



Radiation Oncology
UNIVERSITY OF TORONTO

Undergraduate Medical Education Report

Department of Radiation Oncology
Temerty Faculty of Medicine, University of Toronto
July 2020 – June 2021

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2020-2021 Undergraduate Medical Education Annual Report
Department of Radiation Oncology
Temerty Faculty of Medicine, University of Toronto

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1 OVERVIEW

The Department of Radiation Oncology (UTDRO) within the Faculty of Medicine, University of Toronto actively participates in undergraduate medical education. The core departments of the UTDRO are distributed across two academic cancer centres within the City of Toronto, while faculty from the community UTDRO sites also participate in UME teaching (Table 1). There are a total of **43 active staff radiation oncologists** who contribute directly to the undergraduate medical education curriculum from the core teaching sites.

Table 1: Cancer centres participating in UME.

Cancer centre	MD Program academy
<i>Core sites</i>	
Odette Cancer Centre Sunnybrook Health Sciences Centre	Peters-Boyd Academy
Princess Margaret Cancer Centre University Health Network	Wightman-Berris Academy
<i>Community sites</i>	
Carlo Fidani Regional Cancer Centre Trillium Health Partners	Mississauga Academy of Medicine
Simcoe Muskoka Regional Cancer Centre Royal Victoria Hospital	
Stronach Regional Cancer Centre Southlake Regional Health Centre	

The University of Toronto MD Program administers its hospital-based teaching through four academies. Three of these four are relevant to the DRO based on the locations of the two cancer centres (Table 1). Undergraduate medical students who are on-site at Princess Margaret Cancer Centre and the Odette Cancer Centre register with the Wightman-Berris and Peters-Boyd Academies, respectively.

The majority of teaching occurs in the clinical setting with students rotating amongst faculty members in one- to six-week rotations. **38 clinical rotations were coordinated this academic year.** Students participating in these rotations do so within a number of programs administered by the Temerty Faculty of Medicine at the University of Toronto and other national and international medical schools; these will be described in the coming sections of this report. In addition, UTDRO faculty contribute to formal, didactic undergraduate medical student teaching through the Wightman-Berris, Peters-Boyd Academies and Mississauga Academy of Medicine, and to the MD program as a whole; formal requests are made annually to UTDRO to participate.

Undergraduate medical education is divided into the foundations program (Year 1 and 2) and clerkship teaching (Year 3 and 4). For the purpose of this report, the academic year is recognized as beginning on July 1st and concluding on June 30th. Students registered with the University of Toronto who completed their rotations between July 1, 2020 and June 30, 2021 are included in the report.

The following table broadly summarizes the program:

	OCC	PM	Total
Participating Faculty	19	24	43
Total Faculty Hours	432.5	657.5	1090
Electives (includes clerkship, electives and visiting)	5	3	8
TTR Selectives	3	8	11
CARO-CROF	0	2**	2**
Observers	0	15	15
Physician Assistants*	0	4	4
Total Clinical Rotations	8	30	38

*Teaching hours for physician assistants were not available, and are excluded from “Total Faculty Hours” in the table.

**CARO-CROF students only participated in a virtual research experience, and were excluded from clinical rotation totals.

2 PROGRAMS

2.1 FOUNDATIONS (YEARS 1 AND 2) – UTDRO CONTRIBUTIONS

2.1.1 CANCER WEEK

Cancer Week is a week-long collection of integrated lectures designed to provide medical students with a holistic summary of the psychosocial and multi-disciplinary aspects of oncology care. It falls under the “Complexity and Chronicity” theme of the medical school curriculum. Topics that are covered include cancer staging, screening, systemic therapy, survivorship, global cancer burden, psychosocial oncology. The week is also summarized with an oncology case-based learning (CBL) module that focused specifically on cancer survivorship.

In 2020-21, Dr. Derek Tsang was a content co-director for Cancer Week, which was held in May 2021.

Dr. Derek Tsang virtually delivered a synchronous integration and summary lecture for Cancer Week (2 hours).

Dr. Anthony Brade virtually delivered a synchronous large group CBL presentation (3 hours).

Dr. Srinivas Raman virtually delivered an asynchronous lecture on radiation oncology, the first year (2020-21) this content was offered in the MD curriculum (0.5 hours, plus 3 h preparation).

2.1.2 CASE BASED LEARNING

This longitudinal program runs longitudinally throughout years 1 and 2. A variety of topics are covered in small group (8-10) sessions. These topics include Intro to Medicine (ITM) (11 sessions), Concepts, Patients, Communities (CPC 1), Host Defense, Oxygen Delivery (14 sessions) and Metabolism (11 sessions) in Year 1 and Concepts, Patients, Communities (CPC 2), Movement, Sensation, Behaviour (16 sessions), Life cycle (9 sessions) and Complexity and Chronicity (11 sessions) in Year 2. In 2018-2019, Drs. Derek Tsang and Meredith Giuliani wrote the CBL case for Cancer Week.

In May 2021, Dr. Anthony Brade virtually delivered the large group CBL program in Cancer Week (3 hours).

2.1.3 HEALTH SERVICES RESEARCH (HSR) COURSE

HSR is a longitudinal course in the Foundations program. Students develop capacity to integrate medical research in clinical practice, promote evidence-based medicine and quality patient care. They learn about human translational medicine pathway, the breadth of clinical research pathway (from basic to policy), concepts of critical appraisal, and concepts of human and animal research ethics. This course involved small group tutorials to facilitate learning.

In 2020-21, Drs. Srinivas Raman (40 hours), Eric Leung (40 hours) and Alexander Louie (40 hours) were tutors in the course.

2.1.4 CLINICAL SKILLS TEACHING (ASCM)

This clinical skills course runs longitudinally in years 1 and 2. Students learn focused history and physical exam skills. In core sessions to consolidate learning, more advanced skills and an approach to diagnosis are taught. Students are exposed to subspecialty skills in block or single sessions. Review sessions at year end help prepare students for final summative OSCE.

In 2020-21, resident Dr. Donna Liao led a clinical skills teaching session for medical students (3 hours).

2.1.5 PORTFOLIO

The Portfolio course consists of seven sessions, 4 hours each, where students have the opportunity to reflect with their peers and two supervisors (a faculty member and a resident) on their clinical learning from each of the CanMEDS roles. These sessions take part throughout the third year of medical training.

In 2020-21, Dr. Jennifer Croke (28 hours) was a tutor in the Portfolio course.

2.1.6 RESILIENCE CURRICULUM

In 2016, our MD Program launched its Resilience Curriculum to prepare medical students for the challenges of medical school and residency. The curriculum breaks down the stigma surrounding mental health issues and equips learners with the skills needed to persevere through challenges and adversity.

In 2020-21, Dr. Jennifer Croke was a facilitator for a Resilience Curriculum Workshop (2 hours).

2.1.7 ETHICS AND PROFESSIONALISM CURRICULUM

The MD Program strives to teach students the skill, knowledge, and attitudes to thrive as medical professionals in the 21st century. This component of the Foundations program includes discussions surrounding ethics, professional behaviour, jurisprudence, and self-reflection.

In 2020-21, Dr. Jay Detsky (20 hours) and resident Dr. Donna Liao (2 hours) taught small group seminars on medical ethics as part of this curriculum.

2.1.8 INTERPROFESSIONAL EDUCATION CURRICULUM

The Interprofessional Health, Arts and Humanities Certificate Program is a partnership between the Health, Arts and Humanities Program and the Centre for Interprofessional Education at the University of Toronto. The aim of the certificate program is to foster the development of collaborative, patient/client-centered care as well to promote self-care. The program is designed to advance a deeper understanding of health, illness, suffering, disability and the provision of healthcare by creating a community of scholars in the arts, humanities and clinical sciences. Previous iterations of the program have been well received by learners from across the health professions, allowing learners to employ arts-based modalities to enhance reflection, to deepen collegial dialogue, and to explore creative options for renewal and for maintaining wellbeing and resilience.

In 2020-21, resident Dr. Indu Voruganti delivered a seminar as part of this program, “Narrative, Health and Social Justice” in November 2020 (13 hours).

2.1.9 ENRICHING EDUCATIONAL EXPERIENCES (OBSERVERSHIPS)

The Department of Radiation Oncology participates in the MD Program’s Enriching Education Experiences (EEEs) program. Prior to the COVID-19 pandemic, these observerships were coordinated through the UTDRO office, the supervisor and the student. During the COVID-19 pandemic, in-person EEEs were suspended and virtual observerships were offered to interested year 1-2 students. These opportunities included shadowing of virtual patient encounters, an informal chat with a faculty mentor, and an opportunity to view radiotherapy planning.

In 2020-21, a total of 12 students participated in virtual EEEs with 4 faculty members over 46 teaching hours.

Resident Dr. Indu Voruganti (4 hours), Dr. Nauman Malik (5 hours), Dr. Donna Liao (3 hours), Dr. Dana Keilty (1.5 hours) and Dr. Amir Safavi served as mentors to prospective medical students in 2020-21.

2.2 CLERKSHIP (YEARS 3 AND 4)

2.2.1 GENERAL ELECTIVES

Year 3 and 4 students have the opportunity to rotate through a clinical elective in the Department of Radiation Oncology. The intent of a general elective is to provide exposure to students to the field of radiation oncology. The students work with a number of faculty to provide exposure to new patient clinics, follow up clinics, planning and review. The duration of the rotation varies from two (minimum) to six weeks.

The goals of the Electives program are to provide students with flexibility and opportunities to explore career possibilities, to gain experience in aspects of medicine beyond the core curriculum, and to study subjects in greater depth. Knowledge, skills and attitudes are further developed in a clinical context selected by students. The student and the supervisor are responsible for ensuring a clear, mutual understanding of the learning activities designed to meet the objectives of the Elective.

Students are responsible for arranging and completing a total of 12 weeks of electives during their designated fourth year Elective period. Students must complete Electives from three different disciplines, with a “discipline” defined as being any one of the CaRMS direct entry programs.

In 2020-21 UTDRO hosted 8 elective medical students.

In 2020-21, resident Dr. Nauman Malik delivered a monthly lecture to Medicine residents and medical students who rotate through Medical Oncology, titled “Introduction to Radiotherapy” (12 hours).

The COVID-19 pandemic limited the ability of the UTDRO to carry on regular elective opportunities in 2020. These placements for year 3 and 4 University of Toronto MD students have since resumed in 2021. Unfortunately, the Association of Faculties of Medicine in Canada (AFMC) suspended visiting electives for MD students outside the University of Toronto effective March 20, 2020, and this suspension remains in place for the graduating class of 2022. This reduced the intensity of visiting electives in UTDRO in 2021.

2.2.2 TRANSITION TO RESIDENCY (TTR)

Medical students devote the final 14 weeks of the four-year MD program towards consolidating the concepts they have learned about functioning as doctors, and putting them into practice in real world settings, as preparation for residency. The majority of TTR consists of ten weeks assigned for selectives (two of which are three weeks in duration and the final one is four weeks long). In addition, there are four weeks for centralized teaching, divided into two blocks of one week each and a third block of two weeks.

The selectives promote workplace-based learning, where students have increased (graded) responsibility under supervision. These experiences allow the students to bring together many different areas of knowledge and skill in the care of patients or populations, as they get ready for the increased responsibility of their PGY1 programs.

Students are required to complete at least one of the selectives in a community setting, and at least one of the selectives in either a medicine or surgery-based area. Students may use one of their selectives to satisfy the requirement for three different direct-entry program electives in their UME program.

The Department of Radiation Oncology offers a TTR selective, “Radiation Oncology for the Non-Oncologist”, to provide a broad overview of our specialty to graduating medical students as they transition into residency and medical practice. TTR selectives geared towards future radiation oncology residents are not offered because those students will already have had suitable exposure to our specialty through previous elective experiences.

In 2020-21, UTDRO hosted 11 medical students as part of TTR selectives.

In 2020-21, resident Dr. David Mak graded TTR “Health Equity” assignments (8.5 hours).

As part of TTR, medical students are required to submit answers to written questions and reflections about specific teaching cases designed to address various domains of the CanMEDS framework. These cases are graded by resident physicians, who provide specific feedback to medical students.

3 ADDITIONAL ACTIVITIES

3.1 ADMISSIONS

The University of Toronto Medical School receives thousands of applications annually for consideration of admission. Each application undergoes independent file review by several individuals for each section.

Each student receives an interview with a faculty and medical student team. These interviews are conducted over several months from January to March each year.

Dr. Barbara-Ann Millar sits on the MD Admissions committee representing post-graduate medical education (PGME).

In 2020-21, residents Dr. David Mak (20 hours), Dr. Marissa Sherwood (4 hours) and Dr. Amir Safavi were MD Program admission file reviewers.

Dr. David Mak was a member of the Multiple Mini-Interview Question Writing Committee (10 hours).

3.2 ONCOLOGY INTEREST GROUP

The Oncology Interest Group at University of Toronto is a group governed and coordinated by medical students for their peers to learn about the field of Oncology. They facilitate mentorship opportunities and host semi-annual events with invited speakers from various oncology disciplines.

On January 14, 2021, UTDR0 residents (Drs. Michael Tjong, Dana Keilty, and Indu Voruganti) along with Dr. Andrea Bezjak and Dr. Derek Tsang organized a synchronous virtual information session for the Oncology Interest Group (2 hours).

Dr. Indu Voruganti also participated in an information session for prospective CaRMS candidates on November 18, 2020 (2 hours).

3.3 CARO-CROF STUDENTSHIP

The Canadian Association of Radiation Oncology and the Canadian Radiation Oncology Foundation have established a studentship to provide an outstanding clinical experience in Radiation Oncology for Canadian medical students to assist them in future career selection.

Based on the highly successful Ivan Smith Summer Studentship previously stewarded by Cancer Care Ontario, this program offers a six week summer clinical elective for Canadian medical students between their second and third year.

There is a competition for funded slots and students are allocated to participating residency programs across Canada. This process is adjudicated by the CARO Education Committee.

In summer 2020, UTDR0 was poised to host two students, Salman Surangiwalla and Owen Krystia. The clinical placements were cancelled due to the COVID-19 pandemic.

In summer 2021, UTDR0 hosted two students for a virtual research experience, Nilita Sood and Maleeha Qazi.

Resident Dr. Nauman Malik and Dr. Meredith Giuliani proposed, designed and is implementing a longitudinal course for CARO-CROF students in 2021 (20 hours). Resident Dr. Amir Safavi delivered a lecture, "Introduction to Radiation Oncology and Workflow", in June 2021 (1 hour).

3.4 MEDICAL STUDENT RESEARCH

CREMS (Comprehensive Research Experience for Medical Students) is a research program for medical students that allows trainees to gain extracurricular research experiences without interrupting their medical studies.

Resident Dr. Jennifer Kwan was an adjudicator in the CREMS Summer Research Competition in 2021 (10 hours).

The University of Toronto MD/PhD Program, the largest national program of its kind, trains and mentors the next generation of physician scientists. Physician scientists are trained as medical doctors and scientists. They are in the unique position of pursuing both scientific research and clinical practice, translating academic excellence into health care excellence for Canadians every day.

Resident Dr. Jennifer Kwan was the Clinical-Investigator Program Representative on the MD-PhD Curriculum Committee in 2020-21 (12 hours).

Dr. David Shultz also supervised two undergraduate students in their research projects: Randa Higazy (30 hours, as part of TRN301Y1), and Siddhi Pandya (20 hours, as part of BIOD95H).

3.5 PHYSICIAN ASSISTANT EDUCATION

The UTDRO takes an active role in the education of physician assistant (PA) students from Western University, McMaster University and the University of Toronto.

During the 2020-21 academic year, Ms. Maitry Patel supervised four PA students during their in-person oncology elective placements. Ms. Maitry Patel also supervised 22 virtual observerships/placements (58 hours). The students are listed in Appendix C.

4 FUTURE PLANS

4.1 ELECTIVES AND SELECTIVES

The AFMC declared that there will be no visiting electives in Canada for the Class of 2022 for the duration of the 2021-2022 academic year. However, University of Toronto MD students will continue to have the opportunity to participate in elective and selective opportunities in UTDRO. In 2022, we will be offering Transition to Residency selective placements for the first time at **Stronach Regional Cancer Centre (Newmarket), Carlo Fidani Regional Cancer Centre (Mississauga), and Simcoe Muskoka Regional Cancer Centre (Barrie, in collaboration with the Rural Ontario Medical Program [ROMP])**. Each site will have the capacity to host one student per 3 week block, for a total of 3 students each (9 total), with the exception of Barrie, which will host one student total (due to ROMP limitations).

When the COVID-19 pandemic is resolved, we look forward to working with all UTDRO community sites to continue medical student placements, so that learners are able to learn about the delivery of radiation oncology in both academic and community settings across the Greater Toronto Area.

4.2 CANCER WEEK

Cancer Week continues to be a success, with the introduction of a dedicated radiation oncology lecture in 2021. This will continue in 2022, with a future goal to transition this lecture into a synchronous delivery format.

5 UME PROGRAM FEEDBACK AND EVALUATION

This section summarizes the profile information and feedback provided in the UME program evaluations received from students completing electives and TTR selectives.

5.1 STUDENT PROFILE

The “Primary Objective of Rotation” table below lists the number of students who indicated the primary objective of their elective. Fractional numbers occur where students indicated more than one primary objective.

Primary Objective of rotation – 2020-21

Objective	OCC	PM	Total
Career exploration	0	4	4
General clinical experience	5	3	8
Oncology education	1	1	2
Total	6	8	14

How did they hear of the program – 2020-21

	OCC	PM	Total
Contact with Faculty	1	1	2
Electives catalogue	4	5	9
Fellow Student	1		1
Virtual EEE		1	1
March EEE		1	1
Total	6	8	14

5.2 UNDERGRADUATE PROGRAM EVALUATION SUMMARY

The table below lists the mean scores from program evaluations received in the current year and past three years.

The scores are on a five point scale with 1 = strongly disagree, 2 = disagree, 3 = equivocal, 4 = agree, and 5 = strongly agree.

Education Site	2020-21			2016-2021 (5 yr averages)		
	OCC	PM	Total	OCC	PM	Total
Number of Program Evaluations	6	8	14	57	108	165
a) Exposed me to a range of clinical problems in oncology	4.5	4.3	4.4	4.6	4.6	4.6
e) Gave me a greater understanding for the principles of oncology	4.7	4.8	4.7	4.6	4.6	4.6
g) Gave me opportunity to see the technical side of radiation oncology	4.2	4.6	4.4	4.3	4.3	4.3
h) Provided me with adequate contact with radiation oncology faculty	4.7	4.6	4.6	4.7	4.6	4.6
i) Gave me the opportunity to see how a hospital multi-professional team works	4.3	3.9	4.1	4.5	4.4	4.5
k) Gave me knowledge or skills which will be helpful even outside oncology	4.7	4.1	4.4	4.6	4.5	4.5
l) Provided me with adequate time to ask questions and have discussion	4.7	4.8	4.7	4.6	4.6	4.6
m) Gave me adequate time to attend rounds, conferences, lectures, etc.	3.5	4.4	4.0	4.1	4.3	4.2
n) Was adequately organized and scheduled	4.5	4.6	4.6	4.6	4.4	4.5
o) Was adequately supervised	4.8	4.8	4.8	4.7	4.6	4.6
p) Met my learning needs in general	4.7	4.8	4.7	4.7	4.6	4.6
q) Interested me in radiation oncology as a career	4.0	4.5	4.3	4.5	4.5	4.5
Mean	4.4	4.5	4.5	4.6	4.5	4.5

5.3 UME TEACHING FEEDBACK

The table below lists the mean scores from teaching evaluations received for the current year and the past three years.

The scores are on a five point scale with 1 = strongly disagree, 2 = disagree, 3 = equivocal, 4 = agree, and 5 = strongly agree.

For results for individual faculty, see Appendix A.

Education Site	2020-21			2016-2021		
	OCC	PM	Total	OCC	PM	Total
Number of Teaching Evaluations	8	15	23	127	365	492
Communicated Ideas	4.8	4.5	4.6	4.7	4.6	4.6
Demonstrated breadth of knowledge and ability to analyze information	4.8	4.9	4.9	4.7	4.8	4.7
Questioned and challenged house staff	4.4	4.3	4.3	4.4	4.5	4.4
Provided direction and feedback	4.5	4.5	4.5	4.6	4.5	4.5
Encouraged house staff to take appropriate responsibility	4.8	4.5	4.6	4.6	4.5	4.5
Provided a good role model as a clinician	4.8	4.8	4.8	4.8	4.7	4.7
Mean	4.6	4.6	4.6	4.6	4.6	4.6

6 PARTICIPATING FACULTY

Total: 24 + 19 = 43

Princess Margaret (24)

A. Bezjak
A. Fyles
A. Hope
A. Koch
B. Millar
C. Catton
D. Hodgson
D. Rodin
D. Shultz
D. Tsang
E. Hahn
J. Brierley
J. Cho
J. Croke
J. Lukovic
J. Waldron
K. Han
N. Laperriere
P. Chung
P. Wong
R. Tsang
R. Wong
S. Raman
T. Conrad

I. Poon
J. Detsky
L. Paszat
M. Tsao
P. Cheung
S. Myrehaug
S. Ng
W. Chu
Y. Ung

OCC (19)

A. Bayley
A. Louie
A. Taggar
D. Vesprini
E. Donovan
E. Leung
E. Szumacher
E. Tseng
H. Chung
H. Soliman
I. Karam