



Radiation Oncology
UNIVERSITY OF TORONTO

Undergraduate Medical Education Report

Department of Radiation Oncology
Faculty of Medicine, University of Toronto
July 2019 – June 2020

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2019-2020 Undergraduate Medical Education Annual Report
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Table of Contents:

1	Overview	4
2	Programs	5
2.1	Foundations (Years 1 and 2) – UTDRO Contributions	5
2.1.1	Case Based Learning	5
2.1.2	Health Services Research (HSR) Course	5
2.1.3	Clinical Skills Teaching (ASCM).....	5
2.1.4	Cancer Week.....	6
2.1.5	Portfolio	6
2.1.6	Ethics and Professionalism Curriculum.....	6
2.2	Clerkship (Years 3 and 4).....	6
2.2.1	General Electives	6
2.2.2	Transition to Residency (TTR)	7
3	Additional Activities.....	8
3.1	Admissions	8
3.2	Oncology Interest Group	8
3.3	CARO-CROF Studentship.....	9
3.4	DOC Talks	9
3.5	Physician Assistant Education.....	9
3.6	Mentorship.....	9
3.7	Research	10
4	Future Plans	10
4.1	Electives and Selectives.....	10
4.2	Cancer Week.....	11
5	UME Program Feedback and Evaluation	11
5.1	Student Profile	11
5.2	Undergraduate Program Evaluation Summary.....	13
5.3	UME Teaching Feedback.....	14
6	Participating Faculty	15

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 **58 active staff radiation oncologists** who contribute directly to the undergraduate medical education curriculum.

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
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. **51 clinical rotations were coordinated this academic year.** Students participating in these rotations do so within a number of programs administered by the 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, 2019 and June 30, 2020 are included in the report.

The following table broadly summarizes the program:

	OCC	PM	Total
Participating Faculty	21	37	58
Total Faculty Hours	274	1264	1538
Electives (includes clerkship, electives and visiting)	4	15	19
TTR Selectives	2	3	5
CARO-CROF	0	1	1
Observers	4	10	14
Physician Assistants*	1	11	12
Total Clinical Rotations	11	40	51

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

2 PROGRAMS

2.1 FOUNDATIONS (YEARS 1 AND 2) – UTDRO CONTRIBUTIONS

2.1.1 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. **This case was edited and updated by Dr. Derek Tsang for 2020 (1 hour). Dr. Anthony Brade virtually delivered the large group CBL program in Cancer Week (3 hours).**

2.1.2 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 2019-20, Drs Eric Leung (40 hours) and Alexander Louie (40 hours) were tutors in the course.

2.1.3 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 2019-20, resident Dr. Yonatan Weiss was a clinical skills preceptor as part of an academy of resident teachers (10 hours).

2.1.4 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 2019-20, Drs. Meredith Giuliani and Derek Tsang were content co-directors for Cancer Week. Dr. Derek Tsang virtually delivered the integration and summary lecture for Cancer Week (2 hours), and Dr. Anthony Brade virtually delivered the large group CBL presentation (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 2019-20, Dr. Jennifer Croke (28 hours) was a tutor in the Portfolio course.

2.1.6 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 2019-20, Dr. Jay Detsky taught small group seminars on medical ethics as part of this curriculum (20 hours).

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 2019-20 UTDRO hosted 19 elective medical students.

In 2019-20, Dr. Jennifer Croke was a facilitator in the *Return to Clerkship* course (2 hours).

The COVID-19 pandemic limited the ability of the UTDRO to carry on regular elective opportunities in early-2020. On March 15, 2020, all selective and elective clinical placements at University of Toronto were discontinued. MD Program student learning activities for graduating students (Year 4) were stopped early on this date due to the pandemic. On March 16, 2020, all unpaid, pre-licensure student placements (physician and other health professions) were halted at University Health Network. The Association of Faculties of Medicine in Canada (AFMC) suspended visiting electives effective March 20, 2020. This reduced the intensity of on-site UME learning in UTDRO.

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.

In 2019-20, UTDRO hosted 5 medical students as part of TTR selectives.

Resident Dr. Adrian Cozma was a tutor for the TTR course during a Poverty and Health workshop (3 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 received approximately 2 600 applications for the class of 2T4. 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).

Drs. Jennifer Croke, Derek Tsang, Alexander Louie and resident Dr. Marissa Sherwood were MD Program admission file reviewers (10 hours each).

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.

In the 2019-2020 year, UTDRO residents (Drs. Adrian Cozma, Nauman Malik, Dana Keilty, Michael Tjong) organized a contouring and *Introduction to Radiation* Oncology session for interested medical students (3 hours).

UTDRO resident Dr. Nauman Malik also held an Oncology Interest Group virtual event for medical students interested in oncology (1 hour).

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 2019, UTDRO hosted Ms. Stella Kang as a CARO-CROF student.

3.4 DOC TALKS

DOC Talks are a series of career coaching lectures hosted for University of Toronto medical students in all 4 years. They meet with a small panel of specialists to explore career opportunities.

In 2019-20, Dr. Jennifer Croke held a *Doc Talk* for medical students in Wightman-Berris Academy (1.5 hours).

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 2019-20 academic year, Ms. Maitry Patel supervised eleven PA students during their oncology elective placements (299 hours). The students are listed in Appendix C.

3.6 MENTORSHIP

Due to the hiatus in medical student placements during the COVID-19 pandemic, UTDRO created a medical student mentorship program open to University of Toronto MD Program trainees. The goal of this program was to pair medical students interested in learning more about radiation oncology with UTDRO faculty members who could discuss the profession, facilitate observerships, and to expose medical learners to the specialty.

In 2019-20, Dr. Jennifer Croke gave a lecture on mentorship in medicine, as part of the Cancer Trainee Professional Enrichment Program (CT-PEP, 1 hour).

In 2019-20, nine medical students were paired with nine UTDRO faculty members in June 2020 (Drs. Danielle Rodin, David Shultz, Jason Wong, Jay Detsky, Jennifer Croke, Meredith Giuliani, Michael Milosevic, Rebecca Wong, Tatiana Conrad).

One month after the pairings were made, a follow-up questionnaire was sent to all students. Five responses were received (56%); the median satisfaction score was 8 out of 10. Respondents indicated they all had met virtually (Zoom or phone) with their mentor, with many indicating a plan for a future clinical observership.

3.7 RESEARCH

Clinical or laboratory research opportunities are made available to students through the MD Program through several mechanisms: CREMS (Comprehensive Research Experience for Medical Students) as well as opportunities run through individual university departments, including UTDRO.

Faculty Supervisor	Student	Project
Dr. Meredith Giuliani	██████████	Evaluation of Online Education and Skills Development Program for Informal Caregivers of Cancer Patients: Care giver Accessible Cross-Continuum Education & Skills System for Caregiver – in progress
Dr. Derek Tsang	██████████	Re-irradiation for recurrent craniopharyngioma – published, <i>Advances in Radiation Oncology</i> (40 hours)
Dr. Derek Tsang	██████████	Neurocognition in paediatric brain tumours – in review, <i>Neuro-Oncology</i> (30 hours)

4 FUTURE PLANS

4.1 ELECTIVES AND SELECTIVES

The AFMC declared that there will be no visiting electives in Canada for the Class of 2021 for the duration of the 2020-2021 academic year. However, University of Toronto MD students will have the following opportunities to experience radiation oncology in the following academic year:

- a. Electives will be scheduled from November 9, 2020 through February 28, 2021.
- b. Transition to Residency (TTR) placements for Year 4 students will be proceeding for this academic year.

UTDRO looks forward to welcoming these students back into our program.

We had established Stronach Regional Cancer Centre as a site for UTDRO students in 2018-2019 to complete electives. When the COVID-19 pandemic is resolved, we look forward to working with the UTDRO community sites in Mississauga, Barrie and Oshawa to expand the reach of the UTDRO UME program, so that medical students 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. To ensure that medical students are exposed to radiation oncology in a didactic format, the UTDRO UME program will be developing a new lecture dedicated to radiation oncology for 2020-21. This was planned to be implemented in 2019-20, but deferred due to a) MD Program accreditation; b) COVID-19 pandemic.

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 – 2019-20

Objective	OCC	PM	Total
Career exploration	1	10	11
General clinical experience	1	2	3
Oncology education	1	4	5
Total	3	16	19

How did they hear of the program – 2019-20

	OCC	PM	Total
Contact with Faculty	1	6	7
Electives catalogue	2	6	8
CARO-CROF Studentship		1	1
Through the UofT MedSIS EEE Website		1	1
Oncology Interest Group Breakfast with Radiation Oncologists		1	1
Blank		1	1
Total	3	16	19

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	2019-20			2015-2020 (5 yr averages)		
	OCC	PM	Total	OCC	PM	Total
Number of Program Evaluations	10	16	26	48	84	132
a) Exposed me to a range of clinical problems in oncology	4.7	4.8	4.7	4.7	4.5	4.6
e) Gave me a greater understanding for the principles of oncology	4.7	4.7	4.7	4.6	4.5	4.5
g) Gave me opportunity to see the technical side of radiation oncology	4.3	4.3	4.3	4.4	4.3	4.3
h) Provided me with adequate contact with radiation oncology faculty	4.7	4.6	4.6	4.7	4.5	4.6
i) Gave me the opportunity to see how a hospital multi-professional team works	4.3	4.6	4.6	4.6	4.4	4.5
k) Gave me knowledge or skills which will be helpful even outside oncology	4.7	4.6	4.6	4.5	4.4	4.4
l) Provided me with adequate time to ask questions and have discussion	5.0	4.7	4.7	4.6	4.6	4.6
m) Gave me adequate time to attend rounds, conferences, lectures, etc.	5.0	4.1	4.3	4.3	4.3	4.3
n) Was adequately organized and scheduled	4.3	4.7	4.6	4.6	4.4	4.5
o) Was adequately supervised	4.7	4.8	4.8	4.7	4.5	4.6
p) Met my learning needs in general	4.7	4.8	4.8	4.6	4.5	4.5
q) Interested me in radiation oncology as a career	4.7	4.7	4.7	4.5	4.4	4.4
Mean	4.6	4.6	4.6	4.5	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	2019-20			2016-2020		
	OCC	PM	Total	OCC	PM	Total
Number of Teaching Evaluations	3	40	43	172	419	591
Communicated Ideas	4.7	4.9	4.9	4.6	4.6	4.6
Demonstrated breadth of knowledge and ability to analyze information	4.7	4.9	4.9	4.6	4.7	4.7
Questioned and challenged house staff	3.5	4.7	4.7	4.3	4.4	4.4
Provided direction and feedback	4.7	4.7	4.7	4.4	4.4	4.4
Encouraged house staff to take appropriate responsibility	4.3	4.8	4.7	4.5	4.5	4.5
Provided a good role model as a clinician	5.0	4.8	4.8	4.6	4.6	4.6
Mean	4.5	4.8	4.8	4.5	4.5	4.5

6 PARTICIPATING FACULTY

Total: 37 + 21 = 58

Princess Margaret (37)

A. Barry
A. Bayley
A. Berlin
A. Bezjak
A. Fyles
A. Hope
A. Hosni
A. Koch
A. Sun
B. Cummings
B. Millar
C. Catton
D. Hodgson
D. Rodin
D. Shultz
D. Tsang
E. Hahn
F. Liu
J. Brierley
J. Cho
J. Croke
J. Helou
J. Kim
J. Ringash
J. Waldron
K. Han
L. Dawson
M. Giuliani
M. Milosevic
N. Laperriere
N. Nguyen
P. Chung
P. Warde
R. Tsang
R. Wong
S. Bratman
T. Conrad

OCC (21)

A. Louie
A. Taggar
D. Vesprini
E. Chow
E. Leung
E. Rakovitch
E. Tseng
G. Czarnota
H. Chung
H. Soliman
I. Karam
I. Poon
J. Detsky
L. Paszat
M. Tsao
S. Liu
S. Myrehaug
S. Wong
T. Barnes
W. Chu
Z. Husain