagnosis and Management Clinic, which has been operational for about 18 months. It’s anticipated that this program will mirror the success of the Refractory Periodontitis Clinic, yielding important findings for peri-implant disease. Since dental implants are now being placed into the mouths of many younger patients, the risk of developing disease around them increases over time. The clinic will focus on the diagnosis and management of patients who have implant-associated disease while collecting patient biosamples just as the refractory periodontitis clinic has done.

UNCOVERING LINKS TO OTHER CHRONIC DISEASES

Another focus within Periodontology has been to explore associations between oral bacteria, periodontal disease and other systemic diseases. Tenenbaum is studying the mechanisms that possibly link periodontal disease with other diseases such as cardiovascular disease and diabetes, which he suggests is inflammation. He even coined the term “oral inflammatory load,” which measures what amount of inflammation correlates to disease onset or progression.

With Chris McCulloch 7T6, 8T2 PhD and two grad students, Tenenbaum is investigating certain enzymes that increase during inflammatory disease and how they affect proteins that might be considered protective against atherogenesis and heart disease. They identified a protective protein, *fetuin*, and found that enzymes elevated in the presence of inflammation break this down, potentially increasing cardiovascular risk.

Tenenbaum suggests that the Faculty’s clinical disciplines could maximize research opportunities by focusing on additional problems that have been difficult to treat and by “directly connecting clinics to the basic science labs, which can analyze various predictors, such as risk factors and biomarkers.” The idea is that various clinics would form a collaborative network of clinical disciplines within Dentistry that could feed data to a basic biological repository.

Drawing on the strength of the OMMR Lab’s capabilities, the various clinical disciplines can offer patients “cutting-edge therapies delivered by top-notch clinicians that can’t really be delivered anywhere else,” says Tenenbaum. That goal is already starting to take shape, and the pay-off will be immense for patients. ■

WE REMEMBER...

WE MOURN THE LOSS

Charles Baker 7T5 MSc
 John Balkwill 7T1
 Harold Norman Beach 3T7
 Donald Lewis Bigelow 5T6
 Gerald Boyko 7T2, 7T6 Dip OMFS,
 8T3 MScD
 George Bray 5T9
 Jean I. Feasby 4T2 Nursing
 Ross Finlayson 4T9
 David Goodbrand 6T9
 Steve Eugene Hegedus 5T7,
 5T9 Dip Ortho
 James Huang 6T8
 Gordon Jinks 4T6
 Solomon Laski 7T5, 7T8 Dip Ortho
 David Levin 4T5
 Ronald Keith Lindsey 4T7
 Caroline A Lovekin 4T4 Nursing
 John Macdonald 4T2, OTO Hon DSc
 Joseph Madracki 7T1
 Kristine Magidsohn 6T4
 Evelyn R Mahony 4T0 Nursing
 William Gordon McIntosh 3T7,
 5T7 MScD
 Vladimir John Pavezka 7T0
 Gordon Perlmutter 5T0
 Carole D Piercy 5T4 Nursing
 Mark Roberts 5T7
 Ernest John Shames 4T9
 Amy G Smith 4T4 Nursing
 Adrian Steadman 8T4
 Harold Strom 5T5
 Joergen Theilade 5T8 BScD
 William Thompson 4T9
 Bob C. Weegar 5T1
 Jesse Witchel 4T3
 Roel Wyman 6T3

DR. CHARLES BAKER 7T5 MSc

Dr. Charles Baker passed away peacefully after a courageous battle with cancer. His distinguished career included appointments as Acting Dean of the College of Medicine and Dean of the College of Dentistry at the University of Saskatchewan, Assistant Dean of the Faculty of Medicine and Dentistry, Professor Emeritus at the University of Alberta and past President and Examiner in Chief of the Royal College of Dentistry.

DR. HAROLD BEACH 3T7

Boasting a long, rich life and career that included a private practice in Pembroke, Ont., Dr. Harold Beach passed away in April at 102. After graduating from U of T, he served in World War II and later served as the first Registrar of the National Dental Examining Board and President of the Ontario Dental Association.

DR. SOLOMON LASKI 7T5, 7T8 DIP ORTHO

Dr. Solomon Laski passed away in December 2014. Laski was actively involved with the school, as a teacher and alumni volunteer. He practiced with his son Brian 0T5, 0T9 MSc Ortho.

DR. JOHN B. MACDONALD 4T2, OTO HON DSC

Noted scientist and academic leader Dr. John B. Macdonald passed away in December 2014 at 97. After serving in World War II, he returned to



U of T and became the founding director of the Faculty's Division of Dental Research. He joined Harvard University in 1956 as Professor of Microbiology and Director of the Forsyth Infirmary. Macdonald also served as the President of the University of British Columbia, CEO of the Council of Ontario Universities, and President of the Addiction Research Foundation, as well as acting as a consultant to governments and learning institution both in Canada and the United States. His numerous honorary degrees include U of T, Harvard and Wilfred Laurier University. Macdonald was also an Officer of the Order of Canada.

DR. BILL McINTOSH 3T7, 5T7 MScD

Dr. Bill McIntosh passed away in March 2015 in his 100th year. A



pioneer of the U of T Periodontal Department and Associate Professor at the Faculty of Dentistry, he also served in the Canadian Dental Corps and was Executive Director of the

Canadian Dental Association. Among his honours were the Queen's Jubilee Medal and the Faculty of Dentistry Award of Distinction (2006).

DR. GORDON PERLMUTTER 5T0

Dr. Gordon Perlmutter passed away in January at 83. His professional achievements include serving as Clinical Instructor at the Faculty of



Dentistry and President of the Toronto Crown and Bridge Study Club and the Toronto Academy of Dentistry. He served on several Ontario Dental Association committees and its General Council, and received the ODA Service Award. He received the Faculty of Dentistry Award of Distinction in 1995.

DR. WILLIAM RAE THOMPSON 4T9

Dr. William Rae Thompson passed away in November 2014 at 91. He served as a World War II dental assistant and air crew navigator. In 35 years with the Canadian Forces Dental Services, he rose to Brigadier-General. He was President of the Canadian Dental Association, Treasurer of the World Dental Federation, the Queen's Honorary Dental Surgeon and was awarded the title of Commander of Military Merit. ■

TOGETHER AGAIN



8T5



0T0

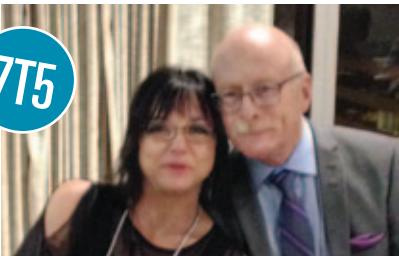
6T5 HYGIENE



6T5



7T5



9T5

8T0



CALLING ALL REUNION ORGANIZERS

Organizing your class reunion? Get in touch with the Advancement Office, so we can help you make it a memorable event. Contact miriam.stephan@dentistry.utoronto.ca

BUILDING PROGRESS

Meet Garry Aslanyan: Global Public Health Broker

BY ERIN VOLLICK

Garry Aslanyan of DPH is a man with a foot in two continents — actually, several. A champion of global public health, Aslanyan works for the World Health Organization (WHO), but his roots are in Canadian dental public health. The two may seem worlds apart, but the agenda is similar: addressing access issues and building capacity to ensure that certain diseases and populations aren't ignored.

As Manager of Partnerships and Governance for the WHO's Special Programme on Research and Training on Tropical Diseases (TDR), Aslanyan brokers partnerships and builds global research capacity around 17 neglected tropical diseases requiring research, development and public health interventions. Among the diseases are leprosy, dengue fever and malaria, which are endemic in approximately 149 countries and affect an estimated 1.4 billion people.

Here in Canada, Aslanyan is a Board Director and Chair of the Policy and Advocacy Committee at the Canadian Association of Public Health Dentistry (CAPHD), as well as an adjunct professor in the Faculty's Dental Public Health discipline, where he addresses systemic inequalities in access to oral health care in Ontario.

Honoured with an Ontario Public Health Association (OPHA) Lifetime Member Award last year, Aslanyan has built his career around blurring, and in some cases eradicating, public health boundaries. "Dental public health is a part of public health — it's global," he says. "But public health is still misunderstood, or only thought of when there's a crisis."

One of Aslanyan's WHO project involves one disease making headlines worldwide: Ebola. Having brokered a partnership with the European & Developing Countries

Clinical Trials Partnership and the U.K.'s Medical Research Council (MRC), as well as the Canadian Institutes of Health Research (CIHR), Aslanyan will help guide various agencies in devising the best ways to detect and respond to the disease, based on ethically sound approaches.

It's a staggering task that generates delicate questions: "If an experimental drug is successfully created, what are the ethical issues surrounding it? Who should get it?" Aslanyan asks. The real point, though, is not to wait for the next outbreak. "We need to make sure that whatever comes of vaccine or other trials, it can actually be used within communities," he says.

What also matters is addressing the pharmaceutical industry's lack of investment in diseases affecting marginalized populations in poverty-stricken countries. Aslanyan notes that Ebola has been around for over 30 years, but only now that thousands have died from the disease is there more effort to develop drug or vaccine strategies.

Despite its inherent challenges, Aslanyan finds global public health rewarding. "Some of the work we do is so dramatic," he argues. "You can see the change right away with your own eyes, and in the numbers." Aslanyan points to the worldwide battle against malaria, a mosquito-borne disease that affects an estimated 198 million people and costs billions of dollars a year.

Thanks in part to the work carried out by the WHO and its partners, the number of childhood malaria cases has dropped steeply in recent years. A combination of research breakthroughs, bed nets and better insecticides has made the difference.

That kind of tangible outcome is rewarding, says Aslanyan: "You're very satisfied when you know you have had some kind of connection to the change."

Ultimately, what drives Aslanyan's passion for global public health is knowing there's always room for improvement. "We make a lot of progress, and you always feel you're accomplishing something, but more can be done," he says. ■



Mother with child being treated for malaria at the Kenya Medical Research Institute; survival rates have improved dramatically thanks to WHO's help with timely diagnosis and treatment



UPCOMING EVENTS

FRIDAY, OCTOBER 16 ORTHO ALUMNI DAY OVERVIEW OF SYSTEMIZED & EFFECTIVE ORTHODONTIC CARE

Faculty of Dentistry
Auditorium

For more information: <https://sites.google.com/site/uoforthoalumni>

MONDAY, OCTOBER 19 FACULTY OF DENTISTRY ALUMNI ASSOCIATION – ANNUAL GENERAL MEETING

6:30 p.m.
Rm 170, 124 Edward St.

Come meet your Faculty of Dentistry Alumni Association Board and hear what we have planned for the 2015–16 academic year. Reception will follow in the Faculty's newly renovated Student Commons. RSVP by October 13 to sabrina.martinez@dentistry.utoronto.ca.

THURSDAY, OCTOBER 22 ZARB LECTURE

5 p.m.
Rm 171, 124 Edward St.

Dr. Clark M. Stanford
DDS, PhD, UIC,

Distinguished Professor and Dean from the College of Dentistry, University of Illinois at Chicago, will speak about "Concepts of Health, Oral Health and the Value Proposition for Tooth-Replacement Therapies." Following this enlightening talk, please join us for refreshments. RSVP by October 16 to miriam.stephan@dentistry.utoronto.ca.

OCTOBER 2015 [DATE TBA] MENTORSHIP NIGHT: YOUNG ALUMNI MENTORING STUDENTS

Location TBA, Toronto

Join us for Mentorship Night. Did you graduate with a DDS or a specialty between 2004 and 2015? If you would like to share your "life after graduation" experiences and advice with our current students, please contact sabrina.martinez@dentistry.utoronto.ca. An informal reception for our mentors will follow the event.

MONDAY, NOVEMBER 9 YOUNG ALUMNI MENTORSHIP LECTURE SERIES

6 p.m.
Location TBA, Toronto

Alumni who graduated between 2011 and 2015 and current students are invited to hear Allison Clark 1T2 and Daniel Vockerath 1T2 as they share their experience of "Two Perspectives on Dentistry in Northern Ontario." The short lecture will be followed by a reception. RSVP by November 3 to sabrina.martinez@dentistry.utoronto.ca.

JANUARY 2016 [DATE TBA] WORD OF MOUTH NETWORKING EVENT *NEW*

Location TBA, Toronto

This event is designed to connect our graduating DDS students with U of T alumni and clinical instructors who have practices and who will have associate positions open around the time of graduation. To participate or for more information, contact sabrina.martinez@dentistry.utoronto.ca.

TUESDAY, FEBRUARY 9 RESEARCH DAY

12 p.m.–6 p.m.
Rm 171, 124 Edward St.

All are invited to attend the day's events. Come out and listen to inspiring guest-speaker talks and view poster presentations. Also, enjoy a light lunch, clinical tables and a wine and cheese event in the Student Commons.

THURSDAY, MARCH 17 VANCOUVER ALUMNI RECEPTION

6 p.m.–8 p.m.
Pan Pacific
Vancouver Hotel
300-399 Canada Place
Vancouver

Dean Daniel Haas invites you to join him and your fellow alumni for a cocktail reception. Whether you live on the West Coast or you're in town for the Pacific Dental Conference, we look forward to seeing you. RSVP by March 11 to sabrina.martinez@dentistry.utoronto.ca.

SATURDAY, APRIL 2 2016 AWARDS OF DISTINCTION GALA

6 p.m. Cocktails
7 p.m. Dinner
Sheraton Centre

Toronto Hotel
Grand Ballroom
123 Queen Street
West, Toronto

Join your fellow alumni and friends for an elegant and fun-filled evening as we proudly honour the accomplishments of the 2016 award recipients (TBA). All funds raised will support access to care via the Faculty's teaching clinics and the *Access to Care Fund*. Order tickets at my.alumni.utoronto.ca/gala2016.

MARCH 17–18 DENTANTICS 2016

Hold the date for the 95th annual Dentantics. Bring a few classmates or your

entire practice and reminisce about your student days while being entertained by our current students. Proceeds support the Faculty's *Access to Care Fund*. Tickets \$20.

NOMINATIONS WELCOME FOR 2017 AWARD OF DISTINCTION

Recognize colleagues who are making a difference for the Faculty, research, the dental profession or society as a whole. Nominations are due June 1, 2016.

For nomination details and forms, visit dentistry.utoronto.ca/alumni/awards-distinction-gala/nomination-form or contact sabrina.martinez@dentistry.utoronto.ca.

QUESTIONS OR SPONSORSHIP INQUIRES?

Contact Sabrina Martinez,
Manager of Alumni Relations, at
sabrina.martinez@dentistry.utoronto.ca
or 416-979-4940.