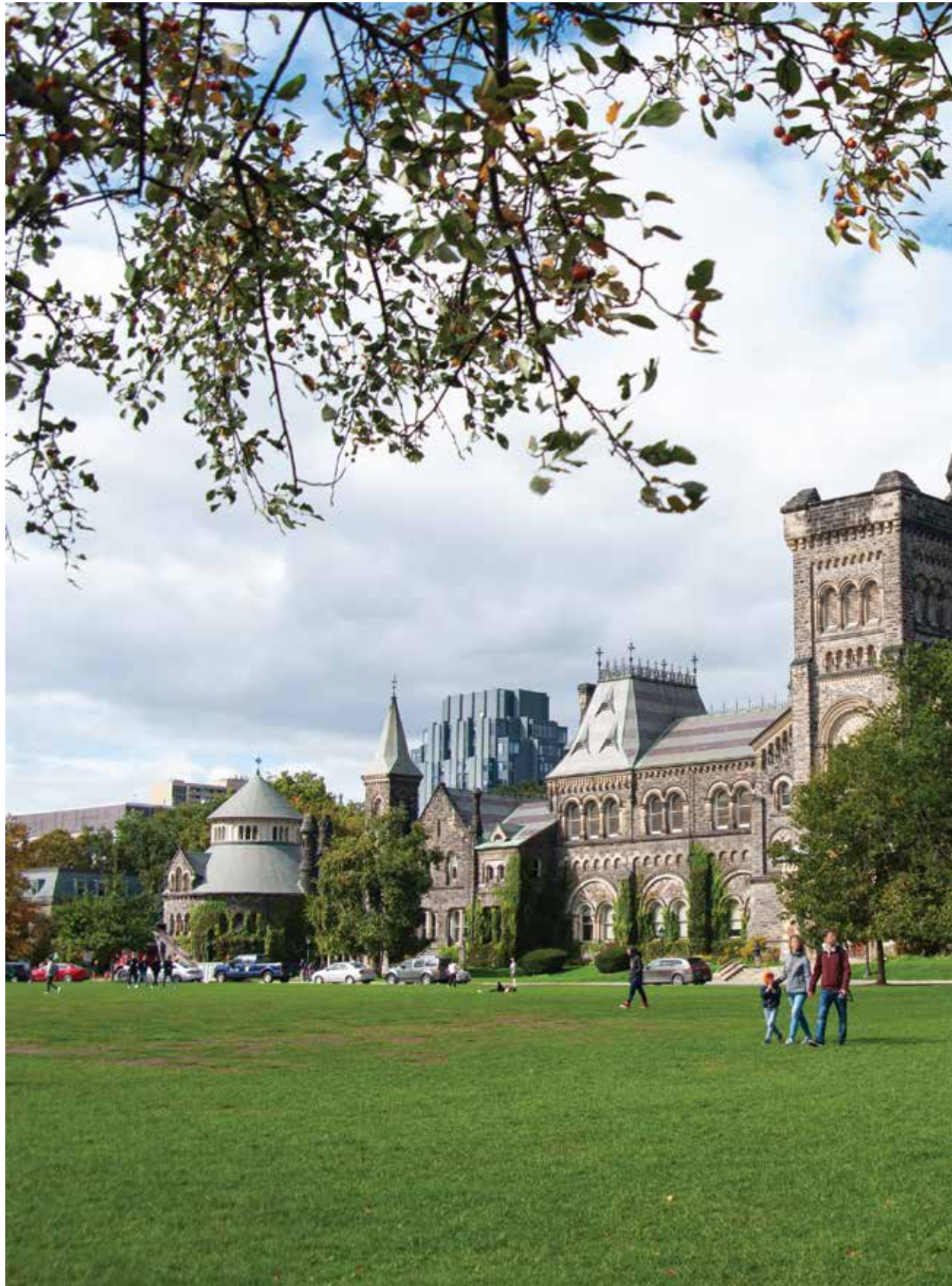
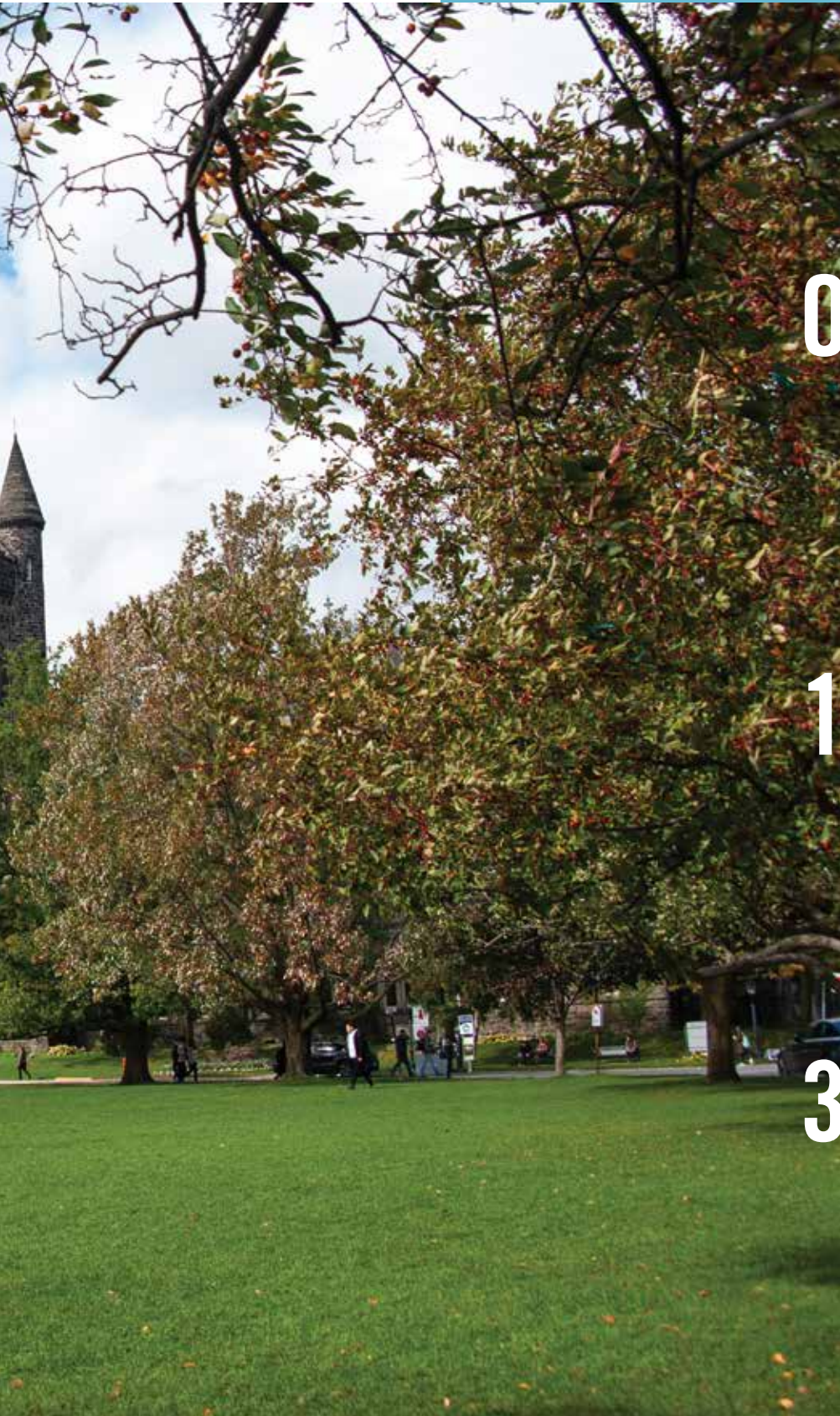




DEAN'S ANNUAL REPORT

Contents





04

Dean's
Message

06

Students

14

Faculty

18

Research
Impact

30

Community
Impact

Dean's Message



I am very pleased to present our fourth Dean's Annual Report from the University of Toronto's Faculty of Dentistry. The restrictions brought on by the COVID-19 pandemic certainly created numerous challenges. It required us to implement new ways to teach, perform research and provide care for our patients. I am so proud of how our community of students, staff, instructors and faculty rose to the occasion, and enabled us to carry out our missions of education, scholarly activity and patient care. I cannot thank them enough for their dedication and tireless efforts.



“

I am so proud of how our community of students, staff, instructors and faculty rose to the occasion, and enabled us to carry out our missions of education, scholarly activity and patient care”

This year, the Faculty of Dentistry was extremely honoured to receive the 2021 William J. Gies Award for Achievement from the American Dental Education Association ADEAGies Foundation. This award exemplifies the highest standards in oral health and dental education, research and leadership. This distinction recognizes the immense contributions that our faculty members have made over the years to improve the health of so many.

Last fall, our Faculty received the largest single donation to dental public health research in Canadian history through the generosity of Green Shield Canada. Funding for the One Smile research program created the Green Shield Canada Clinic, which will be housed within the Faculty of Dentistry. This unique, multidisciplinary research program will create meaningful measures of the impact of oral health care on individuals, families, the health-care system and society.

This year saw the Faculty undertake the largest clinical infrastructure project since the opening of the facility at 124 Edward St. in 1959 with the construction of a satellite dental clinic. This clinic of 41 enclosed dental operatories opened in September 2021 and is located on the 22nd floor of 777 Bay St., within walking distance of our main building on Edward St. It will provide extra capacity for

our students and patients, while concurrently allowing for swing space for future renovations being planned for our building, such as that for Clinic 2 and the simulation lab. The fall of 2021 also saw upgrades to our auditorium and will also see completion of another major infrastructure project at 124 Edward St. taken on this past year: our new Medical Device Reprocessing facility.

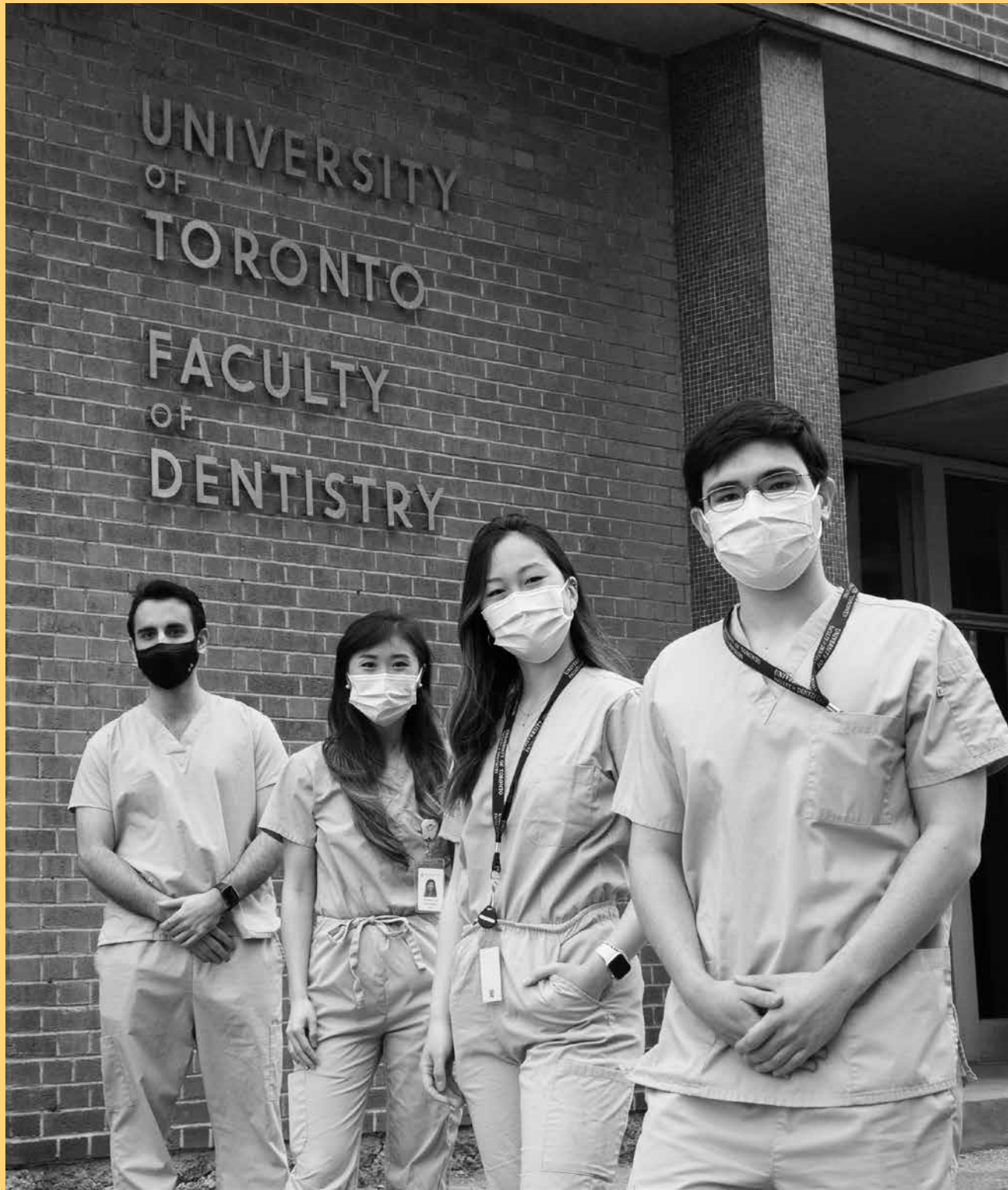
For this coming year we anticipate being able to return to a much greater degree of in-person activity. Our experience from 2020–21 has proven that we are very capable of dealing with challenges as they arise. I am proud to share our accomplishments of this past year as we look ahead to a brighter future.

From the start of the pandemic, and the subsequent need to halt in-person activities at the school, the Faculty worked extremely hard on our reopening plans. Our priority has been, and remains, the health and safety of our entire community. Concurrently, we continue to be committed to our vision of excellence in research, education and patient care. It is in this spirit that we will continue to take on the challenges that come our way.

Daniel Haas, DDS, PhD, FRCD(C)
Professor and Dean
Arthur Zwingenberger Decanal Chair



01



Students

The changes to the mode of delivery for educating our students that were brought in last year at the start of the pandemic continued in 2020–21. Online lectures and seminars became the new normal for didactic material. Yet, dental students need a significant component of in-person teaching and learning in order to develop the psychomotor skills essential for our profession.

Provincial government-mandated restrictions on class size had a significant impact on our ability to carry out simulation training for our students. This required the Faculty to implement additional sessions as we were restricted to 10 students per class for pre-clinical teaching for most of the academic year. Through the resilience, patience and hard work of our students, staff, instructors and faculty, we were able to provide the requisite instruction by extending the years for DDS1, DDS2, and the International Dentist Advanced Placement Program (IDAPP) into the summer of 2021. For our DDS3, DDS4 and graduate specialty students, restrictions on the delivery of aerosol-generating procedures required revised scheduling to incorporate additional clinical sessions every week and a number of weekends. Our graduate students also had to contend with restrictions on research activity, which required adaptation in order to achieve their training.

Throughout, the safety of our students as well as our faculty and staff remained of the utmost importance. Mandatory COVID-19 training and vaccine curriculum training was required for all students, and the use of the UCheck system ensured everyone who entered the building had been screened for COVID-19. The Faculty of Dentistry was also able to facilitate early vaccinations for students who were treating patients beginning in March 2021.

What has remained consistent throughout the pandemic is the Faculty's ability to attract top talent. DDS applications increased by 7.6 per cent from the previous year. The percentage of female to male applications to the DDS program was 57.1 per cent to 42.9 per cent, respectively.

The IDAPP continued to attract a strong applicant pool. In 2021, the 211 applicant gender split was 62.6 per cent female and 37.4 per cent male. This is consistent with 2019 applications of 61.7 per cent female and 38.3 per cent male. The most popular countries of origin for this program were identical this year compared to last, with the most

number of students coming from India, followed by Egypt, Pakistan, Iran and a tie for Hungary, Poland and United Arab Emirates. This year, 69.2 per cent of IDAPP students obtained their first dental degrees in India compared with 42.3 per cent of the class in 2020.

The Faculty of Dentistry continues to see a strong pool of applications to our 10 graduate specialty programs. This year, the Faculty received 286 graduate applications, an increase of 11 per cent over the previous year. In 2021, the Dental Public Health program had double the applicants compared to 2020.

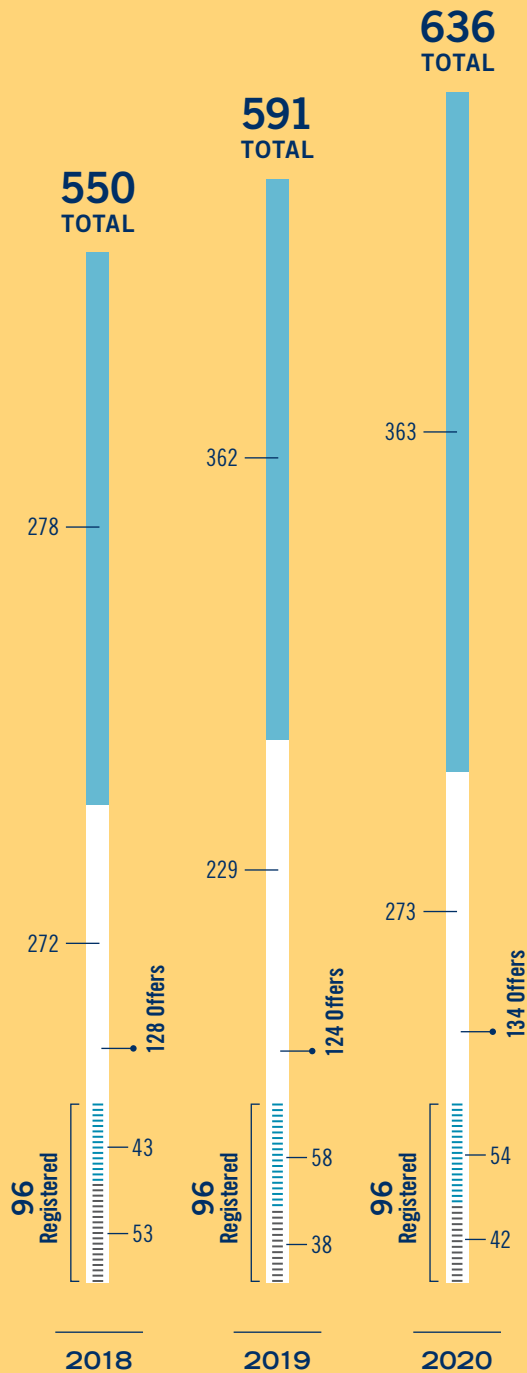
In January 2021, U of T Dentistry successfully received accreditation for our speciality programs in Dental Public Health, Endodontics, Oral and Maxillofacial Pathology and Oral Medicine, Oral and Maxillofacial Radiology, Periodontics and Prosthodontics. In the previous year, the Faculty received accreditation for the DDS program, as well as our speciality programs in Paediatric Dentistry, Oral and Maxillofacial Surgery and Orthodontics.

U of T Dentistry focused on the mental health of our community with multiple initiatives. One was the Wellness Framework, a centralized resource for undergraduate and graduate students through Quercus, U of T's learning management system. Another was the new House Initiative, which began by assigning each DDS student in the first two years of the program to one of 20 houses and a mentor; the Faculty plans to expand this to all undergraduate and graduate students next year. The Graduate Professional Development Community was also created to support the career development of graduate students.

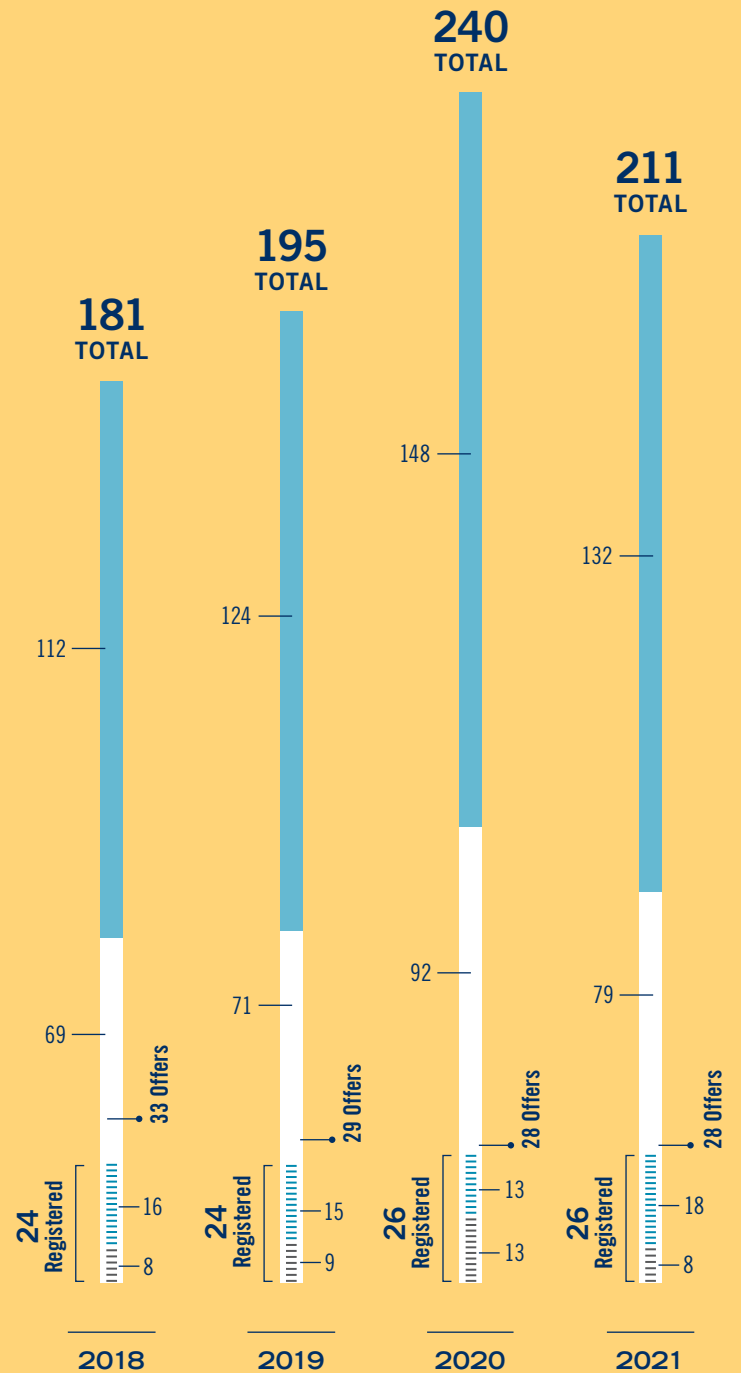
ADMISSIONS

Male Female

DDS Applicants Three-Year Data



IDAPP Applicants Four-Year Data

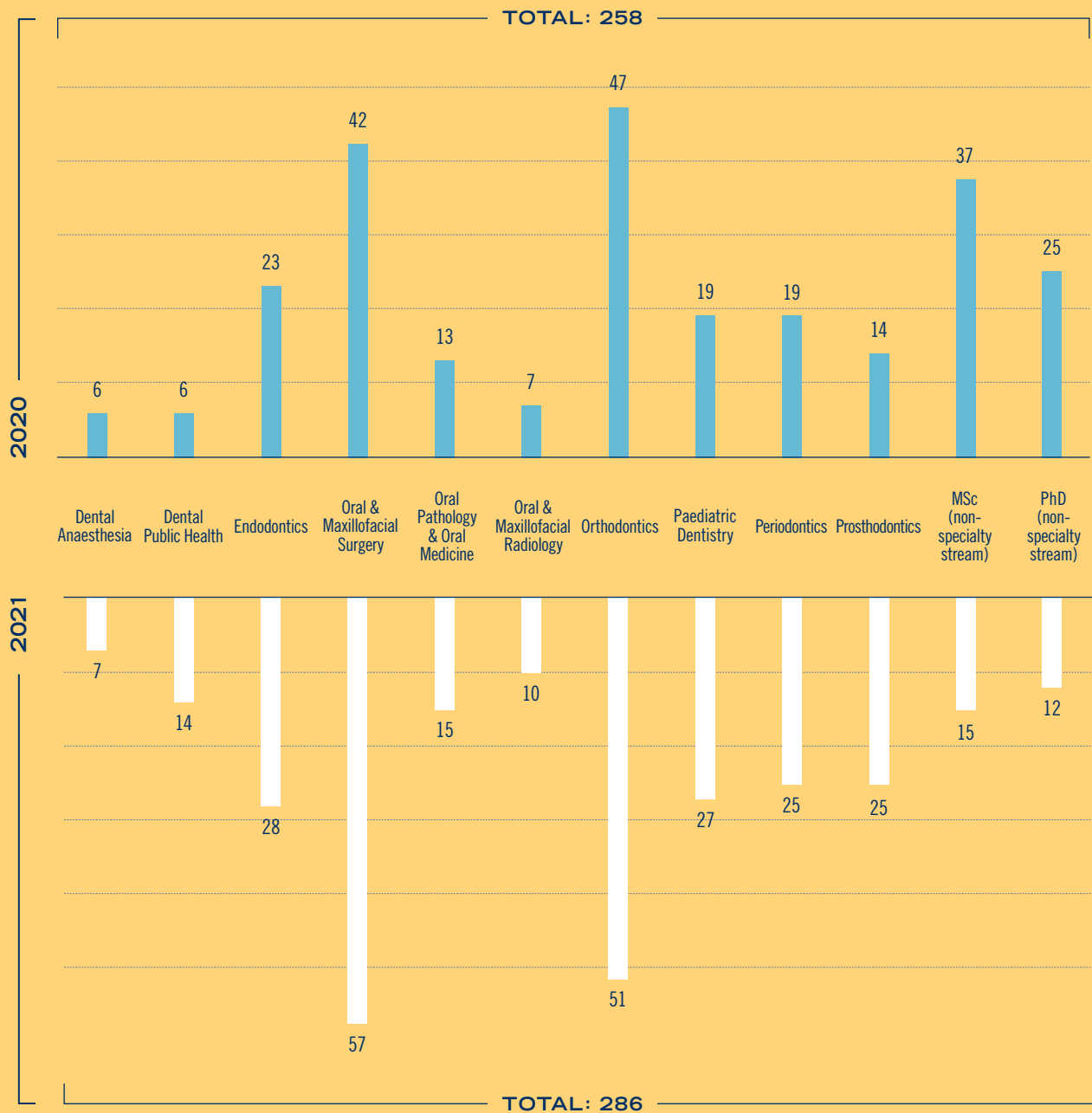


TOP FIVE COUNTRIES

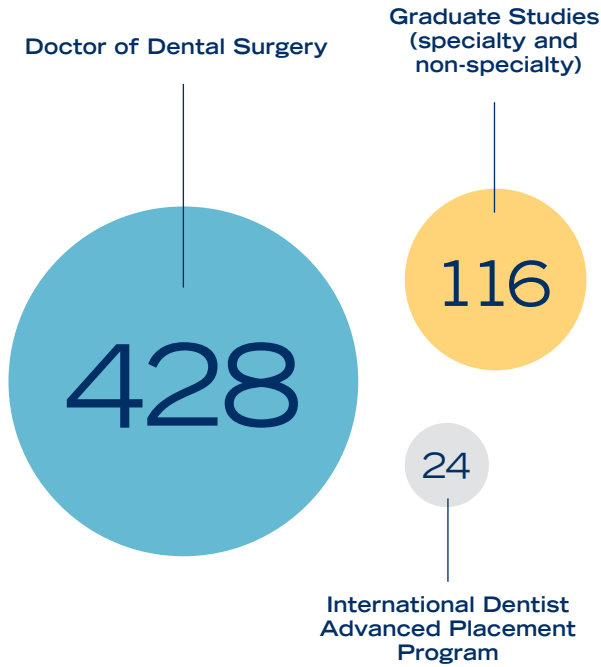
DDS/DMD degrees earned by IDAPP applicants (2021):

1. India 2. Egypt 3. Pakistan 4. Iran 5. Hungary/Poland/UAE

Graduate Program Applications 10-Year Data [By Discipline]



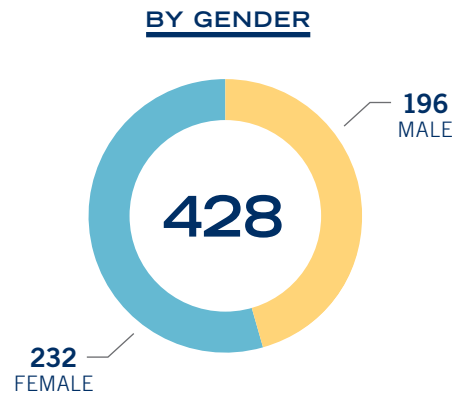
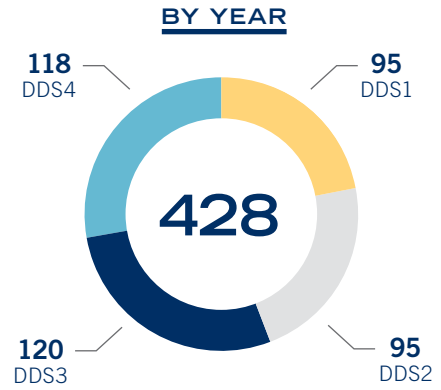
Student Population Breakdown



TOTAL STUDENT POPULATION

568

DDS 2020 – 21 Breakdown



In 2021, DDS applications increased by **7.6 per cent** from the previous year

STUDENT FUNDING 2020 – 21

Undergraduate Funding

\$22,099	\$64,842	\$129,898
<u>BURSARIES</u>	<u>AWARDS</u>	<u>FINANCIAL AID</u>

Graduate Funding

*Harron Scholarship, Locker, Mock and Korzen →

\$40,250	\$99,400	\$343,600
<u>BURSARIES</u>	<u>AWARDS</u>	<u>INTERNAL FELLOWSHIPS & SCHOLARSHIPS*</u>

External Funding and Scholarships

\$245,833

TOTAL

\$945,922

EXTERNAL GRADUATE FUNDING SCHOLARSHIPS: \$245,833

Last year, U of T Dentistry's students were awarded numerous prestigious national scholarships

<u>ONTARIO GRADUATE SCHOLARSHIP (OGS)</u>	\$100,000
<u>QUEEN ELIZABETH II SCHOLARSHIP (QEII)</u>	\$30,000
<u>CGS – DOCTORAL (CANADIAN INSTITUTES OF HEALTH RESEARCH)</u>	\$100,000
<u>CGS – MASTER'S (CIHR)</u>	\$5,833
<u>BEATTY AWARDS (OGS – VISA)</u>	\$10,000

STUDENT AWARDS

Dentistry students continue to receive national and international awards for their excellence in research. This year, U of T Dentistry students were recognized with multiple awards at the Canadian Association of Dental Research (CADR) / Network for Canadian Oral Health Research (NCOHR) research competition. On Feb. 9, 2021, the annual Research Day was held — virtually for the first time. This day was an opportunity to showcase our students' research accomplishments. It also included prestigious keynote speakers Pamela Den Besten, (President, International Association for Dental Research), Rena D'Souza (Director, National Institute of Dental and Craniofacial Research), Walter Siqueira (President, Canadian Association for Dental Research).

Christine Teed, MSc candidate, Endodontics
(Sup: Anil Kishen)
Received funding of \$12,200 from the American Association of Endodontists Foundation

Alice Fang-Chi Li, MSc candidate, Endodontics
(Sup: Anil Kishen)
Best paper (Oral Presentation category), Annual Conference of the American Association of Endodontists

Nash Cassim, MSc candidate, Paediatric Dentistry
(Sup: Laura Dempster)
Dr. Keith Titley Graduate Pediatric Dental Training Scholarship, a national award bestowed by the Canadian Academy of Pediatric Dentistry

RESEARCH DAY AWARD RECIPIENTS

THREE-MINUTE THESIS COMPETITION

Zachary Gouveia, PhD candidate
(Sup: Anil Kishen)

RUNNERS-UP: Rana Badewy (1), Mina Vaez (2)

ORAL PRESENTATIONS, SRG TRAVEL AWARDS

Sophia Huang
(Graduate Student Fundamental Science Category)

Christopher Ward
(Graduate Student Clinical Science Category)

Zofia Ostrowska-Podhorodecka
(Postdoctoral Fellow Category)

 e-POSTER SESSION RECIPIENTS

Graduate Student Fundamental Science Category

Mehrnoosh Neshatian
David Makar
Julien Kim

Graduate Student Clinical Science Category

Rana Badewy
Justin Bubola
Justin Kierce
James Tonogai

 CANADIAN ASSOCIATION OF DENTAL RESEARCH (CADR) / NETWORK
 FOR CANADIAN ORAL HEALTH RESEARCH (NCOHR) AWARDS

 SENIOR BASIC SCIENCE RESEARCH

Patricia Brooks

Also received the Hatton Competitor Award
 (Sup: Michael Glogauer, Chris McCulloch)

 SENIOR CLINICAL/PRE-CLINICAL RESEARCH

William Nicola

(Sup: Hashim Nainar)

 ADDITIONAL RECIPIENTS

Dimitra Athanasiadou

(Sup: Karina Carneiro)

Hebatullah Hussein

(Sup: Anil Kishen)

Tomas Vilde

(Sup: Yoav Finer)

 INTERNATIONAL ASSOCIATE FOR DENTAL RESEARCH (IADR) AWARDS
 PULP BIOLOGY AND REGENERATION GROUP STUDENT TRAVEL AWARD

Hebatullah Hussein

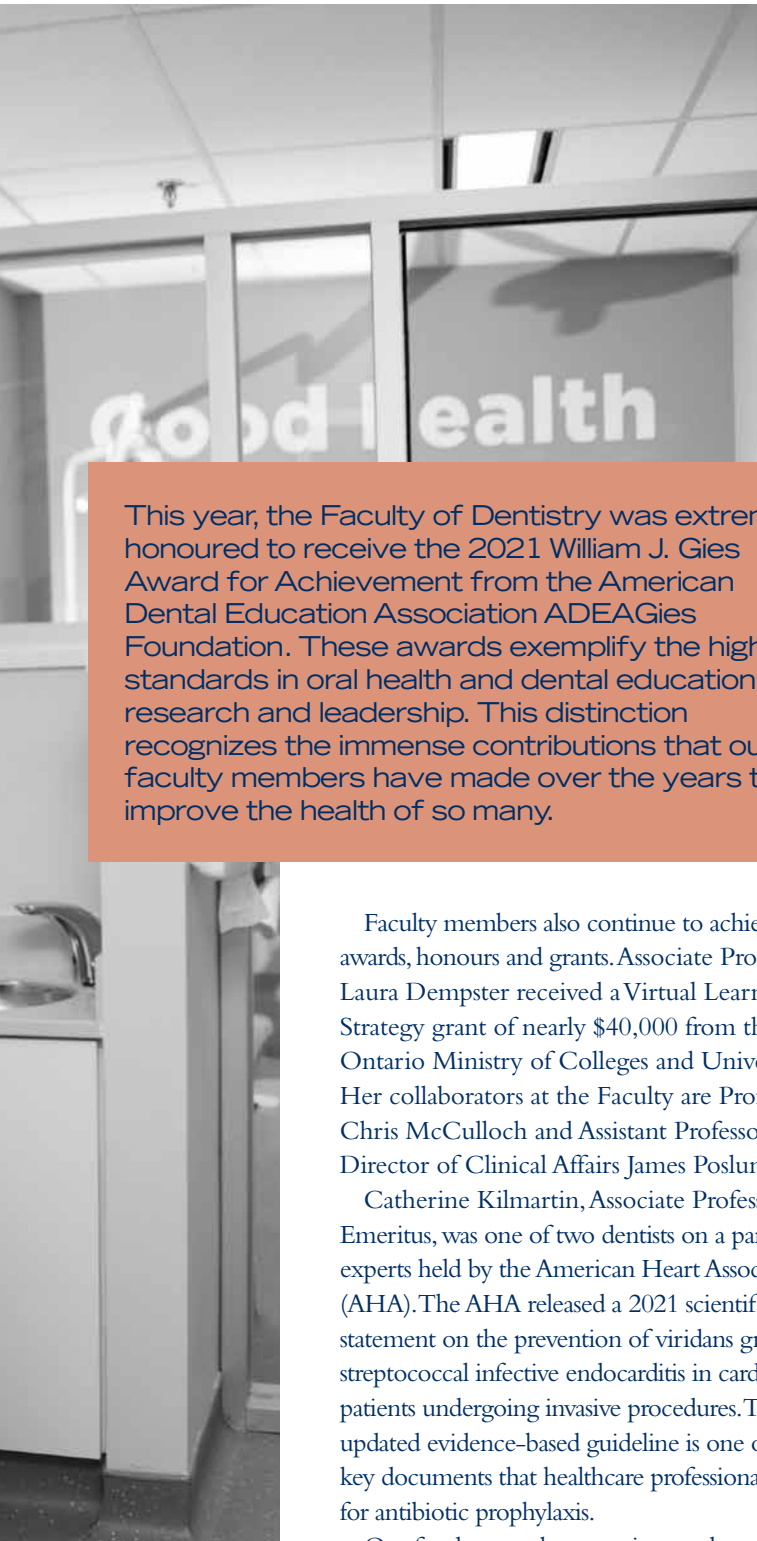
(Sup: Anil Kishen)



02



Faculty



This year, the Faculty of Dentistry was extremely honoured to receive the 2021 William J. Gies Award for Achievement from the American Dental Education Association ADEAGies Foundation. These awards exemplify the highest standards in oral health and dental education, research and leadership. This distinction recognizes the immense contributions that our faculty members have made over the years to improve the health of so many.

Faculty members also continue to achieve top awards, honours and grants. Associate Professor Laura Dempster received a Virtual Learning Strategy grant of nearly \$40,000 from the Ontario Ministry of Colleges and Universities. Her collaborators at the Faculty are Professor Chris McCulloch and Assistant Professor and Director of Clinical Affairs James Posluns.

Catherine Kilmartin, Associate Professor Emeritus, was one of two dentists on a panel of experts held by the American Heart Association (AHA). The AHA released a 2021 scientific statement on the prevention of viridans group streptococcal infective endocarditis in cardiac patients undergoing invasive procedures. This updated evidence-based guideline is one of the key documents that healthcare professionals use for antibiotic prophylaxis.

Our faculty members continue to be contributing members to the university at large. Professor Ernest Lam was re-elected for another term to Governing Council and Professor Anil

Kishen was acclaimed for another term on Academic Board.

Our faculty members also continue to be contributing members of the greater dental community. Assistant Professor Eszter Somogyi-Gans was elected Chair of the Canadian Section of the International Team of Implantology. Assistant Professor, Teaching Stream, Joel Rosenbloom organized a series of virtual lectures for the general dentistry program at Addis Ababa University in Ethiopia, as part of our ongoing commitment to the Toronto Addis Ababa Academic Collaboration. Associate Professor Laurent Bozec created the Three-Minute Thesis Competition, which was broadcast live on CDA-OASIS for the first time. This event will be expanded to a national competition in 2021-22 in partnership with the Canadian Association for Dental Research (CADR). Another moment of pride for our Faculty was when Assistant Professor and Graduate Program Director of Oral and Maxillofacial Surgery Marco Caminiti spent time in April 2021 volunteering in Humber River Hospital's intensive care unit when it needed skilled volunteers to treat COVID-19 patients.



DENTISTRY PROFESSOR SUPPORTS COVID-19 PATIENTS IN ICU

When Humber River Hospital announced the need for volunteers in its ICU to treat COVID-19 patients, the Faculty of Dentistry's Marco Caminiti jumped at the opportunity.

"When the call came out, it got my attention right away," says Caminiti, Assistant Professor and Graduate Program Director of Oral and Maxillofacial surgery at the Faculty. "I was drawn to it as something I can do rather than sitting passively."

In Humber's ICU in April 2021, the demand for critical care was increasing, but many beds remained empty. It wasn't a lack of space that was the issue — it was the number of nurses required to care for all of the potential patients.

The work done by Caminiti and other volunteers allowed many patients who were previously being relocated to Ottawa and Kingston to stay in Toronto. This eliminated the need to transfer a sick patient and kept them closer to their families.

"Humber River Hospital has the largest number of ICU beds, and with our help, we were able to make sure as many of those beds as possible were filled with patients who require care," says Caminiti.

Caminiti underwent three days of training to become an ICU physical assist. His days at the hospital were long, starting with an hour of preparation, followed by a 12-hour shift and

another hour of paperwork. His job was to provide one-on-one care to patients and give important feedback to the doctors on staff.

"Working in the ICU was a unique opportunity for all of us volunteering," says Caminiti. "While we aren't ICU doctors or nurses, we each bring in a special skill set that can help look at situations with different lens."

For example, many patients were intubated and needed to be rotated, which can place their heads in awkward positions. Caminiti, like other oral and maxillofacial surgeons experienced in upper airway management, helped the unit use a novel halo to help safely cradle their heads.

Being in the ICU was an eye-opening experience for Caminiti. His floor had 30 patients on ventilators due to COVID-19 and he witnessed the burnout felt by the nurses.

"I gained such an appreciation for the work the ICU staff do," says Caminiti. "It really highlighted my frustration of some public perception of the disease. I would invite any skeptic to walk through the ICU. When you see the number of sick people, it's undeniable how serious this is."

Caminiti continued to volunteer his time until operating rooms opened back up. He credited his colleagues at the Faculty for enabling his work at the hospital.

"Trying to balance my time in the ICU on top of everything else was overwhelming at times," he says "My colleagues that couldn't volunteer were busy keeping the programs running at the Faculty. I couldn't have done it without their support."

PROMOTIONS

Jim Lai

Promoted to Professor, Teaching Stream

Aviv Ouanounou

Promoted to Associate Professor, Teaching Stream (part-time)

Carlos Quiñonez

Promoted to Professor

FACULTY HONOURS AND RECOGNITIONS

FACULTY OF DENTISTRY AWARDS

DR. A. BRUCE HORD MASTER TEACHER AWARDS

Grace De Souza
Robert Hillis

W.W. WOOD AWARD

Eszter Somogyi-Ganss

INTERNATIONAL AWARDS & RECOGNITION

UNIVERSITY OF TORONTO FACULTY OF DENTISTRY

2021 William J. Gies Award for Achievement, American Dental Association ADEAGies Foundation

Anil Kishen

Journal of Endodontics Award (Basic Research Category), American Association of Endodontics (with Alice Li)

Douglas Deporter

American Academy of Periodontology Teaching Award (2021)

Amir Azarpazhooh

Journal of Endodontics Award (Systematic Review Category), American Association of Endodontics

Jim Lai

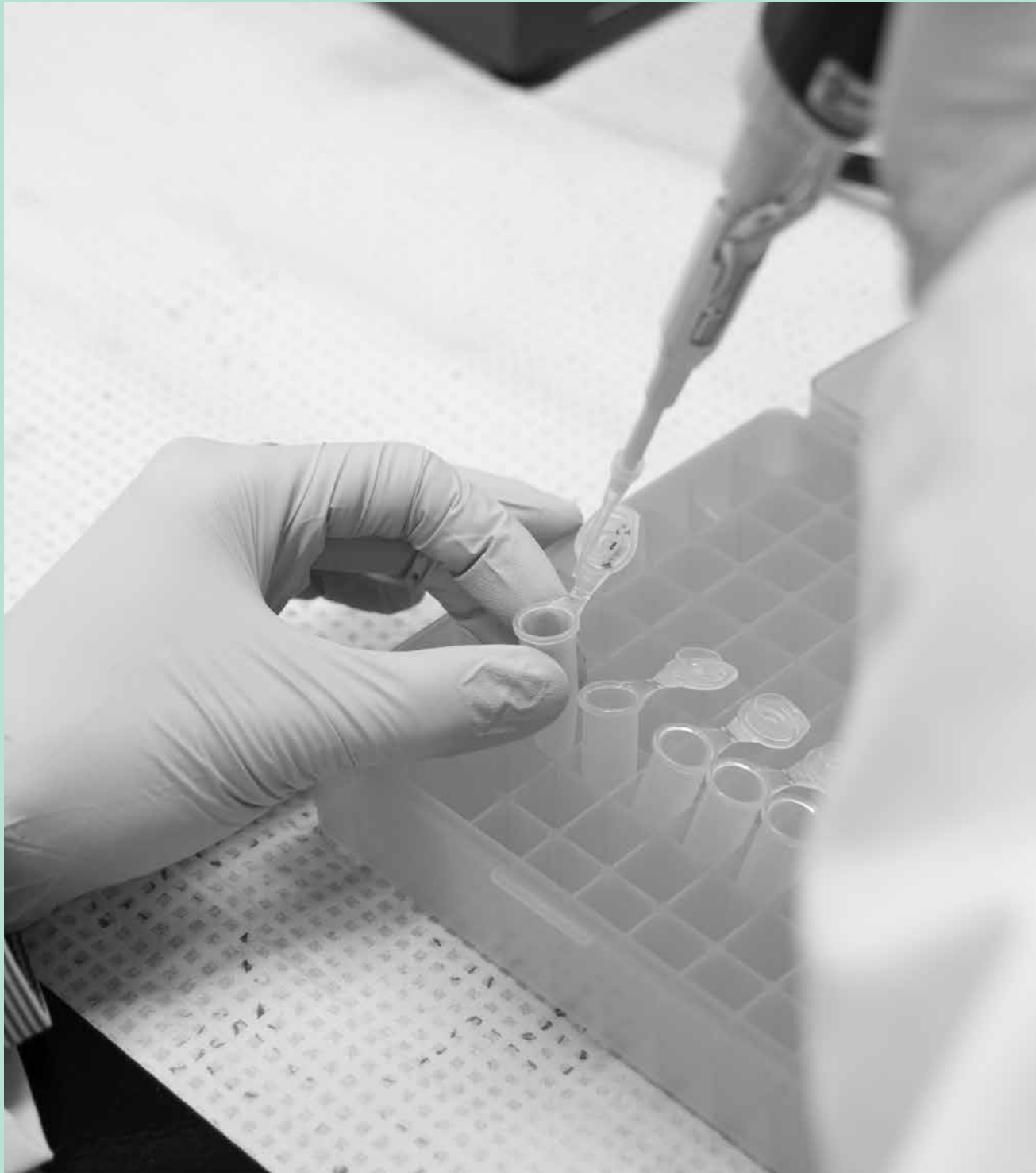
American Academy of Periodontology Teaching Award (2020)

This award is given to awardees whose work embodies the ideals set forth more than 90 years ago by dental education pioneer

William J. Gies



03



Research Impact

While the COVID-19 pandemic continued throughout the entire year, our faculty members remained committed to receiving grants to further their research. This year saw a number of CIHR successes, including five-year grants totalling over \$3.5 million. Recipients of grants in 2020–21 included faculty members Assistant Professor Iacopo Cioffi, Professor Boris Hinz, Assistant Professor Marco Magalhaes, Professor Chris McCulloch, Assistant Professor Massieh Moayed and Professor Paul Santerre.

U of T Dentistry researchers currently hold 11 NSERC Discovery grants, including one awarded this past year to Professor Laurent Bozec. This increased grant success has led to one more Canada Research Chairs (CRC) Tier 2 position for our Faculty, resulting in the Faculty having one Tier 1, and two Tier 2 CRCs. The search process for these positions is currently underway.

McCulloch holds a \$3.7-million grant from the Ontario Research Fund – Research Excellence. It was awarded to a project entitled The Fibrosis Tissue Repair Team: Cross-Disciplinary, Interactive Platforms for Improving Tissue Repair, which includes faculty members Bozec and Hinz.

While taking part in an international collaboration led by King's College London, Bozec enabled a breakthrough in understanding the role of a specific immune cell in promoting gut healing and inflammation. The study could

have enormous implications for developing new therapeutic targets for a range of diseases, from inflammatory bowel diseases such as Crohn's disease and ulcerative colitis to fibrosis.

A study conducted by Professor Yoav Finer and Russel Gitalis found that acids and stimulants from bacteria and neutrophils, which are cells of the innate immune system, destroy the bond adhesives commonly used in resin composite restorations. The researchers hope that their work on the neutrophil-bacteria connection can yield new understandings and interventions for treating caries.

A team of researchers including Noah Fine, Professor Michael Glogauer and Professor Howard Tenenbaum found evidence that neutrophil immune cell activity is the missing link connecting periodontal disease with heart disease, cancer and other inflammatory conditions. The study's findings underscore the importance of oral health as a vital indicator of potential complications for other inflammatory conditions.

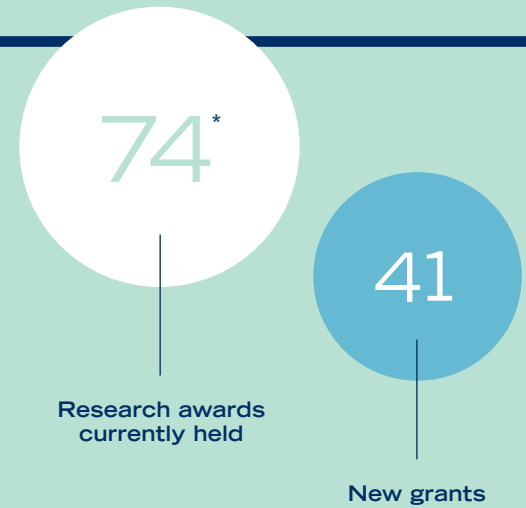
Niloufar Khosravi and Professor John Davies took a close look at the healing process that happens around implants at the cellular level. Their study tracked many key wound-healing cellular processes that will offer a number of possibilities for future research.

GRANT SUCCESS

Research Grants and Awards
2020 – 21 fiscal year

TOTAL	\$4,439,413
NEW GRANT FUNDS	\$2,244,222*

*Includes service agreements and sponsored research agreements



*Does not include Green Shield Canada research study donation

Total Research Funding for
April 1, 2020 – March 31, 2021

Associations	\$141,241
CIHR	\$1,980,118
Corporations	\$200,466
Education	\$544,355
Federal Government (excluding CIHR and NSERC)	\$676,308
Foundations	\$102,136
Hospitals	\$20,000
Internal	\$50,000
International Orgs.	\$8,924
NSERC	\$397,760
Ontario Provincial Government	\$148,089
Other	\$110,017
Societies	\$60,000
TOTAL FUNDING	\$4,439,413

Note: →
The reporting period for grants extends from April 1, 2020 to March 31, 2021

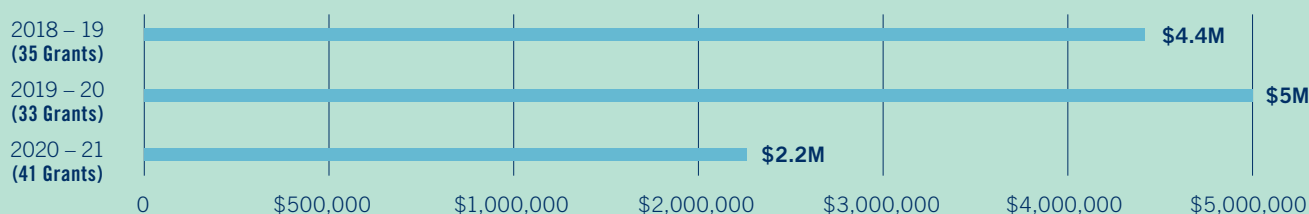
2016 – 21 Dentistry Funding Summary

Despite a challenging year due to the COVID-19 pandemic, the Faculty of Dentistry's grant funding continues to be successful both in the number of grants awarded as well as the dollar amounts of those grants

INDUSTRY	2016 – 2017	2017 – 2018	2018 – 2019	2019 – 2020	2020 – 2021
Associations	\$58,753	\$110,006	\$0	\$42,309	\$141,241
CIHR	\$2,386,184	\$2,645,142	\$2,537,615	\$2,508,304	\$1,980,118
Corporations	\$541,992	\$518,377	\$423,313	\$257,680	\$200,466
Education	\$35,689	\$93,908	\$151,166	\$387,638	\$544,355
Federal Government	\$638,200	\$651,273	\$3,660,826	\$901,500	\$676,308
Foundations	\$94,920	\$128,175	\$63,126	\$63,559	\$102,136
Hospitals	\$113,500	\$5,000	\$73,250	\$0	\$20,000
Internal Customers	\$199,211	\$220,000	\$110,000	\$50,000	\$50,000
International Orgs	\$7,229	\$52,532	\$90,525	\$20,824	\$8,924
NSERC	\$347,683	\$423,471	\$687,809	\$504,311	\$397,760
Other	\$198,000	\$0	\$150,000	\$312,667	\$110,017
Societies	\$102,864	\$6,543	\$8,818	\$0	\$60,000
Ontario Provincial Government	\$334,700	\$250,056	\$2,575,739	\$426,000	\$148,089
TOTAL	\$5,058,925	\$5,104,484	\$10,532,187	\$5,474,791	\$4,439,413
TOTAL AWARDS	72	73	71	71	74

New Grants (Three-Year Comparison)

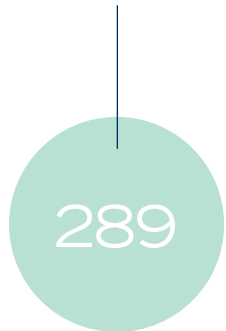
A three-year comparison of new research grants awarded shows that U of T Dentistry researchers are consistent in the number of new grants won from year to year, although there was a reduction in the dollar amount received this past year



SCHOLARLY OUTPUT AND PUBLICATION IMPACT

Publications 2020 – 21

Total Publications



Citations



↑
Note: Total publications includes disciplines outside of dentistry such as medicine and biochemistry, as well as other multidisciplinary publications

Data source: Scopus, retrieved on June 30, 2021

Top 10 Published Authors 2020 – 21

NAME	SCHOLARLY OUTPUT	MOST RECENT PUBLICATION	CITATIONS	H-INDEX
Anil Kishen	41	2021	49	37
Michael Glogauer	31	2021	63	53
Amir Azarpazhooh	29	2021	25	25
Carlos Quiñonez	29	2021	28	19
Boris Hinz	20	2021	182	58
Howard Tenenbaum	17	2021	29	36
Chris McCulloch	16	2021	25	60
Craig Simmons	15	2021	35	47
Laurent Bozec	12	2021	25	23
Iacopo Cioffi	11	2021	12	13

Data source: Scopus, up to June 30, 2021

Top 10 Published Authors 2016 – 21

NAME	SCHOLARLY OUTPUT	MOST RECENT PUBLICATION	CITATIONS	H-INDEX
Anil Kishen	88	2021	614	37
Michael Glogauer	84	2021	1,239	53
Carlos Quiñonez	67	2021	304	19
Amir Azarpazhooh	63	2021	285	25
Boris Hinz	54	2021	1,634	58
Craig Simmons	51	2021	535	47
Chris McCulloch	47	2021	497	60
Laurent Bozec*	40	2021	414	23
Howard Tenenbaum	37	2021	334	36
Paul Santerre	35	2021	316	47

*Professor Bozec joined U of T in 2018

Data source: Scopus, up to June 30, 2021

Top 10 Most-Cited Publications 2020 – 21

	PUBLICATIONS	CITATIONS
1	Hinz, B. , Lagares, D. Evasion of apoptosis by myofibroblasts: a hallmark of fibrotic diseases. (2020) <i>Nature Reviews Rheumatology</i> , 16 (1), pp. 11–31. Cited 61 times	25
2	Lodyga, M., Hinz, B. TGF-β1 - A truly transforming growth factor in fibrosis and immunity. (2020) <i>Seminars in Cell and Developmental Biology</i> , 101, pp. 123–139. Cited 58 times	14
3	Lam, S., Lombardi, A., Ouanounou, A. COVID-19: A review of the proposed pharmacological treatments. (2020) <i>European Journal of Pharmacology</i> , 886. Cited 24 times	14
4	Suri, S., Vandersluis, Y.R. , Kochhar, A.S., Bhasin, R., Abdallah M.-N Clinical orthodontic management during the COVID-19 pandemic. (2020) <i>Angle Orthodontist</i> , 90 (4), pp. 473–484. Cited 24 times	11
5	Pakshir, A., Noskovicova, N., Lodyga, M., Son, D.O., Schuster, R. , Goodwin, A., Karvonen, H., Hinz, B. The myofibroblast at a glance. (2020) <i>Journal of Cell Science</i> , 133 (13). Cited 20 times	10
6	Sczepanik, F.S.á.C., Grossi, M.L., Casati, M., Goldberg, M., Glogauer, M., Fine, N., Tenenbaum, H.C. Periodontitis is an inflammatory disease of oxidative stress: We should treat it that way. (2020) <i>Periodontology 2000</i> , 84 (1), pp. 45–68. Cited 13 times	10
7	Van, J.A.D., Clotet-Freixas, S., Zhou, J., Batruch, I., Sun, C., Glogauer, M. , Rampoldi, L., Elia, Y., Mahmud, F.H., Sochett, E., Diamandis, E.P., Scholey, J.W., Konvalinka, A. Peptidomic analysis of urine from youths with early type 1 diabetes reveals novel bioactivity of uromodulin peptides in vitro. (2020) <i>Molecular and Cellular Proteomics</i> , 19 (3), pp. 501–517. Cited 11 times	9
8	Wong, J.F., Mohan, M.D., Young, E.W.K., Simmons, C.A. Integrated electrochemical measurement of endothelial permeability in a 3D hydrogel-based microfluidic vascular model. (2020) <i>Biosensors and Bioelectronics</i> , 147, art. no. 111757. Cited 11 times	6
9	Bakhtiar, H. , Pezeshki-Modaress, M., Kiaipour, Z., Shafiee, M., Ellini, M.R., Mazidi, A., Rajabi, S., Zamanlui Benisi, S., Ostad, S.N., Galler, K., Pakshir, P., Azarpazhooh, A., Kishen, A. Pulp ECM-derived macroporous scaffolds for stimulation of dental-pulp regeneration process. (2020) <i>Dental Materials</i> , 36 (1), pp. 76–87. Cited 10 times	6
10	Geelhoed, W.J., van der Bogt, K.E.A., Rothuizen, T.C., Damanik, F.F.R., Hamming, J.F., Mota, C.D., van Agen, M.S., de Boer, H.C., Restrepo, M.T., Hinz, B. , Kislaya, A., Poelma, C., van Zonneveld, A.J., Rabelink, T.J., Moroni, L., Rotmans, J.I. A novel method for engineering autologous non-thrombogenic in situ tissue-engineered blood vessels for arteriovenous grafting. (2020) <i>Biomaterials</i> , 229, art. no. 119577. Cited 10 times	6

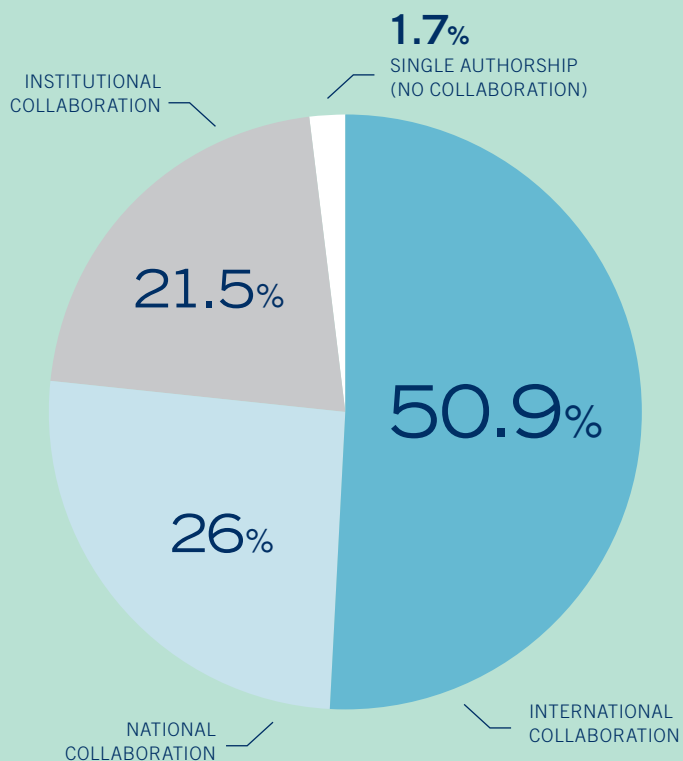
Data source: Scopus, as of July 7, 2021

Top 5 Most-Cited Publications
2016 – 21

	PUBLICATIONS	CITATIONS
1	Neel, E.A.A., Aljabo, A., Strange, A., Ibrahim, S., Coathup, M., Young, A.M., Bozec, L. , Mudera, V. Demineralization–remineralization dynamics in teeth and bone. (2016) International Journal of Nanomedicine, 11, pp. 4743–4763. Cited 166 times	208
2	Szeto, S.G., Narimatsu, M., Lu, M., He, X., Sidiqi, A.M., Tolosa, M.F., Chan, L., De Freitas, K., Bialik, J.F., Majumder, S., Boo, S., Hinz, B. , Dan, Q., Advani, A., John, R., Wrana, J.L., Kapus, A., Yuen, D.A. YAP/TAZ are mechanoregulators of TGF- β -smad signaling and renal fibrogenesis. (2016) Journal of the American Society of Nephrology, 27 (10), pp. 3117–3128. Cited 150 times	203
3	Fitzsimmons, R.E.B., Mazurek, M.S., Soos, A., Simmons, C.A. Mesenchymal stromal/stem cells in regenerative medicine and tissue engineering. (2018) Stem Cells International, 2018. Cited 130 times	143
4	Sheikh, Z. , Hamdan, N., Ikeda, Y. , Grynpas, M., Ganss, B., Glogauer, M. Natural graft tissues and synthetic biomaterials for periodontal and alveolar bone reconstructive applications: A review. (2017) Biomaterials Research, 21 (1). Cited 120 times	111
5	Pakshir, P., Hinz, B. The big five in fibrosis: Macrophages, myofibroblasts, matrix, mechanics, and miscommunication. (2018) Matrix Biology, 68-69, pp. 81–93. Cited 117 times	101

Data source: Scopus, as of July 7, 2021

Scholarly Output in Publications
International, National
and Institutional Collaboration
2020 – 21



	PUBLICATIONS	CITATIONS	CITATIONS PER PUBLICATION
International Collaboration	147	307	2.1
National Collaboration	75	101	1.3
Institutional Collaboration	62	145	2.3
Single Authorship (No Collaboration)	5	0	0.0

LINKING GUM DISEASE TO HEART DISEASE

U of T Dentistry researchers find first evidence that neutrophil immune cell activity is the missing link connecting periodontal disease with heart disease, cancer and other inflammatory conditions

The link between periodontal disease and other inflammatory conditions such as heart disease and diabetes has long been established, but the mechanism behind that association has, until now, remained a mystery. A team of scientists and clinicians led by the University of Toronto's Faculty of Dentistry say they've found the reason why — and it's related to the body's own hyperactive immune response. The findings were published in the *Journal of Dental Research*.

Hyperactive state

Science has already established that the state of your oral health is an important indicator of overall health. "There are statistically significant correlations between periodontitis and systemic diseases ranging from diabetes to cardiovascular diseases," says Howard Tenenbaum, Professor at the Faculty of Dentistry, and Chief Dentist at Sinai Health System in Toronto, who is one of the authors of the study.

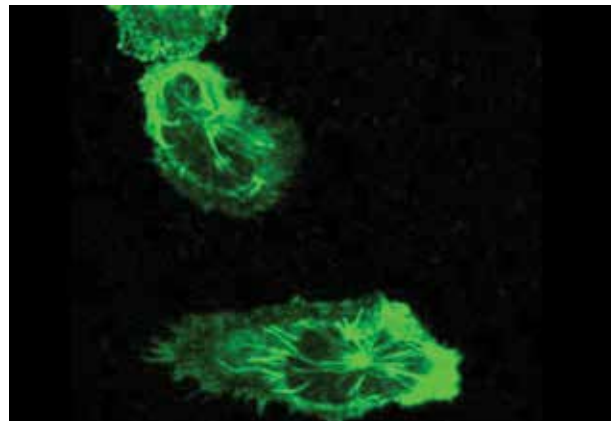
To find what links those conditions, the researchers focused on the behaviours of cells primarily activated by gum disease — neutrophils, which are cells of the innate immune system. Through in vivo models, the researchers found that the immune system releases an abundance of these neutrophils to tackle the bacterial infections responsible for periodontitis, more commonly known as gum disease.

Activated to fight an oral infection, a systemic effect was noted: once periodontal inflammation was present, an overabundance of neutrophils circulated, "primed" for attack. The hyper-vigilant immune system then responds with an excess of force to any secondary infection.

"It's almost as if these white blood cells are in second gear when they should be in first," says Michael Glogauer, Professor at the University of Toronto's Faculty of Dentistry and the study's senior author.

That's when the body becomes susceptible to damage from secondary inflammatory conditions. With the immune system already primed by the neutrophils for attack, a secondary event causes those immune cells to destroy affected tissues and organs.

A crawling neutrophil tubulin labelled green. Neutrophil activation is now believed to be at the root of overactive inflammatory responses, and links conditions such as periodontal disease and heart disease IMAGE: COURTESY NOAH FINE



"The [neutrophils] are much more likely to release cytokines much more quickly, leading to negative outcomes," adds Glogauer, who is also Dentist-in-Chief at University Health Network and Head of Dental Oncology at Toronto's Princess Margaret Cancer Centre.

Produced initially in in vivo models, the findings were confirmed through a controlled clinical experiment.

Oral health key to overall health

The study's findings underscore the importance of oral health as a vital indicator of potential complications for other inflammatory conditions, as well as disease model outcomes.

"We believe this is the mechanism by which oral hygiene can impact vulnerability to unrelated secondary health challenges," says lead author Noah Fine, a postdoctoral fellow at the Faculty of Dentistry. "Neutrophil priming throughout the body can connect these seemingly distinct conditions," he says.

The study also may have important ramifications for an inflammatory disease at the top of everyone's mind these days: COVID-19.

"There is evidence out there that patients with periodontal disease may be much more likely to have negative outcomes with COVID-19," explains Glogauer. The current study could provide some clues as to why: "Neutrophils are the cells that are at prime risk of causing cytokine storms. That's the exact cell we show is primed with people with periodontal disease," he explains.

The study was funded by the Canadian Institutes of Health Research. Research into the relationship between neutrophils and inflammation is ongoing.

2020 – 21 BENCHMARKING

U of T Dentistry continues to produce publications that have research impact both nationally and internationally. Compared with Canada’s other nine dentistry schools, U of T Dentistry ranks first in the category of scholarly output and view count, and second in the categories of citations count, number of citing countries and online mass media. U of T Dentistry remained competitive in relation to U.S. and international schools.

National Benchmarking 2020 – 21

INSTITUTION	SCHOLARLY OUTPUT (DENTISTRY)	VIEW COUNT	CITATION COUNT	NO. OF CITING COUNTRIES	MASS MEDIA (ONLINE)
Dalhousie University	25	313	29	23	75
McGill University	94	1,017	169	60	189
University of Alberta	137	1,664	320	68	201
University of British Columbia	123	1,240	196	52	153
Université Laval	17	217	42	38	8
University of Manitoba	30	386	47	35	44
University of Montreal	37	517	83	36	1
University of Saskatchewan	22	353	208	53	249
University of Toronto	222	2,036	272	65	586
Western University	40	339	31	22	1,359

DATA SOURCE: SciVal, derived from Scopus, retrieved on July 9, 2021

Scholarly Output

The number of publications of a selected entity

View Count

Total views received by publications of the selected entities

Citation Count

Total citations received by publications of the selected entities

Number of Citing Countries

The number of distinct countries represented by the publications citing a selected entity

Mass Media (Online)

Total of mentions in the media received by publications of the selected entities



The Faculty of Dentistry has seen a gradual rise in its rankings compared to universities across the world. In 2015, the Faculty ranked 50th in the QS Rankings and in 2021 has risen to 38th. The 2021 Shanghai Ranking listed U of T Dentistry as 25th in the world.

BENCHMARKING – GLOBAL CONTEXT

U.S. Benchmarking 2020 – 21

INSTITUTION	SCHOLARLY OUTPUT (DENTISTRY)	VIEW COUNT	CITATION COUNT	NO. OF CITING COUNTRIES	MASS MEDIA (ONLINE)
Columbia University	105	989	201	52	823
Harvard University	337	2,985	577	78	3,354
New York University	642	6,038	1,151	102	3,866
University of California at Los Angeles	108	1,047	112	42	2,152
University of California at San Francisco	119	1,175	289	59	1,498
University of Florida	183	1,527	221	58	302
University of Iowa	131	1,533	269	63	288
University of Michigan, Ann Arbor	351	3,633	696	81	1,152
University of Minnesota	113	1,135	131	62	322
University of North Carolina	272	2,806	550	80	1,559
University of Pennsylvania	236	2,062	343	55	1,330
University of Toronto	222	2,036	272	65	586
University of Washington	228	2,462	542	58	950

International Benchmarking 2020 – 21

INSTITUTION	SCHOLARLY OUTPUT (DENTISTRY)	VIEW COUNT	CITATION COUNT	NO. OF CITING COUNTRIES	MASS MEDIA (ONLINE)
Karolinska Institutet	291	2,860	651	81	85
King's College London	513	4,764	1,007	102	531
Tokyo Medical and Dental University	270	2,386	253	51	57
University of Amsterdam	241	2,771	628	77	54
University of Bern	355	3,674	741	96	29
University College London	196	1,785	448	55	546
The University of Hong Kong	293	4,270	673	84	1,071
Universidade de São Paulo	1,022	10,951	1,277	104	5
University of Toronto	222	2,036	272	65	586
Vrije Universiteit Amsterdam	174	2,137	436	63	10

DATA SOURCE: SciVal, derived from Scopus, retrieved on July 9, 2021

Scholarly Output

The number of publications of a selected entity

View Count

Total views received by publications of the selected entities

Citation Count

Total citations received by publications of the selected entities

Number of Citing Countries

The number of distinct countries represented by the publications citing a selected entity

Mass Media (Online)

Total of mentions in the media received by publications of the selected entities

04



Community Impact



The Faculty of Dentistry continued to engage with its community in spite of the challenges brought on by the pandemic.

The University of Toronto held its second virtual convocation on June 23 to an audience in the tens of thousands. Earlier that same day, the Faculty of Dentistry held an online Graduation and Awards Ceremony celebrating the DDS class of 2021.

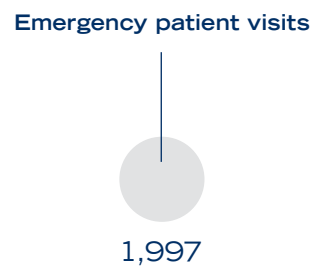
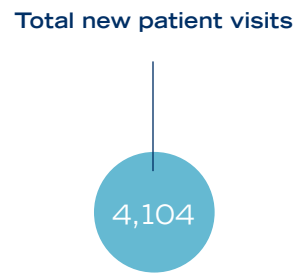
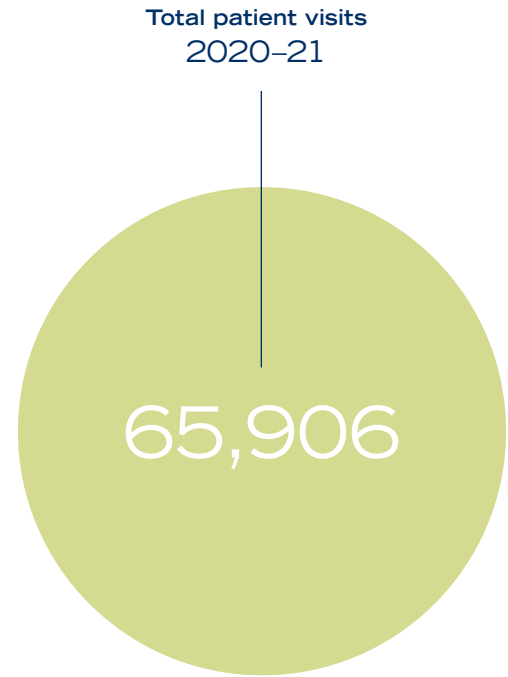
On July 20, the Faculty of Dentistry virtually welcomed visiting high school students taking part in U of T's Summer Mentorship Program. The program was created to help address concerns about the under-representation of Black and Indigenous people within the health sciences. The Faculty of Dentistry has been part of this annual day since 2009. These students from around the GTA are given the chance to explore the health professions at the University of Toronto. This year saw record-breaking enrolment numbers with 110 Grade 11 students registered. Participating students earn a credit toward their high school diploma.

PATIENT CARE

Last year, the Faculty of Dentistry clinics temporarily closed their doors to patients as part of Royal College of Dental Surgeons of Ontario guidance and Public Health Ontario directives put in place to help curb the spread of COVID-19. In July 2020, the clinics reopened to graduate students followed by DDS4 students in August 2020. DDS3 students were able to re-enter the clinics in early September 2020. Since then, the clinics have continued to operate at approximately 50 per cent capacity. To mitigate this reduction, an increased number of sessions per week were added to the schedule. As a result, the clinics were still able to see 65,906 patient visits in 2020-21, compared to 62,440 the previous year, the first year impacted by COVID-19. This contrasts with over 90,000 annual visits pre-pandemic.

This year saw the Faculty undertake the largest clinical infrastructure project in well over 30 years with the construction of a satellite dental clinic. This clinic of 41 enclosed dental operatories opened in September 2021 and is located on the 22nd floor of 777 Bay St., within walking distance of our building at 124 Edward St. Its presence will provide extra capacity for our students and patients, while concurrently allowing for swing space for future renovations being planned for our building, such as those for Clinic 2 and the simulation lab.

With the philanthropic gift of \$6.15 million, Green Shield Canada, through its Green Door Project, announced funding for the One Smile research program as well as the creation of the Green Shield Canada Clinic, to be housed within the Faculty of Dentistry. The clinic represents a unique cost-free clinical care environment for working poor families of the GTA and represents the largest dental public health research program investigating the impacts of access to dental care in Canadian history.



ALUMNI

The Advancement Office continued to keep alumni connected and informed with multiple free webinars with topics spanning managing pain to financial planning, as well as the continuation of monthly e-newsletters.

In May 2021, the Great Alumni Event: Home Edition took place in the absence of in-person celebrations. It included a special cooking evening with celebrity chef Bonnie Stern, a young alumni panel discussion and, in collaboration with Continuing Dental Education, a free webinar titled Dentistry’s Role in Abuse Recognition and Domestic Violence Prevention. As well, a virtual tour video was released.

In the 2020–21 fundraising year, the Faculty of Dentistry received \$2,092,669 in donations thanks to a number of generous gifts.

We wish to thank all of our donors and volunteers who contributed to our success this past year, and whose generosity has made a huge impact on our students, as well as the health and well-being of patients both abroad and at home.

NO. OF LIVING ALUMNI

8,506

TOTAL DONATIONS 2020 – 21

\$2,092,669

264 Total Donors

MAJOR GIFTS IN 2020 – 21

\$1.02M

[11 Donors]

LEADERSHIP ANNUAL GIVING

\$352K

[232 Donors]

SPONSORSHIPS

\$70K

[15 Donors]

GIFTS IN KIND

\$653K

[6 Donors]

Scholarships and student support	\$628,925
Access to care	\$40,414
Capital projects (incl. gifts in kind)	\$676,214
Student outreach	\$127,300
Research and other programs	\$549,816
Sponsorships	\$70,000

← **Note:**
The reporting period extends from April 1, 2020 to March 31, 2021, following the fiscal year

ALUMNI CONT'D

ALUMNI OF INFLUENCE AWARD

Our second year of acknowledging the contributions of our outstanding alumni and their impact in the world. This past spring we announced three recipients of this prestigious award

Farel Anderson
6T6

LouAnn Visconti
8T8

Sneha Abhyankar
8T1 Dip DPH, 8T5 MSc, 8T9

UNIVERSITY OF TORONTO ARBOR AWARDS

Sally AbuKlam
1T4

Sean Chung
1T3 MSc Ortho

Evie Jesin
7T4 Dip DH

Carolyn Kay
6T6 Dip DH

Huy Nguyen
1T1

CHANGEMAKERS RECOGNIZED

Influencers don't just live on Instagram. Through their passionate commitment to the school and their fellow alumni, five current and former members of the alumni association board — Sally AbuKlam, Sean Chung, Evie Jesin, Carolyn Kay and Huy Nguyen — prove that volunteerism can have a profound impact on their peers as well as generations of dental students.

For that commitment, they are being honoured this fall with an Arbor Award from the University of Toronto, which is the University's highest recognition for volunteers who have demonstrated long-standing support of the school's faculties, colleges or to the broader University as a whole.

Committed to mentorship and education, the board members have expanded opportunities for their fellow alumni to gain from their connection with the Faculty over the past several years.

With 44 years of experience as an educator, for instance, Jesin felt she could positively influence programming through growing the alumni association board's lecture series. The new series was developed in partnership with the Faculty's Continuing Dental Education Program (CDE), to run with the annual alumni association meetings. Alumni attendees are eligible for CDE credits, adding value to their participation. "The lectures are given by people who provide their latest evidence-based research," says Jesin. "It gives us a cutting-edge opportunity for learning."

One of the mandates of the board has been to provide essential mentorship opportunities for students, something that moved Chung to join the board in 2015. In addition to being a practising orthodontist, Chung engages in mentorship as a clinical instructor in graduate orthodontics and paediatrics at the Faculty.

"It was nice to be able to share with [DDS4 students] some of the experiences and lessons



University of Toronto Arbor Award recipient, Sally AbuKlam

IMAGE: ERIN VOLLIICK

that took a little time for me to figure out,” says Chung of his experiences at the alumni association’s mentorship events, adding that he hopes sharing his experiences helped “things go smoother and easier for them.”

Nguyen concurs. He joined the board in 2015 to ensure that the DDS student experience at the Faculty was meaningful. “I had a good four-year experience at the Faculty,” says Nguyen. “It was definitely very challenging and definitely very difficult. One of the things I could contribute back was providing support and mentorship to the students in the DDS program,” he adds. Nguyen initially got involved to support DDS4 mentorship events. Going forward, he hopes the alumni association will be able to build programming around student mental health, which has recently become an important priority for the Faculty.

As connectors, the board members have been working to create networking and social opportunities for their fellow alumni. “We have a family at home, but we also need a professional family, a team. The bigger the team, the more insight we have,” says AbuKlam.

For some, those connections are vital. As an internationally trained dentist, AbuKlam

recognized early on that the alumni association was an especially important resource for this cohort. She joined the board in 2016, partially to help other internationally trained dentists take their place within the wider alumni community. “I wanted foreign-trained dentists like myself and fresh grads to be aware that this [community] is available,” says AbuKlam, who instructs part-time in the Faculty’s clinics. “It’s a valuable opportunity to stay connected.”

Invested in giving back to the school through their volunteerism, the award winners say they get back plenty in return. “The creativity of the board and the insights you get into the profession are certainly eye-opening and often validating,” says Kay, who has worked as a dental hygienist and earned a master’s of education from OISE in 1994. “It’s professionally rewarding and personally satisfying. It provides you an opportunity to collaborate with wonderful speakers [and colleagues],” she says.

As connectors, the board members have been working to create networking and social opportunities for their fellow alumni

For these changemakers, being involved in shaping the alumni association comes down to an essential gratitude for their education, and the profession it supports. “I have a wonderful career and a profession that has entitled me to do so many wonderful things,” says Jesin. “Really it all stems from the Faculty. If the Faculty wasn’t there to provide me with this education, where would I be?” she adds.

ALUMNI WEBINARS

September 23, 2020	Updates on the Faculty Reopening (Alumni Webinar)
October 21, 2020	Managing People Can be Easy - Said No One Ever (Alumni Webinar)
November 4, 2020	Managing Pain (Alumni Webinar)
January 28, 2021	How to Disinherit the CRA as a Beneficiary and Maximize Your Legacy (Alumni Webinar)
February 24, 2021	Planning for Your Financial Future (Alumni Webinar)
March 25, 2021	Positioning the Faculty for the Future: U of T Dentistry's New Satellite Clinic (Alumni Webinar)
April 22, 2021	Advocating for the Profession: An Organized Dentistry Discussion (Alumni Webinar)
May 26, 2021	Urban Equity: Building Back Better from COVID-19 (Alumni Webinar)
May 27, 2021	Virtual Tour Video Released & Alumni Reunion Home Edition

STAFF EXCELLENCE AWARDS

The Faculty of Dentistry Staff Excellence Awards celebrate a staff member or members who demonstrate professionalism, teamwork, contribution to morale and work excellence. This year, four individuals were selected who have shown exceptional leadership, resilience and professionalism during the COVID-19 pandemic. Their support to their colleagues, ability to adapt and dedication to patient care have been critical to the Faculty of Dentistry during these challenging times.

Congratulations to:

Beth Hensler

Mary Nania

Leah Raz

Jodie Simard



CONTINUING DENTAL EDUCATION

While online learning became the new norm during the pandemic, the Faculty of Dentistry's Continuing Dental Education (CDE) program has been offering this type of learning for several years. **utooth** (utooth.ca), CDE's online learning platform, continued to offer dozens of courses to help dental health professionals stay current.

CDE helped promote a series of 15 free webinars by the Graduate Specialty Program in Periodontics called the Oak Seminar Series. The Oak Seminar webinars drew about 200 registrants per session and garnered international attention, with one having attendees from 42 different countries. Many of these lectures are available for free on the CDE website.

CDE also offers four programs for internationally trained dentists, including: The Advanced Training in Hospital Dentistry Program (new to 2020–21), Surgical & Prosthetic Implant Treatment Program for Internationally Trained Dentists, Advanced Training Program in Orofacial Pain Management for Internationally Trained Dentists, and Advanced Training Fellowship in Oral and Maxillofacial Surgery for Internationally Trained Dentists (new to 2020–21).

36

CONTINUING DENTAL EDUCATION IN-PERSON AND/OR VIRTUAL COURSES OFFERED

1,605

LEARNERS REGISTERED FOR IN-PERSON AND/OR VIRTUAL COURSES

38

UTOOTH.CA ONLINE LEARNING COURSES OFFERED IN 2020 – 21

1,983

NO. OF CONTINUING DENTAL EDUCATION ONLINE (UTOOTH) COURSES PURCHASED IN 2020 – 21

↑ Note: Reporting period is July 1, 2020 to June 30, 2021

“

Our experience from 2020 – 21 has proven that we are very capable of dealing with challenges as they arise. Our priority will continue to be the health and safety of our entire community while we remain committed to our vision of excellence in education, research and patient care”





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