



Division of Head and Neck Oncology and Reconstructive Surgery

Dr. Jonathan Irish (Head)

Members: Dale Brown, Douglas Chepeha, John de Almeida, Danny Enepekides, Antoine (Tony) Eskander, Jeremy Freeman, Ralph Gilbert, David Goldstein, Patrick Gullane, Kevin Higgins, Eric Monteiro, Al Vescan, Ian Witterick.

In July 2017, Dr. Jonathan Irish became the Head of the Division of Head and Neck Oncology and Reconstructive Surgery and during the first 6 months took the opportunity to complete a strategic planning process. This has resulted in a reinvigoration of the research mission of the division, a reorganization of the fellowship education program and an increased collaboration between the three hospital sites providing head and neck oncological surgical services.

From a clinical care perspective, the three head and neck centres under the University of Toronto umbrella are large volume centres by any measure. The academic productivity, research initiatives, fellowship education program and leadership provided by the division faculty continues to position the division as the pre-eminent program in Canada and one of the most recognized programs internationally.

The Princess Margaret Cancer Centre at the University Health Network is the largest regional program in Canada with 7 full-time head and neck surgical oncologists (Drs. Dale Brown, Doug Chepeha, John de Almeida, Ralph Gilbert, David Goldstein, Patrick Gullane, and Jonathan Irish). The Princess Margaret Head and Neck Program provides a complete spectrum of head and neck services

including endocrine, microvascular surgery and minimally invasive approaches including robotic surgery. The program has a strong multidisciplinary translational research program, with four core labs focused on different aspects of head and neck oncology. This program has been strongly supported by the Princess Margaret Cancer Foundation with key donations from the Joe Findlay Fund, the Wharton Family, Kevin and Sandra Sullivan, Neville Thomas as well as the Galloway, Elia, Garron, Epstein, Stroebele and Dorrance families. The Norman and Marian Robertson Charitable Head and Neck Surgical Clinical Trials Program Fund is a recent addition to the support to the program and is dedicated to the support of in-house surgical clinical trials, national or international surgical clinical trials led out of the Princess Margaret and trials in surgical innovation.

The Sinai Health has had a strong collaborative program with the Princess Margaret including multidisciplinary clinics, collaborative research and collaborative clinical care. Sinai Health continues to offer tertiary/quaternary head and neck services with an internationally acclaimed program in endocrine oncology initiated by Dr. Jeremy Freeman. Drs. Witterick, Vescan, de Almeida and Monteiro, in collaboration with the UHN neurosurgery group, provide a world-class program in skull base surgery at Sinai Health and the Toronto Western Hospital. The Sinai Health site has an active and productive molecular oncology program in endocrine and oral cancer.

The Sunnybrook/Odette Site offers tertiary/quaternary Head and Neck Oncology Services including Endocrine and Microvascular Surgery. Drs. Enepekides, Higgins and Eskander provide services at the Sunnybrook site and have strong networking programs with the Michael Garron Hospital and Women's College Hospital. The group at Sunnybrook also has a major presence in the Odette multidisciplinary Skin Malignancy Site Group. The positioning of the Institute for Clinical Evaluative Sciences (ICES) at Sunnybrook positions our faculty there to lead in health services research and Dr. Tony Eskander has led the health services research in head and neck oncology for the division. The establishment of a functional outcomes laboratory and modern outpatient ambulatory care facilities have been recent improvements at the site.

Research

The research productivity will be detailed in the departmental report but some of the major initiatives will be summarized here.

The division is organized into the following research programs: 1) Outcomes Research (lead: David Goldstein), 2) Clinical Trials (leads: John de Almeida, Doug Chepeha), 3) Health Services Research (lead: Tony Eskander), 4) Quality and Safety (lead: Eric Monteiro), and 5) Guided Therapeutics (lead: Jonathan Irish). Under the leadership of Dr. John de Almeida who is the overall division lead-research we have developed a data governance document which has enabled sharing of data and developed governance on data sharing and oversight of data use for academic production. This work has been adopted by the Canadian Association of Head and Neck Surgical Oncology Research Group. From October 2020 to June 2021 the division under the leadership of Dr. de Almeida and the respective program leads have had monthly meetings to develop a research strategic plan which will help guide the divisional collaborative research program over the next 5 years.

The academic productivity in Outcomes Research speaks volumes regarding the research productivity in this area. Most of these projects are mentor-led

and are within a single institution. An example of UHN-based work led by Dr. Goldstein is "Frailty as a Predictor of Outcomes in Patients Undergoing Major Surgery for Head and Neck Cancer: A Prospective Cohort Study" which resulted in the Harris P. Mosher Award in recognition of the excellence of his thesis in clinical research submitted to the Triological Society and mentored the Best Poster at the 2019 AHNS Annual Meeting for the poster entitled "Evaluation of Older Age and Frailty as Predictors of Post-Operative Decision Regret". An example of Sunnybrook-led projects includes a pilot study of the inflammatory response in oral squamous cell carcinoma by saliva, plasma and tissue analysis led by Dr. Kevin Higgins which is funded by a Canadian Institute of Health Research team grant for \$100,000 CAD. Dr. Tony Eskander is completing a study evaluating the effect of tumour volume as a predictor of treatment failure for T3 laryngeal cancer. This is a division-led study including the Princess Margaret and Sunnybrook sites and will include the University of Calgary, University of Manitoba, University of Ottawa, Western University, McGill University and Dalhousie University. Similarly, Dr. David Goldstein is leading a study determining outcomes in patients with papillary thyroid carcinoma with tracheal invasion which will also involve multiple Canadian sites through University of Toronto leadership.

The Clinical Trials program of the division is very active. David Goldstein continues to co-lead the major trial on active surveillance in early-stage papillary thyroid cancer with CIHR grant support. This trial has now recruited over 200 patients and has moved to multiple sites in Canada. This trial has had significant impact on practice in thyroid oncology and when this study is completed will likely be a practice-changer. Dr. Danny Enepekides is a co-investigator on the Business Lead Networks of Centres of Excellence (BL-NCE) Grant which is dedicated to creating an informational and imaging integrated operating room for the next generation of surgery which has a total project value of \$1.5M. Dr. Doug Chepeha led a prospective window of opportunity clinical trial determining the antitumor immune effects of pre-operative sitravatinib and

nivolumab which showed significant clinical and pathological responses in oral cavity cancer. Other active clinical trial projects in the division include ICG assessment of pharyngeal mucosal viability after laryngectomy/pharyngectomy (Higgins, Chepeha) and development of a machine learning risk calculator for outcomes in head and neck cancer (de Almeida). As the co-lead of the Clinical Trials program of the division Dr. John de Almeida has definitely led by example. Dr. de Almeida continues to lead clinical trials particularly in robotic research including the FIND trial—a study to evaluate the use of Transoral Robotic Surgery (TORS) to identify small oropharyngeal carcinomas allowing tailored radiotherapy in unknown primary and small squamous cell oropharyngeal cancers. Findings from this study will be used to better determine which patients may be suitable for more targeted radiotherapy that would lead to a reduction in the total amount of radiotherapy needed as part of their treatment. He leads the University of Toronto participation in ORATOR-2 which is a randomized treatment de-escalation study to formally compare outcomes in HPV-related oropharyngeal cancer tumours treated with a primary radiotherapy versus a primary surgical approach and will lead the UofT participation in ORATOR-3 in HPV-negative oropharyngeal cancers. Finally, Dr. de Almeida is the principal investigator of the SELECT Trial (HN.11) approved by the CCTG and EORTC and has received \$3.2M in CIHR funding to compare the effectiveness of two types of radiation treatments for oropharyngeal carcinoma (OPC) to evaluate if lymphatic mapping with Single Photon Emission Computed Tomography (SPECT-CT) imaging can help select patients for ipsilateral versus bilateral radiation and has the opportunity of reducing the volume of radiation for OPC patients. This is the first Canadian Cancer Trials Group (CCTG) in head and neck to receive NCI approval and the trial can now be open through other cooperative groups in addition to CCTG including NRG/ECOG. This is another example of a study that was originally supported by departmental funds like the Barberian Scholarship and Ng/Chui Innovation Fund and also local hospital funds that provide “start-up” support for clinical innovation that can ultimately move to

national and international trials.

The Safety and Quality program has been led by Dr. Eric Monteiro. Many of the initiatives have been integrated across the division and has served as an important platform for collaboration. Dr. Monteiro has led the development and implementation of a standardized thyroid ultrasonography reporting program with documentation of nodule characteristics. This implementation was associated with an outcomes trial demonstrating that implementation of an ACR TI-RADS-based reporting form in conjunction with educational initiatives improved documentation of ultrasonographic thyroid nodule characteristics allowing for improved bedside risk stratification. This group has also been involved in the development of local workshops (margin assessment and evaluation in oral cancer), provincial initiatives (development of quality metrics in Quality Based Procedure Funding in thyroid surgery [Monteiro, Irish] and mucosal head and neck cancer [Eskander, Higgins, Irish]) and national and international workshops and symposia (Canadian Society of Oto-Head & Neck Surgery, American Academy of Otolaryngology-Head and Neck Surgery). Dr. Danny Enepekides chairs the Quality and Safety Committee of the department and many of the departmental initiatives also overlap with division initiatives including the development of a standardized reporting format for morbidity and mortality rounds using the OM3 model and initiatives to reduce postoperative opioid ordering for operative procedures.

The Health Services research program has been led by Dr. Tony Eskander. Dr. Eskander is a faculty member at ICES and on the teaching faculty of the Dalla Lana School of Public Health, Institute of Health Policy, Management and Evaluation (IHpmE). Drs. de Almeida and Goldstein are also on teaching faculty on IHPME. Combined with the fact that University of Toronto division faculty are in provincial leadership roles with Cancer Care Ontario-Ontario Health, this allows health services research to translate to policy implementation using funding and quality performance levers. Dr. Tony Eskander is the Principal Investigator on “An

Evaluation of Patterns of Care, Survival and Healthcare Costs in Patients with Head and Neck Cancer” with a prestigious Terry Fox New Investigator Award for \$442,614 CAD with Drs. Enepekides and Irish as co-investigators. Dr. Eskander led work with other division members on “Patient-Reported Symptom Burden as a Predictor of Emergency Department Use and Unplanned Hospitalization in Head and Neck Cancer: A Longitudinal Population-Based Study” and “Health Services Research and Regionalization of Care- From Policy to Practice: The Ontario Experience in Head and Neck Cancer” and “A Population-Based Study on NIFTP Incidence and Survival: Is NIFTP Really a "Benign" Disease?”. Health Systems Research output is described in the overall departmental report but the impact of this research at the University of Toronto division is unique in its ability to translate findings into policy impact at the provincial level. Lastly, another product produced by the division group and led by Dr. de Almeida with input from the entire division was the development and validation of a surgical prioritization and ranking tool and navigation aid for head and neck cancer (SPARTAN-HN) in a scarce resource setting which was created in response to the COVID-19 pandemic.

Finally, the Guided Therapeutics (GTx) Research Program, part of UHN’s TECHNA Institute, continues to lead and support research, run translational clinical trials and develop new technologies and interventions in head and neck, skull base, thoracic and sarcoma cancer surgery. This program is led by Dr. Jonathan Irish who is the Director, Clinical Faculty at TECHNA and the program lead for the GTx Program. This research is completed by our multidisciplinary team of surgeons, radiation physicists, engineers, programmers, chemists, cancer biologists, and imaging specialists, using the key GTx infrastructure consisting of the GTx Operating Room (GTx-OR at the Toronto General Hospital) and the GTx-Lab (at Princess Margaret Cancer Research Tower). The GTx Program focused on translational research and development of a broad range of new and continuing research projects:

Education

The division directs the American Head and Neck Society Advanced Training Fellowship. Dr. Jeremy Freeman is the Fellowship Director and Dr. Jonathan Irish as the division head chairs the Fellowship Steering Committee with representation from the three hospital sites (Freeman, Higgins, Irish). There is a Fellowship Financial Governance Group (Irish, Freeman, Gilbert, Higgins, Enepekides) that oversees financial considerations related to the fellowship program. The Fellowship Steering Committee is responsible for oversight of the fellowship program including organizing the AHNS Fellowship match participation and interviews as well as organizing the fellowship interview process for non-AHNS match applicants from international medical graduates. The committee also oversees the fellowship rotations and assessments. The education program is overseen by Drs. Higgins and Irish in collaboration with the chief of fellows.

This highly sought-after fellowship program with six clinical rotations and one research position draws applicants from around the world. The program continues to be committed to the development and training the future leaders of our sub-specialty. One of the major initiatives led by Drs. Higgins and Irish is to renew the Fellowship Education Curriculum. This process has incorporated initiatives from the American Head and Neck Society and Canadian Association of Head and Neck Surgical Oncology. In a typical academic year there are 9 fellowship rounds which cover topics dictated by the AHNS Curriculum with 3 journal clubs and 3 special lectures. For three of the rounds per year the division invites previous fellows to act as alumni mentors who may have specialized topic expertise as we continue to strengthen our alumni program. The division continues to attract pre-eminent visiting professors from all over the world for departmental and hospital-sponsored lectures which are presented elsewhere in this report.

The division has a strong relationship with international departments and with the MD Anderson (MDA) and Memorial Sloan Kettering (MSK) faculty are responsible for hosting the

Current Concepts in Head and Neck Surgery Continuing Professional Development conference. This conference is run annually and features guest faculty as well as faculty from the 3 centres and rotates between Toronto, Houston and New York. Dr. Irish serves as the conference co-chair along with Drs. Ashok Shaha (MSK) and Ehab Hanna (MDA).

Leadership

The faculty provided strong hospital, university, provincial, national and international leadership in otolaryngology and head and neck surgical oncology. Dr. Pat Gullane is still an active mentor for many within the department and in the division and deserves credit for establishing a culture of respect and establishing a platform on which all of the faculty currently at the university division have been able to grow in. Dr. Gullane remains as an important advisor and thought leader and continues to hold The Wharton Chair in Head and Neck Surgery. He continues to be dedicated to develop the head and neck program at UHN and at the university by engaging philanthropic support for the research and educational missions of the division. Dr. Ralph Gilbert is the chief of otolaryngology-head & neck surgery at UHN and has been in that role for 8 years. Since 2018, Dr. David Goldstein has been the site lead for the Endocrine Site Group at Princess Margaret. At the provincial level, Dr. Irish is the Provincial Head for Surgical Oncology at Cancer Care Ontario-Ontario Health and in 2020 is the interim Provincial Clinical Lead for Cancer Care Ontario-Ontario Health and in that capacity is responsible for all cancer services in the province. He remains the Provincial Clinical Lead for Access to Care in Ontario Health.

Dr. Ian Witterick is the chief of otolaryngology-head & neck surgery at the Sinai Health incorporating the Mount Sinai Hospital and currently professor and chair of the university department. Dr. Witterick is also chair of the MAC at Sinai Health. Dr. Jeremy Freeman previously was the chief of otolaryngology-head & neck surgery at Sinai Health and currently serves as the fellowship director for the division. Recognizing Dr. Eric Monteiro's commitment to

quality and safety, he was made course director for the certificate course in quality improvement at the Centre for Quality Improvement and Patient Safety (CQUIPS) at the University of Toronto.

Dr. Danny Enepekides is the Chief of Otolaryngology-Head & Neck Surgery at Sunnybrook Health Sciences Centre, the Chief of Surgical Oncology and the Regional Lead for Surgical Oncology in Toronto Central North for Cancer Care Ontario-Ontario Health. At the University level Dr. Enepekides chairs the Quality and Safety Committee for the department with many initiatives being already described elsewhere in this report. Dr. Kevin Higgins is the Head and Neck Site Chair at the Sunnybrook Odette Cancer Centre.

Many of the faculty of the department play significant leadership roles in developing quality improvement initiatives and driving improvements in access to care and access to quality care at the provincial level serving on many Cancer Care Ontario-Ontario Health Working Groups, Expert Panels and Committees. Some of the notable leadership commitments include Dr. Kevin Higgins (CCO head and neck site group, CCO skin site group), Dr. Tony Eskander (Head and Neck Quality Based Procedures [QBP] Working Group), Dr. John de Almeida (Head and Neck QBP Working Group) and Dr. Eric Monteiro (Endocrine QBP Working Group).

The national and international impact of the division faculty is an enormous one. The division members continue to be highly sought after as keynote speakers in many national and international conferences and meetings which are described in the overall departmental report. Many members of the division have national and international leadership positions some of which are documented here.

Drs. Gilbert, Gullane and Witterick have been invited faculty on the 4-6 week International Federation of Head and Neck Oncologic Societies (IFHNOS) World Tours (https://ifhnos.net/world_tours.html). IFHNOS is a

global organization established through cooperation of national and regional societies and organizations in the specialty of head and neck surgery and oncology with membership from national and regional multidisciplinary organizations, representing 65 countries. Dr. Gullane has served on the Executive Committee and Dr. Witterick serves on the Board of Directors of the Global Online Fellowship program. Our department, along with Memorial Sloan Kettering Cancer Center and MD Anderson Cancer Center accept international observers in the program for a period of up to 2 months (https://ifhnos.net/online_education.html).

Dr. Ian Witterick completed his term as President of the Canadian Society of Otolaryngology-Head & Neck Surgery (CSO-HNS) and provided sage oversight and leadership during the COVID-19 pandemic for otolaryngologists across the country in an unprecedented time. Despite the challenges created by the pandemic he and his CSO-HNS team were able to deliver an outstanding annual meeting and other CPD events throughout the year. In AHNS leadership, Dr. Irish remains as a Past-President with his term ending in 2022 and Dr. Ian Witterick was elected Section Chair for Skull Base and Dr. Danny Enepekides was elected Section Chair for Salivary Gland. The establishment of the Canadian Association of Head and Neck Surgical Oncology (CAHNSO) has provided further opportunities for leadership for members of the division. Dr. Kevin Higgins is Executive Committee Member, Canadian Association of Head and Neck Surgery and also is the Ontario Regional Representative and Executive Member at the Canadian Society of Otolaryngology-Head & Neck Surgery. In addition, Dr. Tony Eskander has organized and now chaired the Collaborative Research Initiative at CAHNSO with strong participation and support particularly from Drs. Goldstein and de Almeida. This initiative has developed into a strong collaborative force for head and neck oncology research in the country.