UNIVERSITY OF TORONTO
DEPARTMENT OF RADIATION ONCOLOGY

PHYSICS RESIDENCY PROGRAM
POLICY HANDBOOK
October 15, 2017

The Program Academic Rules and Regulations were accurate at the time of publishing. The Program reserves the right to change these policies, and will formally notify students of any changes. Effective October 15, 2017

UNIVERSITY OF TORONTO
DEPARTMENT OF RADIATION ONCOLOGY
PHYSICS RESIDENCY PROGRAM
POLICY HANDBOOK

Program Goal and Objectives

Appendices

Glossary

UTDRO	University of Toronto Department of Radiation Oncology
PMH	Princess Margaret Cancer Centre, University Health Network
SOCC	Sunnybrook-Odette Cancer Centre, Sunnybrook Health Sciences Centre
PRPC	Physics Residency Program Committee
DRCC	R. S. McLaughlin Durham Regional Cancer Centre, Lakeridge Health
CFRCC	Carlo Fidani Regional Cancer Centre, Trillium Health Partners
SRCC	Stronach Regional Cancer Center, Southlake Regional Health Centre

UNIVERSITY OF TORONTO
DEPARTMENT OF RADIATION ONCOLOGY

ACADEMIC PROGRAMS
PHYSICS RESIDENCY PROGRAM

GOAL AND OBJECTIVES

GOAL

The goal of the University of Toronto Residency Physics Residency Program is to produce highly qualified and competent health professionals who combine a comprehensive understanding of clinical radiation physics and specific knowledge of radiation therapy and radiation oncology principles and practice with enhanced leadership, research and teaching skills to bring about significant advances in the practice of radiation medicine globally.

OBJECTIVES

The objectives of the Physics Residency Program are:

1. **To prepare each resident for a future career as a Radiation Oncology Physicist.**

   During the program, the residents will become competent in all of the radiation oncology physics activities undertaken in an academic cancer centre. The residents will gain the technical knowledge and skills required for this career. This includes the ability to assess, develop, and implement new technologies in a safe, effective manner.

2. **To prepare residents to recognize, understand and address scientific and technical problems relevant to the practice of radiation oncology physics.**

   Advances in science and technology significantly impact the practice of radiation oncology physics. Critical assessment, problem-solving and research skills will be developed further throughout residency.

3. **To provide residents with additional competencies (outside of radiation oncology physics knowledge) to enable them to work effectively in the inter-professional healthcare environment.**

   Residents will work closely with radiation oncologists and radiation therapists to understand the role and practice of radiation oncology and radiation therapy in cancer management. Communication, scholarship, leadership, collaboration, professionalism and ethics will all be addressed.

UTDRO PHYSICS RESIDENCY PROGRAM

PHYSICS RESIDENCY PROGRAM COMMITTEE	**POLICY NUMBER: 1.1**
Revision Date: February 14, 2013	**Section 1: Structure and Governance**

1. The Residency program is governed by the Program Director and the Physics Residency Program Committee.

2. The PRPC is chaired by the Program Director (see Policy 1.2) and includes one physics resident, one radiation oncologist, one radiation therapist (with faculty appointment), the Program Registrar and the local site coordinators from PMH, SOCC, DRCC, SRCC, and CFRCC. The UTDRO Education Officer is a non-voting member of the PRPC.

3. Terms of Reference are located in *Appendix A: Physics Residency Program Committee – Terms of Reference.*

UTDRO PHYSICS RESIDENCY PROGRAM

PROGRAM DIRECTOR	**POLICY NUMBER: 1.2**
Revision Date: April 24, 2017	**Section 1: Structure and Governance**

1. The Program Director is appointed by the Executive Committee of the UTDRO from among the physics faculty in the UTDRO.

2. The Chair of Education in the UTDRO recommends a new or replacement Program Director to the Executive Committee of the UTDRO.

3. For purposes of the Physics Residency Program, the Program Director reports to the Vice –Chair, Academic programs, UTDRO.

4. The Program Director should meet the following criteria:

- Must be certified by the American Board of Radiology, the Canadian College of Physicists in Medicine , or equivalent
- Must have at least 5 years of full-time post-graduate experience in clinical Medical Physics
- Must be a full time staff member of the radiation oncology (or radiation medicine) program and be involved in the practice of radiation oncology physics.

5. Responsibilities of the Program Director include:

- Must contribute sufficient time to administer the training program and ensure adherence to guidelines and appropriate quality control of the program from beginning to end. This includes ensuring timely reporting of resident statistics, annual reports and other required information to CAMPEP.

Must be responsible administratively for the total training program in radiation oncology physics, and should participate in the instruction and supervision of physics residents.

- Must arrange for the provision of adequate facilities, teaching staff, clinical resources and educational resources.

- Is responsible for administering the selection process for the medical physics residents and must ensure that the guidelines regarding the selection process are followed. This responsibility may be delegated to the Program Registrar.

- Must ensure that the proper evaluation procedures are followed during the training program. Must meet periodically with all residents to assess the resident's progress and minutes of the meting shall be maintained. A copy of the minutes shall be provided to the resident.

UTDRO PHYSICS RESIDENCY PROGRAM

PROGRAM FACULTY	**POLICY NUMBER: 1.3**
Revision Date: April 24, 2017	**Section 1: Structure and Governance**

1. Faculty from the UTDRO and staff physicists from PMH, SOCC, DRCC, SRCC, and CFRCC are involved in the Residency Program as local site coordinators, course supervisors, lecturers, rotation supervisors and mentors. All staff physicists at PMH, SOCC, DRCC, SRCC, and CFRCC may participate, to some extent, in the program.

2. **Faculty** is selected based upon their clinical experience and expertise, teaching and supervisory ability and the quality and relevance of their research program.

3. There will be one **local site coordinator** at each of the sites. The local site coordinator is responsible for overall management of the residency program at that site.

4. Each resident will have one **mentor** who is a certified staff physicist, and who will supervise the resident throughout the program. The advisor will meet on a regular basis with the resident and guide him/her through the program.

5. Each resident will have one **project supervisor** for his/her clinical development project.

6. Each didactic course will have one **course supervisor**. That supervisor may use other faculty as lecturers.

7. Each clinical rotation will have one **rotation supervisor**. That supervisor will have expertise in the material covered by the rotation.

8. For any other clinical projects throughout the course of residency, the resident will work with a faculty physicist.

UTDRO PHYSICS RESIDENCY PROGRAM

PROGRAM REGISTRAR	**POLICY NUMBER: 1.4**
Revision date: February 14, 2013	**Section 1: Structure and Governance**

1. The Program will have a Program Registrar.

2. The Registrar will be a staff medical physicist at either the SOCC or PMH and will be a faculty member in the UTDRO.

3. The Registrar will be responsible for organizing all applications to the Program and for reviewing all applications for completeness.

4. Together with the Program Director, the Registrar will decide upon eligibility of all applicants.

5. The Registrar will coordinate the review of eligible applications and the selection of candidates for interview with the Program Committee.

6. The Registrar will arrange the interviews and act as the main point of contact with applicants who have been selected for interview.

UTDRO PHYSICS RESIDENCY PROGRAM

ADMISSIONS COMMITTEE	**POLICY NUMBER: 1.5**
Revision date: April 24, 2017	**Section 1: Structure and Governance**

1. The Program will have an Admissions Committee.

2. Admissions Committee members are identified at least one month before candidates for residency are interviewed.

3. The Admissions Committee is chaired by the Program Director and consists of the site coordinators and/or the local heads of the hiring sites, and the Program Registrar. The Radiation Oncology member of the PRPC, or his/her delegate, also participates.

4. All components of an applicant's application must be submitted by the application deadline in order to be considered for a particular start date.

5. The Admissions Committee reviews the materials (i.e., CV, cover letter, transcripts, and letters of references) from each of the candidates selected for interview by the Program Director and the Program Registrar (see Policy 2.2). The Admissions Committee attends the interviews and each member fills out the Candidate Evaluation Form in *Appendix G*.

6. After all interviews have been completed, the Admissions Committee ranks the candidates and matches them to the clinical site according to Policy 2.1, Art. 4.

7. Immediately after letters of offer are sent, the Admissions Committee is dissolved until the next round of interviews.

UTDRO PHYSICS RESIDENCY PROGRAM

ENROLMENT AND RECRUITMENT	**POLICY NUMBER: 2.1**
Revision date: April 24, 2017	**Section 2: Administration**

1. The number of residency positions will be determined on a yearly basis, based on available funding.

2. Residency positions will be advertised locally, nationally and internationally if necessary.

3. Funded residency positions will be available at all sites, provided the primary sites have residents to enable delivery of all required components of the residency program.

4. The Admissions Committee will match accepted residents to a base training site at either main or affiliate sites. The matching process accounts for the candidate's and site's preferences.

UTDRO PHYSICS RESIDENCY PROGRAM

ADMISSIONS	**POLICY NUMBER: 2.2**
Revision date: April 24, 2017	**Section 2: Administration**

1. The Admission Process must be in accordance with current CAMPEP policies.

2. Admission to the Physics Residency Program follows a careful review of credentials, an interview process and approval by the Admissions Committee.

3. The number of positions available at the beginning of each fall or winter academic terms will be based on available funding. Applications will be accepted throughout the year; however firm deadlines for applications are posted on the program website for both the September and January start dates if positions are available.

4. Candidates must have a M.Sc. (thesis based) in Radiation Oncology Physics (CAMPEP accredited graduate program), or a Ph.D. in Radiation Oncology Physics, Physics, Computer Science, Engineering or Mathematics, if they meet all CAMPEP admission guidelines. Strong preference will be given to candidates with a Ph.D. from a CAMPEP accredited program.

5. Candidates submit an application for admission to the Program Director or to the Program Registrar (see Policy 1.4). Required documents are sent to the Program Registrar or Program Administrator.

6. A **cover letter** summarizing expertise and achievements, updated Curriculum Vitae (CV) including a record of publications and the **names of 3 professional references** must be included in the application package. **Official transcripts** of undergraduate and graduate course work are also required. Applications will not be processed until **ALL** required documents have been received.

7. The Program Registrar and Program Director will be responsible for reviewing applicants' suitability.

8. Selected candidates references will be contacted to submit professional reference letters which will be reviewed by the Admissions Committee. Prior to contacting the references, permission to do so must be obtained from the candidate.

9. Successful candidates will be invited to Toronto for an interview. Candidates who are unable to travel to Toronto will be offered an interview via teleconference.

10. The interview process will include a brief formal presentation followed by an interview before the Admissions Committee. The members of the admissions committee will fill out the evaluation form in *Appendix G*.

11. The Admissions Committee will rank suitable candidates, and all candidates will rank their preferences with respect to the hiring sites. The Admissions Committee will match them to the clinical site according to Policy 2.1, Art. 4.

12. An offer of admission will be made by the University of Toronto Department of Radiation Oncology Program, followed by offers of employment drafted by the hiring clinical site in accordance with the hiring policies of each participating clinical site and their host institution.

UTDRO PHYSICS RESIDENCY PROGRAM

FINANCES	**POLICY NUMBER: 2.3**
Revision date: April 24, 2017	**Section 2: Administration**

1. Residents are employed at one of the five clinical sites, PMH, SOCC, DRCC, SRCC, or CFRCC. Salary and benefits are set by each institution.

2. The resident has access to funding for conference travel to at least one national or international conference. Approval and expenditure of these funds is based upon the policies and procedures of the institution at which the resident is employed.

UTDRO PHYSICS RESIDENCY PROGRAM

FACILITIES	**POLICY NUMBER: 2.4**
Revision date: April 24, 2017	**Section 2: Administration**

1. Facilities for the Physics Residency Program are provided by PMH, SOCC, DRCC, SRCC, or CFRCC.

2. Each resident has a desk and work area in the Medical (or Radiation) Physics Department. Residents will be supplied a desk top computer with access to the local area network and the internet.

3. The Department of Medical Physics (SOCC) and the Department of Radiation Physics (PMH) each have a small library with holdings mainly of radiation oncology physics related text books and reports. SOCC, PMH, DRCC and CFRCC each have their own library which contains medically oriented texts and journals. Physics residents can also access the University of Toronto library system.

4. PMH, SOCC, DRCC, SRCC, and CFRCC are fully equipped tertiary cancer treatment facilities. Equipment and infrastructure supports clinical programs in external beam radiotherapy (including 3DCRT, IMRT, VMAT, IGRT, SBRT, SRS, TBI, orthovoltage) and brachytherapy (LDR and HDR).

5. Both the clinical and affiliate sites have an electronics shop with the full range of test and diagnostic equipment and a fully equipped machine shop.

6. All sites have dedicated computing groups within the Radiation Programs.

UTDRO PHYSICS RESIDENCY PROGRAM

RELATIONSHIP TO OTHER PROGRAMS	POLICY NUMBER: 2.5
Revision Date: February 14, 2013	**Section 2: Administration**

1. The Physics Residency Program is a program in the UTDRO, in the Faculty of Medicine of the University of Toronto.

2. The Program is operated within the Radiation Programs at all sites. At each centre, the Department of Medical Physics (Radiation Physics at PMH), together with the Departments of Radiation Oncology and Radiation Therapy constitute the Radiation Treatment Program (Radiation Medicine Program at PMH).

3. Numerous staff of the Radiation Treatment Program is appointed to the Research Institutes at SOCC and PMH.

4. Members of the medical physics and radiation oncology groups are also members of the Department of Radiation Oncology, the Department of Medical Biophysics at the University of Toronto and many other university departments and hospital research institutes.

5. The Departments of Radiation Oncology Physics encompasses not only the staff physicists but also electronics, mechanical and information technology professionals, physics technologists and residents.

6. The Radiation Oncology Residency Program is accredited by the Royal College of Physicians and Surgeons of Canada. Radiation Oncology Physics and Radiation Oncology Residents participate jointly in several curricular activities.

7. The Department of Radiation Oncology offers a training program in medical radiation technology through The Michener Institute for Applied Health Sciences and the University of Toronto. Many of these students in the radiation therapy stream have their clinical rotations at either SOCC or PMH. Staff medical physicists and radiation oncologists are also lecturers in this program.

UTDRO PHYSICS RESIDENCY PROGRAM

PROGRAM RESOURCES	**POLICY NUMBER: 2.6**
Revision Date: February 14, 2013	**Section 2: Administration**

1. The Physics Residency Program receives support from UTDRO, PMH, SOCC, DRCC, SRCC, and CFRCC.

2. The two main clinical sites for the program are the SOCC and PMH; the affiliate clinical sites are the DRCC, SRCC, and CFRCC.

3. Administrative and educational resources for this program are provided by the UTDRO.

4. Operational resources for the program are supplied by the main and affiliated sites.

5. Salary support for residents is supplied through the operating budgets of the main and affiliated sites.

UTDRO PHYSICS RESIDENCY PROGRAM

ORIENTATION	**POLICY NUMBER: 2.7**
Revision date: February 14, 2013	**Section 2: Administration**

1. Incoming Residents will receive appropriate orientation at their home site. Orientation will be completed, according to specific site policies, within the first two months of study.

2. The orientation topics covered are outlined in the ***Book of Forms, Form 1.***

3. The local site coordinators will assist in coordinating orientation sessions.

UTDRO PHYSICS RESIDENCY PROGRAM

PRIVACY	**POLICY NUMBER: 2.8**
Revision date: February 14, 2013	**Section 2: Administration**

1. All documents pertaining to the program will be maintained in the administrative offices of the University of Toronto Department of Radiation Oncology.

2. Documents in use (e.g. Applications) may also be kept temporarily in the office of the Program Director.

3. The privacy of all information concerning residents, resident performance and instructors' performance is a priority of the Physics Residency Program.

4. All written and electronic information concerning residents, and resident and instructor performance will have access restricted to the Program Director and those designated by the Program Director.

5. Minutes of the meetings of the Physics Residency Program Committee will not be circulated beyond the membership of the committee.

6. Applications will be kept on file for a maximum of six months.

UTDRO PHYSICS RESIDENCY PROGRAM

SAFETY	**POLICY NUMBER: 2.9**
Revision date: April 24, 2017	**Section 2: Administration**

1. The safety of patients, staff, residents and the public is a priority at all sites.

2. A minimum of one hour of resident orientation is designated for the Radiation Safety Officer or appropriate designate.

3. Physical hazards such as radiation, mechanical and electrical systems are covered, as well as possible biological hazards.

4. Residents will be required to take WHMIS training (Workplace Hazardous Materials Information System) and any required annual mandatory training.

5. Residents will be required to schedule an appointment with occupational health and safety and complete the appropriate immunizations.

UTDRO PHYSICS RESIDENCY PROGRAM

CURRICULUM DESIGN AND CONTENT	**POLICY NUMBER: 3.1**
Revision date: December 8, 2017	**Section 3: Program Requirements**

The Residency Program is designed around **five educational/training components**.

I. Clinical Rotations

A comprehensive list of clinical areas in which the resident is expected to be competent is

contained in *Appendix D: Rotation Master List and Signature Sheet.* At the beginning of a rotation, the resident meets with the rotation supervisor and the local site coordinators. Objectives for the rotation, based on the competency list of *Appendix D* and the separate rotation syllabus documents are established. It is not necessary to complete the competencies in the order in which they appear listed under each clinical rotation in *Appendix D*. The *Rotation Master List and Signature Sheet* is used to document the progress of the resident during their clinical rotations. At the end of each rotation all competencies listed under that rotation should be signed as completed. The *Rotation Master List and Signature Sheet* also allows cumulative progress to be monitored so it is possible to see at a glance what the resident has accomplished to date in the program. Some of the rotations will have clinical activities associated with the rotations such as plan review, commissioning or QC activities.

The rotations are:

Equipment: In this clinical rotation the resident will receive a practical introduction to equipment used within a radiotherapy department, specifically for external beam radiotherapy. This rotation may be implemented as three rotations if desired (may be based on expertise of faculty at local training site and provides ability to have multiple rotation supervisors if appropriate). Each section of the rotation includes a review of the equipment commonly used in a cancer centre (design, function), associated theory, principles of safe and accurate operation, and acceptance, commissioning and QC of the equipment. The rotation will provide hands on experience with the equipment available at each local site and the resident will be responsible (in a longitudinal component of the rotation) of routine QC tasks for linear accelerators and CT-sim (at minimum).

- Dose Measurement Tools/Systems
- Imaging in a Radiotherapy Department (Diagnosis, Simulation, Planning and Delivery)

- External Beam Radiotherapy

Theory and Principles of Treatment Planning: This clinical rotation will provide the opportunity to develop fundamental radiation oncology treatment planning skills. This rotation addresses all aspects of radiation treatment planning providing a theoretical foundation for subsequent clinical rotations and professional practice.

Clinical Treatment Planning: This clinical rotation provides the opportunity to develop competence in generating treatment plans for each site commonly treated with radiation therapy. Residents will also develop skills in planning, plan evaluation and clinical decision making in site-based sub-rotations including head and neck, breast, lung, GU, lower GI, CNS, gynae.

Quality Management: This clinical rotation will introduce the concepts of quality management, quality assurance, quality control and continuous quality improvement and will describe the role of the Clinical Physicist in assuring quality and improving processes in radiation therapy. The practical component of the course will provide the resident with the opportunity to learn and demonstrate clinical competency in quality assurance concepts, practices, and protocols, through involvement in acceptance and commissioning of linear accelerators (at minimum) and other QC activities.

Radiation Safety: This clinical rotation will introduce the resident to local radiation safety policies and procedures. The resident will also review national and provincial policies, and gain experience in radiation shielding calculations and perform radiation surveys.

Inter-Disciplinary Practice: This clinical rotation provides opportunities for the resident to experience a variety of related specialties in radiation oncology practice, interact with the patient in the provision of care along the trajectory of the cancer experience, and explore the complexities of the clinical environment. This rotation may be completed concurrently with appropriate components of the Clinical Treatment Planning Rotation.

Brachytherapy: This clinical rotation contains the principles of brachytherapy treatments, including equipment and instrumentation, safety, QC and treatment planning.

II. Major Clinical Development Project

This longitudinal two-year project requires the resident to conduct an independent clinical project in radiation medicine under the direct supervision of a project supervisor. The project supervisor will provide direction and support throughout the research process and ensure a suitable balance of time between the project and clinical commitments is maintained. At the conclusion of the project, the resident will have produced a proposal, a scientific presentation and, if possible, a scientific paper. In addition, the resident will be expected to submit a minimum of one acceptable abstract to the Department of Radiation Oncology Annual Research Day.

III. Didactic Clinical Physics Courses and Sessions

Mandatory classes (as listed in the Master Signature List) are:

- Applied Physics Course
- CanMEDs in Clinical Practice

Two additional short course are recommended in the first year of the program:

1) Clinical and Experimental Radiobiology (IMS 1502H). A 5 day course offered through the University of Toronto. Full description is below.

   Clinical and Experimental Radiobiology (IMS 1502H) This 5 day course is offered during a single week, beginning at 9am and ending at 5pm, once a year. This course provides a comprehensive overview of radiation biology from world-renowned faculty, with a particular emphasis on aspects of direct relevance to the practice of radiation oncology. It addresses the molecular and cellular responses to radiation-induced damage that influence cell death in both tumors and normal tissues. Quantitation of radiation effects and the underlying biological basis for fractionation of radiotherapy and dose- response relationships in the clinic are covered in depth. The biological basis for current approaches to improve radiotherapy will be described including novel fractionation schemes, retreatment issues, targeting hypoxia, biological modifiers and combined radiotherapy/chemotherapy.

2) Accelerator Technology Education Course (ATEC): A 4 day course included lectures and simulation. This course is offered through Radiation Medicine Program at Princess Margaret Cancer Centre and residents can register free of charge. http://www.uhn.ca/PrincessMargaret/Health_Professionals/Continuing_Education/Accelerated_Education_Program/Pages/atec_education_course.aspx

Applied Physics Course : A description of this course can be found in Appendix B.

CanMEDS roles in Clinical Practice This series of interactive lectures and workshops addresses important competencies essential to the holistic development of health professionals as outlined in the CanMEDS framework. Residents will develop a framework with which to approach professional multidisciplinary practice. The resident will be challenged to reflect on their professional culture, appreciate and develop teaching skills, understand and role model professional behaviors, not only in the conduct of ethical science but also in interpersonal interactions with colleagues and staff.

In accordance with current CAMPEP policy, minimum eligibility for residency is four out of the six core courses (identified by AAPM Report 197), in addition to further physics course requirements. Therefore, acceptance may be offered to candidates missing up to two courses, however it will be expected that they successfully complete those courses within their first year of residency. Courses offered through Ryerson University's CAMPEP graduate program are recommended. Other CAMPEP accredited courses may be acceptable. The course must be approved as suitable by the Physics Residency Program Committee. .

IV. Tutorial/Evaluation Sessions

Tutorial/Evaluation sessions are used for teaching and evaluating the progress of each

resident. The Tutorial/Evaluation sessions will help to prepare the resident for the Year 1 and the UTDRO Final Examination held at the end of the program.

The tutorial/evaluation sessions are the major forum used to evaluate resident progress in the clinical rotations and didactic coursework. Frequent sessions are conducted using a pre-set list of topics which cover most of the residency program syllabus, with the

emphasis on the practical clinical aspects of the topic. Residents come prepared to answer questions on a particular topic. Questions are posed by a maximum of 3 staff medical physicists. These sessions are conducted by physicists at the local site. Details of the tutorial/evaluation sessions are outlined in *Appendix C: Physics Resident Tutorial/Evaluation Sessions.* The evaluation form for the tutorial/evaluation sessions is located in the ***Book of Forms, Form 4.***

V. Continuing Education:

Residents are expected to participate in the continuing education program of the

Radiation Program at their clinical site. Residents are expected to attend Radiation Oncology Rounds, General Rounds, Physics Rounds in addition to any lectures of

relevance to their profession. The resident may keep a record of attendance at these sessions using ***(Book of Forms, Form 7)*** and submit it at the end of the Program (Refer to Policy 3.2)..

UTDRO PHYSICS RESIDENCY PROGRAM

REQUIREMENTS FOR SATISFACTORY COMPLETION OF THE PROGRAM	**POLICY NUMBER: 3.2**
Revision date: April 24, 2017	**Section 3: Program Requirements**

1. Residents must successfully complete all clinical rotations. At the conclusion of the residency, all of the items listed in *Appendix D: Physics Resident Rotation Master List and Signature Sheet* must be completed using the completed rotation syllabi signature pages and signed off by the Program Director.

2. The resident must pass each of the topics of the tutorial/evaluation sessions listed in *Appendix C*. A pass mark is considered to be at least 70%.

3. The resident must successfully complete the major clinical development project.

4. The resident is encouraged to attend relevant continuing education sessions and submit their completed record of their attendance ***(Book of Forms, Form 7).*** However, this requirement is optional.

5. The resident must pass the UTDRO Final Examination.

UTDRO PHYSICS RESIDENCY PROGRAM

EVALUATION OF RESIDENT PROGRESS DURING THE PROGRAM	**POLICY NUMBER: 3.3**
Revision date: April 24, 2017	**Section 3: Program Requirements**

1. Rotation Supervisors are expected to review with the resident their performance during the middle of each rotation and at the end of each rotation (***Book of Forms, Form 12*** "Resident Performance Evaluation on Clinical Rotations", also appended to Rotation Syllabi). The Rotation Master List in *Appendix D* serves to track the progress of the clinical rotations.

2. Residents will be evaluated at the end of their clinical development project. (***Book of Forms, Form 3)*.**

3. All physics resident tutorials are formally evaluated and resident progress is tracked. All unsuccessful tutorial results will be reviewed by the local site coordinator. If a resident is unsuccessful in a tutorial the site coordinator and/or mentor will meet with the faculty evaluator for feedback and help to devise a study plan, if needed, prior to the resident completing the evaluation.

4. There is a summative evaluation of the Applied Physics Course. If a resident is unsuccessful in this evaluation, a re-evaluation is completed. An independent faculty observer will participate in the re-evaluation in order to gather feedback that can be provided to the resident and can assist in developing a remediation plan if required or assist in resident preparation for the retake and the final UTDRO exam.. Participation throughout the course is also assessed by the course supervisors.

5. Formal evaluations are reviewed and signed off by the resident. A copy of the signed evaluation form is returned to the resident and the original is kept in the resident file.

6. Evaluations of each resident are presented for discussion by the Physics Residency Program Committee at least once a year.

7. The program director visits every clinical site once a year to provide residents with formative feedback. The director also discusses the progress of the local resident(s) separately with the resident(s) and the local faculty. Residents are offered explicitly an opportunity to provide feedback to the program during these formative feedback

sessions. The evaluation with the resident is recorded in Formative Feedback form (***Book of Forms, Form 14)*.**

8. At the conclusion of the resident's first year the Year 1 Oral Examination (*Appendix E*) is taken. This exam will be conducted, at minimum, by Program Director or primary site coordinator (or delegate), local site coordinator if applicable, and another faculty member, preferably from the home site of the candidate, and will be marked as pass or fail ***(Book of Forms, Form 5)***. Areas of weakness and strength will be identified and remedial training plans will be instituted as necessary. Residents who fail the exam will be allowed to retake the exam once, no sooner than one month after the initial exam, and will be put onto remediation with probation (see Policy 3.13). Expectations will be put in writing in the form "Performance Monitoring, Counselling Record" (***Book of Forms, Form 11)***. After a second failure of the Year 1 Oral Examination, the resident will be released from the program, with cessation of funding.

9. At the end of the second year, the resident will be taking the UTDRO Final Examination as described in *Appendix F*. The Exam will be marked as pass or fail ***(Book of Forms, Form 6)***. Residents who fail this exam will be allowed to retake the exam once, no sooner than 3 month later, and will be put onto remediation with probation (see Policy 3.13). Expectations will be put in writing in the form "Performance Monitoring, Counselling Record" (***Book of Forms, Form 11)***. After a second failure of the UTDRO Final Examination, the resident will be released from the program, with cessation of funding.

UTDRO PHYSICS RESIDENCY PROGRAM

EVALUATION OF PROGRAM CURRICULUM	**POLICY NUMBER: 3.4**
Revision date: April 24, 2017	**Section 3: Program Requirements**

The Residency Program curriculum will be evaluated on a regular basis.

1. The maintenance of the standards and quality of the curriculum for the Physics Residency Program will be reviewed and discussed at the PRPC.

2. Continued consistency with CAMPEP requirements and AAPM Report No. 249 (or any subsequent updates) will be evaluated by the PRPC.

3. Clinical Rotation Evaluations (Policy, Didactic Course Evaluations and Program Evaluations according Policy 3.5) will be reviewed and discussed by the PRPC.

4. The PRPC will recommend improvements to the Program based on feedback received and logistical/practical considerations.

UTDRO PHYSICS RESIDENCY PROGRAM

RESIDENT'S EVALUATION OF PROGRAM	**POLICY NUMBER: 3.5**
Revision date: February 14, 2013	**Section 3: Program Requirements**

The Physics Residency Program will be evaluated on a regular basis by:

Clinical Rotation Evaluations

Each clinical rotation will be evaluated by the residents (***Book of forms, Form 13: "Clinical Rotation Evaluation by Resident" also appended to rotation syllabi***). The goal in conducting rotation evaluations is to improve the learning experience for residents in the Radiation Oncology Physics Program. Questions are designed to offer an opportunity to provide feedback which will assist the Program and the rotation supervisor in evaluating each clinical rotation and maintaining the standards and quality of the curricula for the Toronto Residency Program. Individual evaluations will be submitted anonymously to the UTDRO Education Officer from both clinical sites and a summary of the results will be reviewed by the Program Residency Committee and the rotation supervisor.

Didactic Course Evaluations

Each didactic course will be evaluated by the residents. The goal in conducting didactic evaluations is to improve the learning experience for residents in the Radiation oncology physics Program. Questions are designed to offer an opportunity to provide feedback which will assist the Program and the course supervisor in evaluating the didactic course and maintaining the standards and quality of the curricula for the Toronto Residency Program. Individual evaluations will be submitted anonymously to the UTDRO Education Officer from both clinical sites and a summary of the results will be reviewed by the Program Residency Committee and the course supervisor.

Supervisor Evaluations

The research, course and rotation supervisors will be evaluated at the end of each course. The Faculty Evaluation by Resident Form **(*Book of Forms, Form 8*)** is designed to assist the faculty in evaluating his/her teaching effectiveness and to provide the Program Director with

information for the faculty member's annual performance appraisal. Individual evaluations will be submitted anonymously to the UTDRO Education Officer from both clinical sites and a summary of the results will be reviewed by the Program Director and the supervisor. Supervisor evaluations are NOT reviewed by the Residency Committee.

Summative Feedback

The program director visits every clinical site once a year and discusses the progress of the local resident(s) separately with the resident(s) and the local faculty. Residents are offered explicitly an opportunity to provide feedback to the program during these summative feedback sessions. The evaluation with the resident is recorded in the Summative Feedback form (***Book of Forms, Form 14)***

Anonymous Program Evaluation

The program evaluation is conducted after completion of the program. It is designed to provide residents with the opportunity to provide constructive feedback about the Program (***Book of Forms, Form 9***). Individual evaluations will be submitted anonymously to the UTDRO Education Officer from both clinical sites and a summary of the results will be reviewed by the Program Residency Committee.

UTDRO PHYSICS RESIDENCY PROGRAM

CLINICAL ROTATIONS	**POLICY NUMBER: 3.6**
Revision date: April 24, 2017	**Section 3: Program Requirements**

1. The site coordinator will assign each resident to a rotation supervisor for the period of the clinical rotation. The rotation supervisor is selected based on the relevance of their own area of responsibilities and expertise to a specific rotation.

2. Assignment to a rotation supervisor constitutes a clinical rotation through that supervisor's area of responsibilities and expertise.

3. At the beginning of a rotation the supervisor and resident will provide an orientation to the rotation, including a review of rotation objectives, competencies that must be demonstrated at the end of the rotation, and any summative evaluation that will be completed as part of the rotation. These objectives will be governed by the need for acceptable progress through the competency component of the program. Completion of each objective is monitored in a cumulative manner throughout the two year program using *Appendix D: Physics Resident Rotation Master List and Signature Sheet*.

4. The rotation supervisor is expected to meet with the resident, as necessary, to review progress on the basis of the Clinical Rotations Progress Report and established objectives.

5. The residents' performance is assessed for each clinical rotation by the rotation supervisor using the form "Resident Performance Evaluation on Clinical Rotations" (***Book of Forms, Form 12, also appended to rotation syllabi***) (Refer to Policy 3.3). Evaluation of the rotation and the supervisor is completed by the resident at the end of each clinical rotation using the forms "Clinical Rotation Evaluation by Resident" ***(Book of forms, Form 13, also appended to rotation syllabi)***, and the form "Faculty Evaluation by Resident" (***Book of Forms, Form 8, also appended to the rotation syllabi***) (Refer to Policy 3.5)

6. Achievement of some competencies may also be assessed in tutorial evaluations to reinforce learning.

7. The rotation supervisor will make every effort to accommodate the resident's commitments to their clinical development, general clinical duties such as Quality Control, and didactic course work.

8. Requests from other physicists for assistance must be channeled through the rotation supervisor and agreed to by the resident.

9. Records for each resident will be maintained locally at each clinical site and then filed electronically with the Administrative Offices of the UTDRO. Summaries for each resident will be maintained in the office of the Program Director.

UTDRO PHYSICS RESIDENCY PROGRAM

PLAN REVIEW	**POLICY NUMBER: 3.7**
Revision date: April 24, 2017	**Section 3: Program Requirements**

1. Physics residents are expected to participate in the review of published treatment plans, once they meet the qualifications listed in Art. 2.

2. Qualifications:

    a. Must have passed the Year 1 exam.

    b. Prior to independently reviewing treatment plans for a specific anatomical site, Physics Residents must have completed the corresponding clinical rotation to the satisfaction of the rotation supervisor.

3. Documentation: All plan reviews need to be documented by the qualified resident. The appropriate documentation format will be defined by the local site. Residents need to have their reviews signed off by faculty.

4. Expected workload: Qualified residents are expected to review a minimum of 50 plans in their second year of residency.

UTDRO PHYSICS RESIDENCY PROGRAM

CLINICAL DEVELOPMENT PROJECT	POLICY NUMBER: 3.8
Revision date: April 24, 2017	**Section 3: Program Requirements**

1. During the first month of residency, the resident will meet with the local site coordinator or Program Director to discuss the general requirements for the Clinical Development Project. The resident will also meet with several staff medical physicists and other radiation medicine staff to discuss potential clinical development projects. At the end of three months it is expected that the resident and course coordinator will together identify a project (that addresses an area of current interest to the local Radiation Program) for the resident and appoint a project supervisor.

2. After identifying the project and the supervisor, residents are required to complete and submit a Clinical Development Project Plan (***Book of Forms, Form 2***) within the first four months of the Program. The project plan and description will be approved by the project supervisor.

3. Clinical Development Project Performance Evaluations are completed by the project supervisor for each resident. Completed evaluations are reviewed by the Program Director and filed in the residents file.

4. The Clinical Development Project "Summative" Evaluation (***Book of Forms, Form 3***) is to be completed by the Project Supervisor no later than 23 months after entry into the program. It should be discussed with resident and any issues should be brought to attention of the Site Coordinator and Program Director.

UTDRO PHYSICS RESIDENCY PROGRAM

INTER-DISCIPLINARY PRACTICE	**POLICY NUMBER: 3.9**
Revision date: April 24, 2017	**Section 3: Program Requirements**

The inter-disciplinary rotations allow the resident to experience a variety of related specialties in radiation oncology practice and to observe and experience the fundamentals of the patient treatment process. The resident will spend time with radiation oncologists, dosimetrists and radiation therapists to gain an appreciation for the scope of practice of other radiation medicine professions.

1. It is the responsibility of the resident and rotation supervisor to contact a Radiation Oncologist (RO) treating the anatomical site of interest. The RO will identify an appropriate patient who has not yet commenced any treatment preparation processes. The Patient Tracking Form (***Book of Forms, Form 10***) will be used.

2. Each resident will spend time in clinic, dosimetry, mould room, CT-sim, on various treatment units, in review clinic and in follow-up clinic, as appropriate for the specific anatomical site.

3. Residents are required to follow the same patient throughout all the stages of the treatment process. It is the responsibility of the resident to determine the patient treatment times.

4. Components of the interdisciplinary rotation can be incorporated into the site specific clinical treatment planning rotations if appropriate for the training sites. The tracking form can still be used,however there may not be a specific clinical rotation supervisor for this rotation.

Patient Management and Treatment Decisions

The resident will attend the initial patient consultation with the Radiation Oncologist and attend where possible one case meeting regarding the patients case. *The resident must have the RO initial their Patient Tracking Form* (***Book of Forms, Form 11***) *indicating they have attended the patient consultation.*

Patient Planning for Radiation Therapy

It is the responsibility of the resident to review the site being treated including the epidemiology, etiology, staging, treatment modalities and side effects.

1. Immobilization – If customized immobilization is involved, the Resident will be present during the construction of shells and other devices.

2. Simulation – The resident will attend the localization and/or simulation sessions. The RO will explain the procedure (the principle for the site, margins, plan for treatment etc.) This will be a discussion to explore and improve the resident's knowledge. If possible, the resident will observe the RO as he/she performs the contouring for a CT sim patient (with regards to the standards of selecting the volumes, OARs, margins, etc.).

Dosimetry – The resident will observe the plan being developed by the dosimetrist and will be present during discussion of the plan by the radiation oncologist and dosimetrist.

The resident must have the appropriate professional initial their Patient Tracking Form

(***Book of Forms, Form 10***) *indicating they have attended the session.*

Treatment Delivery

Following the plan approval, the resident will observe patient set-up and treatment for the first three fractions. Residents must attend Day 1 of the treatment set-up. The resident must have the Radiation Therapist initial their Patient Tracking Form (***Book of Forms, Form 10***) indicating they have attended the treatments.

Review Clinic

The resident must attend a minimum of 1 review session scheduled with the RO while the patient is on treatment. *The resident must have the RO/Nurse initial their Patient Tracking Form* (***Book of Forms, Form 10***) *indicating they have attended the review clinic*.

Follow-up Clinic

The resident will attend one follow-up session with the patient and the RO following the completion of treatments. *The resident must have the RO/Nurse initial their Patient Tracking Form* (***Book of Forms, Form 10***) *indicating they have attended the follow-up clinic.*

The resident is responsible for ensuring his/her attendance is tracked using the Patient Tracking Form (***Book of Forms, Form 10***). The rotation is considered complete if attendance tracking is complete.

UTDRO PHYSICS RESIDENCY PROGRAM

CONTINUING EDUCATION	POLICY NUMBER: 3.10
Revision date: April 24, 2017	**Section 3: Program Requirements**

1. Residents are expected to participate in the continuing education program of the Radiation Program at their clinical site. Residents are expected to attend Radiation Oncology Rounds, General Rounds, Physics Rounds in addition to any lectures of relevance to their profession. In particular it is required that residents attend 75% of all radiation oncology rounds, multi-disciplinary plan review rounds during clinical treatment planning rotations, and other academic rounds over the course of their program.

2. In addition, the resident will be expected to make a minimum of one presentation at the Department of Radiation Oncology Research Day and present a minimum of two presentations at the Radiation oncology physics seminars held at their clinical site.

3. The resident is required to keep a record of attendance of these sessions and submit the record at the end of the Program.

4. Residents are expected to teach medical physics to physician residents, graduate students, technologist and other allied health professionals during the applied physics tutorials, physics rounds and during the research day.

5. Residents will gain experience with teaching other radiation program professional staff during the applied physics tutorials and also at their formal presentations at physics rounds and the research day, Other opportunities for teaching may arise, and residents are encouraged to be involved, if they are in good academic standing, and it is discussed with their mentor and local site coordinator.

UTDRO PHYSICS RESIDENCY PROGRAM

EXPECTATIONS OF THE RESIDENT	**POLICY NUMBER: 3.11**
Revision date: April 24, 2017	**Section 3: Program Requirements**

1. Residents are expected to conduct themselves in accordance with the standards set by their home site and to seek clarification whenever necessary.

2. Residents are expected to complete and maintain their registration with the University of Toronto throughout their residency program.

3. Residents will adhere to the applicable dress code.

4. Residents will inform the local site coordinator of any absences (illness or otherwise).

5. Residents will be punctual and prepared for all scheduled clinical and educational activities and meeting.

6. Residents will complete all clinical rotations and projects to the highest standards and on time.

7. Residents will report unresolved differences of opinion to the Program Director.

8. Residents will wear a personal identification tag and a personnel radiation monitor when working in clinical areas, as required by any local policies.

9. Residents will leave the personnel radiation monitor in the department at the end of the day and inform the Program Director and Radiation Safety Officer if identification tag or personnel radiation monitor becomes lost or damaged.

10. Non-compliance with the above expectations will result in performance counseling sessions with the Program Director.

UTDRO PHYSICS RESIDENCY PROGRAM

EXPECTATIONS OF SITE COORDINATORS, SUPERVISORS AND MENTORS	**POLICY NUMBER: 3.12**
Revision date: April 24, 2017	**Section 3: Program Requirements**

1. The Site Coordinator for a training site is expected to:

    a. Coordinate the scheduling of rotations, tutorials and evaluations that occur at their own training site. Coordinate rotations to be taken at other sites through the Program Director and other site coordinators.

    b. Actively participate in the Physics Residency Program Committee, Admissions Committee and Examining Committee as required.

    c. Be available to answer the resident's questions regarding the residency and the residency syllabus.

    d. Monitor the resident's progress throughout the residency and offer suggestions for improvement, where necessary to the resident.

    e. Prepare any necessary reports to document the resident's progress. This includes reports to the Physics Residency Program Committee on a quarterly basis.

    f. Maintain a record of meetings with residents.

    g. Inform the Program Director of residents "at risk" including recommendations for action (where requested). Creating and coordinating remedial action plans, in consultation with the Rotation Coordinator and the resident when a resident is identified for being "at risk."

    h. Implement recommendations of the Physics Residency Program Committee.

    i. Identify residents that are eligible for the final Year 2 exam according to Program Policy and Procedures.

2. A faculty member who agrees to be a **Mentor** is expected to:

    a. Meet regularly (a minimum of once per month) with the resident.

    b. Be available to answer the resident's questions regarding the residency and the residency syllabus.

    c. Support the resident with guidance about residency and the transition to clinical practice.

    d. Monitor the resident's progress throughout the residency and offer suggestions for improvement, where necessary to the resident.

    e. The mentor is not involved in scheduling of resident's activities or rotations. No assessment of the resident is completed by a physicist within their role of mentor.

    f. Notify the Site Coordinator of any concerns that the resident asks the mentor to bring forward.

    g. Participate, when requested, in any remedial action plans created for residents "at risk".

3. A faculty member who agrees to be a **Project Supervisor** is expected to:

    a. Meet regularly (a minimum of every 1 month) with the resident.

    b. Provide guidance on project development and execution and oversee progress to ensure resident can meet timelines with respect to Research Day submission.

    c. Complete both the formative and summative feedback forms.

    d. Provide the resident with formative feedback on their performance throughout the project.

    e. Notify the Site Coordinator of any resident-related issues.

    f. Implement recommendations of the Physics Residency Program Committee.

4. A faculty member who agrees to be a **Rotation Supervisor** is expected to:

    a. Meet regularly with the resident throughout the rotation. The frequency is dependent upon the rotation length (more frequent for shorter duration).

    b. Oversee the daily activities of the residents in the rotation (no more than two residents per supervisor per rotation)

    c. Schedule the clinical rotation for the residents accordingly

d. Provide supervision to the resident for all clinical tasks or identify appropriate additional faculty to assist.

e. Ensure the resident is provided the opportunity to complete all the objectives of the clinical rotation

f. Provide the resident with formative feedback on their performance throughout the rotation

g. Review and provide feedback to the resident on the progress of the Clinical Rotations Progress Report

h. Complete and submit any and all evaluations

i. Conduct tutorials as necessary

j. Notify the Site Coordinator of any resident-related issues

k. Inform the Site Coordinator of residents "at risk" including recommendations for action (where requested). Creating and coordinate remedial action plans, in consultation with the Site Coordinator and/or Program Director and the resident when a resident is identified for being "at risk."

l. Implement recommendations of the Physics Residency Program Committee.

m. Schedule any general sessions for the residents accordingly.

n. Review the residents' Clinical Rotations Progress Report.

UTDRO PHYSICS RESIDENCY PROGRAM

ACADEMIC STANDING	**POLICY NUMBER: 3.13**
Revision date: February 14, 2013	**Section 3: Program Requirements**

Requirements for Standing

All residents are normally required to carry a full load of rotations and courses in each year of the program.

Good Academic Standing

To be in good academic standing in the program the resident must:

1. attend all necessary didactic sessions;
2. achieve a pass performance in all clinical physics rotations;
3. achieve a pass performance in the major clinical development project;

Probation and / or Remediation

A resident who fails to remain in good academic standing may be subject to a probationary period.

Probation

Probation is a period of training during which the resident is expected to correct identified serious weaknesses which are felt to jeopardize successful completion of the program. Probation implies the possibility of dismissal from the program if adequate improvement in performance is not identified at the end of the probation period.

Remediation

Remediation is a formal program of individualized training aimed at assisting a resident to correct serious identified weaknesses. This does not refer to the assistance which is usually provided within a program to help residents who are having minor difficulties. Remediation with probation implies the possibility of refusal of promotion or of dismissal if the resident is unable to or unwilling to meet the required standards of performance.

Program Extension

A resident who is currently maintaining status and making normal progress toward completing a course(s), but is unable to complete his / her didactic course or clinical rotation within the allocated time period may be granted a program extension. Program extensions are granted by the Physics Residency Program Committee. Program extensions will be considered when delays in course completion are caused by compelling academic or medical reasons. The maximum program extension is 1 year. The continuation of salary is not guaranteed for the duration of the extension, but is at the discretion of the host site. The host site is responsible for continuing to provide the same clinical training environment and opportunities for the duration of the extension.

Program Initiated Temporary Leave

In the instance where a situation involving the resident arises requiring the program to make a rapid decision regarding course of action and where there is reason to believe that the resident, patients or the faculty are in danger, the resident will be temporarily removed from the learning environment. This temporary leave will be for a maximum of 5 days pending a final decision from the Physics Residency Program Committee.

Withdrawal and Dismissal

The resident will be required to withdraw from the program if he or she:

1. does not meet stated academic standing requirements after one probationary period;
2. fails any 2 clinical physics rotations;
3. has a repeat failure in any clinical physics rotations;
4. fails the 2nd attempt at a course.
5. resident misconduct

Dismissal

In addition to academic failure, there are several acts that may result in termination of the resident from the program. These are outlined in the Resident Misconduct section below.

Resident Misconduct

The residents' professional activities will be characterized by honesty, integrity conscientiousness and reliability.

1. The resident will display skill at communicating and interacting appropriately with patients, families and colleagues, irrespective of race, gender, disability, political ideology, sexual orientation or religion.

2. The resident will demonstrate:

    a. The ability to work harmoniously with all members of the team
    b. Respect for the confidentiality of all patient information
    c. Professional independence, avoiding any compromise of professional integrity or conflict of interest
    d. Understanding of the appropriate requirements for involvement of clients and their families in research
    e. Recognition of the importance of self-assessment and continuing education

3. The UTDRO Physics Residency Program prohibits resident misconduct which includes, but is not limited to:

    a. Obtaining or providing, without authorization , questions or answers relating to any examination or test prior to the time of the examination or test,
    b. Obtaining or providing without authorization, resident test scores, evaluation results, or any confidential information not provided directly to the resident,
    c. Plagiarizing, that is appropriating the work of another in part or whole and passing this work as the product of one's own mind or manual skill,
    d. Failure to fully participate in scheduled rosters and / or educational activities
    e. Inappropriate professional misconduct that would violate the Canadian Organization of Medical Physicists (COMP) professional Code or Ethics or the hospital Code of Ethics, and
    f. Violation of the criminal code
    g. Breach of confidentiality

h. Non-compliance with patient Privacy Act of Ontario
i. Being under the influence of alcohol or drugs
j. Unsafe practice / threatening behaviour which can be reasonably interpreted to jeopardize the safety to fellow residents, staff and / or patients
k. Acts of willful damage to the property of the hospital

4. Any acts of alleged misconduct will be referred to the PRPC for review.

5. The PRPC may impose disciplinary sanctions up to and including the termination of a resident from the program or may impose any conditions which must be met in order for the resident to continue in the program.

PERFORMANCE COUNSELING	**POLICY NUMBER: 3.14**
Revision date: April 24, 2017	**Section 3: Program Requirements**

1. At least each semester the resident will meet with the local site coordinator to review and discuss progress. Completed forms will be co-signed and put into resident's file.

2. In addition, if at any time, it is recognized that a resident is not meeting the technical, clinical, academic, ethical or professional requirements of the program, the local site coordinator will meet with the resident for performance counseling**.**

3. The site coordinator will meet with the resident to discuss Program requirements.

   Written feedback will be provided to both the resident and to the Program Director using the Program Counseling Record (***Book of Forms, Form 12***).

4. The resident's performance and supporting documentation will be reviewed and discussed by the PRPC. This discussion will include a determination if any changes are recommended to the resident's status as per Policy 3.13 and to determine next steps.

5. While the Program will do everything possible to assist the resident in areas requiring improvement, the resident is ultimately responsible for his/her education and should therefore take an active role in continuous self-evaluation; and seeking out assistance when required. The resident will be reminded of the availability of wellness and other resources from the University of Toronto, Postgraduate Medical Education.

UTDRO PHYSICS RESIDENCY PROGRAM

APPEALS	**POLICY NUMBER: 3.15**
Revision date: February 14, 2013	**Section 3: Program Requirements**

1. The resident has the right to appeal a dismissal decision made by the Physics Residency Program Committee (PRPC).

2. Grounds for an appeal are limited to the following:

    a. published regulations and procedures were not followed.

    b. all relevant evidence was not taken into consideration when a decision affecting the resident was made

3. Any resident wishing to appeal a decision of the Physics Residency Program Committee must notify the Program Director in writing of his / her intention to do so within a maximum of two weeks (10 working days) after receiving written notice of the Committee decision. The resident must explain the reasons for the appeal.

4. A separate committee will be established by the Heads of the Clinical Programs at the clinical sites PMH, SOCC, DRCC, SRCC, and CFRCC to consider the appeal submission. Decisions will be communicated to the resident in writing by the committee Chair. The decisions by the committee are final and may not be appealed.

Appendix A

UTDRO Physics Residency Program

PHYSICS RESIDENCY PROGRAM COMMITTEE TERMS OF REFERENCE

The Physics Residency Program Committee is responsible for:

1. Oversight of the financial and human resources and implementation of the Physics Residency Program.
2. Maintenance of the academic standards and quality of the curricula for the Physics Residency Program.
3. Development, maintenance and review of the policies and procedures for the Physics Residency Program.
4. Recommendations regarding the admission procedures and selection criteria for the Physics Residency Program. The committee is responsible for the final selection and approval of all applicants offered admission to the Program.
5. Review and coordination of the management of residents who are identified as being in academic or other difficulty.
6. Review of evaluations of individual resident performance in the Program and recommendations for promotion, remediation, probation and dismissal to the Director of the Program.
7. Maintenance of CAMPEP Accreditation standards for the Program.
8. Confirmation that a resident has satisfactorily met requirements for completion of the program

MEMBERSHIP

1. Program Director (Chair)
2. Odette Cancer Centre Local Site Coordinator
3. Princess Margaret Cancer Centre Local Site Coordinator
4. Local Site Coordinators from Durham Regional Cancer Centre, Stronach Regional Cancer Center, and Carlo Fidani Regional Cancer Centre.
5. Program Registrar
6. Radiation Oncologist (appointed to the Department of Radiation Oncology University of Toronto)
7. Radiation Therapist (appointed to the Department of Radiation Oncology University of Toronto)
8. Senior Physics Resident (alternating every 6-12 months between all sites)
9. UTDRO Education Officer (non-voting member)

MEETINGS

The committee will be scheduled to meet four times per year.

Appendix B

UTDRO Physics Residency Program
APPLIED PHYSICS COURSE

The Applied Physics Course is conducted as a case-based question-and-answer tutorial series held in the fall and winter semesters. It is a part of the curriculum for radiation oncology residents, designed to teach and test knowledge of the basic physics issues associated with each major cancer site treated with radiation therapy. The sessions are co-led by a radiation oncologist and a medical physicist. Radiation oncologists and physicists attend classes together, offering a multi-professional learning environment where residents learn the perspectives and approaches from the other profession they will collaborate with on their future careers.

1. The objective of these tutorials is to enhance the Resident's clinical physics knowledge on site-based topics, and to improve their inter-disciplinary communication skills. For each treatment site and special radiation therapy method, the Residents are expected to learn and understand the intent of the therapy, the target volumes to be treated (e.g. GTV, CTV, and PTV), treatment techniques, typical doses and fractionation, critical structures and their TD 5/5 values, general anatomy, simulation and planning, the physics issues involved (e.g. scatter, inhomogeneity and contour corrections, matching fields effects of wedges, bolus, compensators, SAD vs. SSD setup, MU calculations, etc.).

2. Physics residents are expected to attend and prepare answers to the questions asked at these sessions. The course is a part of the Radiation Oncology Residents program and will also be attended by PGY-3 Radiation Oncology residents.

3. Tutorials will be attended by one or more staff radiation oncologist, physicist and dosimetrist. They will ask questions and help with answers. The assigned radiation oncologist and physicist are expected to attend these sessions, booking themselves off clinical responsibilities if necessary. Should they not be able to, it is the responsibility of the assigned radiation oncologist and physicist to find someone to take their place at the session.

4. Attendance and participation is tracked throughout the course.

5. There is a summative evaluation at the end of the course that the physics residents must successfully pass.

Appendix C

UTDRO Physics Residency Program

PHYSICS RESIDENT TUTORIAL/EVALUATION SESSIONS

1. Attendance at Physics Resident Tutorial/Evaluation sessions is a required component of the Residency program. These sessions are the main evaluation tool for competencies gained during the clinical rotations. Each resident will be evaluated on each topic and must receive satisfactory on all topics to receive a pass, or a score >70%. There are approximately 14-18 evaluations per year.

2. The session will be held close to bi-weekly throughout the program beginning winter semester of the first year at all sites. Afilliate sites may make arrangements with one of the primary sites for residents to attend tutorials at a primary site for a portion or all of the residency. This encourages the development of relationships between residents.

3. Tutorials are lead by a local staff physicist and are attended by up to 2 additional staff physicists.

4. The resident sessions' main objectives are to provide a practice forum for the residents and an evaluation of resident progress for staff physicists. The format is to discuss fundamental clinical physics issues related to the clinical rotations as well as advanced concepts. These are oral question-answer sessions with residents taking a turn at the blackboard to answer questions posed by the staff physicists on the pre-selected topic. Residents are encouraged to use diagrams, graphs and/or equations to support their answer.

5. Residents are expected to have studied and prepared in advance for these sessions.

   Preparation may include reading material, reviewing clinical policies and procedures and/or practical preparation if appropriate.

6. The Resident session topics are listed below. This list serves as a guideline and does not pre-determine the order of topics. The list can be rearranged or a particular topic could be expanded. All topics listed should be covered and additional topics added if deemed necessary. The list also provides a guideline for studying, and the residents should study the complete subject, even if the topic is not covered in the tutorial. Flexibility for additional topics is built in, and use of the “Current and Emerging” topics can be used to address optional curricular topics (from CAMPEP Accreditation Standards) , or other topics that arise within the field.

Scheduling Tutorials

Residents are responsible for coordinating their tutorials with the help of the secretarial staff. They must specify which topic they will address in the tutorial with the following provisions:

a. Effort should be made to follow the order suggested in the list.

b. Effort should be made to avoid cancellation of the session.

c. The resident must come prepared (i.e., have studied) for the session.

d. All topics in the list should eventually be covered.

e. Note that the nature of the flexibility also means that each resident could address a different section of a topic in a given session. This is dependent upon logistical considerations at each site.

Reference List

1. ICRU Reports.
2. AAPM TG-Reports
3. CPQR Technical Quality Control Guidelines
4. IAEA Documents, Textbooks
5. Int. J. Radiation Oncology Biol. Phys. Vol. 21, pp. 109-122.
6. F.M.Khan, "The Physics of Radiation Therapy". 3rd edition.
7. Van Dyk, "Modern Technology of Radiation Oncology." (Vol 1-3)
8. CCPM Membership Exam Practice Questions, Parts III and IV (latest edition)
9. RAPHEX Compendia of Radiation oncology physics Practice Questions (1999-200 versions)

The references provide only a starting point. **The residents should compile their own material and hopefully expand the list for future residents.** It is suggested that the residents consult physicists for appropriate reference material.

A sub-topic list will also be provided as a further study guide and to assist in selection of appropriate references.

Evaluation

The residents will be evaluated after each session.

Faculty should provide specific feedback (both positive and constructive) to the residents individually.

Resident Topic List

	Topic	Year		Suggested References
		1	2	
1	Interaction of Ionization with Matter Basic Interactions of Photons with Matter	X		- Johns & Cunningham Chapters 5 & 6 - Attix,
2	Measurement of Radiation Dosimetry, Quality of X-Rays	X		Johns & Cunningham Chapters 7 & 8,
3	Radiation Biology	Radiobiology Course Preferred	X	Johns & Cunningham, Ch. 17 Hall, Ch. 1-3, 5-13,
4	Linear Accelerators (Design, QC and Commissioning)	X	X	Karzmark, SIMAC Tool, QC Guidelines
5	Quality Assurance Principles and Tools	X	X	
6	Calibration TG-21/TG-51/Amendments	X	X	- AAPM TG-21 - AAPM TG-51, Addendum
7	Single Photon Beams (Beam Parameters, Characterization) (including, profiles, TPR, PDD, RDF, etc.)	X		Johns & Cunningham Chapter 10 Khan Chapters 9 and 10,
8	MU Calculations	X		Johns & Cunningham Chapter 10 Khan Chapters 9 and 10,
9	Treatment Planning: Single Beams/Combination of Beams (Dose Distributions, Junctions)	X		- Johns & Cunningham Chapter 11.01 - 11.06 - TG-65,
10	Dose Calculation Algorithms	X	X	Johns & Cunningham Chapter 12.01 - 12.06,
11	Brachytherapy Fundamentals (Basics: Isotopes, Activity, TG-43,Equipment, QC) etc.)	X	X	Johns & Cunningham Chapter 13.01 - 13.13 AAPM Brachy Summer School,
12	IMRT and Hypofractionation (IMRT, VMAT, SBRT)	X	X	Van Dyk Vol 1, Sec. 8.4 Ch. 12.1, 13,
13	IGRT	X	X	
14	Imaging (Simulation and Diagnostic)	X	X	Christensen Van Dyk, Vol. 1, Ch. 5 & 7,
15	Radiation Protection & Safety Treatment room design	X	X	- Hospital Policies and Procedures documents Johns & Cunningham, Ch. 15, NCRP 151, NCRP 49 McGinley

16	Specialized Techniques (TBI, Stereotactic, TSEI, IORT, etc.)		X	Van Dyk Vol 1, Sec. 8.4 Ch. 12.1, 13,
17	Radiosurgery		X	Van Dyk, Vol. 1 Ch. 12 Van Dyk, Vol. 2 Ch. 4
18	Clinical Treatment Planning: Superficial Lesions (Electrons and Orthovoltage)		X	
19	Current or Emerging Topics	X	X	
20	Current or Emerging Topics	X	X	

Appendix D

ROTATION MASTER LIST AND SIGNATURE SHEET

a) Equipment: Dose Measurement Tools/Systems

Topic	Date	Signature
Orientation to dose measurement and instrumentation		
Dosimetry Instrumentation (includes theory, clinical use, QC, etc.) :		
Ion Chambers and Electrometers		
Diodes and MOSFETS		
Detector Arrays		
TLD and OSLD Dosimeters		
Film and Film Processors		
Water Tank		
Dosimeters for Radiation Protection (Survey Meters, Scintillation Counters, etc.)		

b) Equipment: Imaging (Diagnosis, Planning and Delivery)

Topic	Date	Signature
Fluoroscopy		
Portal Imaging (MV)		
Portal Imager QC		
2D kV Imaging		
2D kV Imaging QC		
Cone-beam CT		
CBCT QC		
CT Sim		
CT Sim QC		
MR and MR Sim		
MR Sim QC		
CT/PET Sim		
Angiography		
3D Ultrasound Systems		

c) Equipment: External Beam Radiation Therapy

Topic	Date	Signature
Linac Intro and Operation		
Linac QC: Daily		
Linac QC: Weekly/Monthly		
Linac QC: Annual		
Linac Calibration (AAPM TG-51)		
Linac Acceptance Testing and Linac Commissioning		
Patient-Specific QC Measurements		
Orthovoltage Intro and Operation		
Orthovoltage QC: Daily		
Orthovoltage QC: Weekly/Monthly		
Orthovoltage QC: Annual		
Orthovoltage Calibration (AAPM TG-61)		

d) Quality Management

Topic	Date	Signature
Quality Assurance Program		
QC Guidelines/Recommendation Documents		
Quality Tools (including FMEA, SPC, etc.)		
Incident Reporting and Analysis		

e) Radiation Protection and Safety

Topic	Date	Signature
Act, Regulations and Guidelines		
ALARA Principle		
Shielding Design: Linac		
Shielding Design: HDR		
Shielding Design: CT-Sim		
Radiation Survey		
Personnel Monitoring		
Leak Tests		
Institutional Radiation Safety PP		
Transport of Dangerous Goods/Storage/Disposal		

f) Theory and Principles of Treatment Planning

Topic	Date	Signature
Review local treatment planning policies and procedures		
Acceptance Testing and Commissioning of TPS		
Dose Calculation Algorithms		
Beam Modeling		
QA of TPS		
Basic Photon Treatment Planning		
Basic Electron Treatment Planning		
Image Fusion and Registration		
Informatics		
Secondary Monitor Unit Calculations		
Fetal Dose Calculation		
Pacemakers/Defibrillators		
Hip Implants		

g) Clinical Treatment Planning

Topic	Date	Signature
Head and Neck		
Breast		
Lung		
GU: Prostate		
Gynaecological		
Lower GI: Rectum and Anal Canal		
CNS		
Stereotactic Radiosurgery		
Total Skin Electron Therapy		
Total Body Irradiation		
Orthovoltage		
Chart Checking		

h) Brachytherapy

Topic	Date	Signature
Equipment (including imaging systems, QC equipment, and equipment for delivery):		
Permanent Seed Implants		
HDR		
Treatment Planning:		
Dose Calculation Algorithms		
QA and Commissioning		
Clinical Treatment Procedures and Planning:		
Prostate Permanent Seeds (as an example of interstitial implants)		
Prostate HDR		
Gynaecological Brachy		
Intra-luminal Brachytherapy (esophagus, lung)		

h) Interdisciplinary Practice (see Policy 3.9 and Form 11)

Topic	Date	Signature
Head and Neck		
Breast		
Pelvic (Gynae, GU)		
Pediatrics		
Total Body Irradiation		
Stereotactic Radiosurgery		

i) "Applied Physics" Course (Appendix B)

Course Passed		

j) "CanMEDS Roles in Clinical Practice" Course

Completed		

Appendix E

UTDRO Physics Residency Program
YEAR I ORAL EXAMINATION

1. The Review will be conducted by a minimum of 3 faculty members. One examiner must be the program director or a senior physicist from either SOCC or PMH.
2. There will be general radiation oncology physics questions which evaluate the candidate's knowledge of clinical radiation oncology physics. Questions on general Radiation oncology physics will be selected at random from a prepared question bank . The resident's responses could lead to supplementary questions not found in the question bank. The contents of the question bank will be kept confidential and maintained by the Program Director.
3. To pass the Year I oral examination, the resident must achieve an average score of 70%. All scores will be entered into the form Year 1 Examination Scoring Sheet ***Book of Forms, Form 6***. If two or more reviewers fail the resident, the resident will receive a failing grade regardless of the other reviewers' scores. If the resident fails the examination they will be not be allowed to re-attempt the examination for 3 months. During this time the resident will be required to follow a remediation plan.
4. A resident will be notified as soon as possible of the result and this will be confirmed in writing.
5. A resident may request feedback, with respect to the results, from the program director.

Appendix F

UTDRO Physics Residency Program
UTDRO FINAL EXAMINATION

1. Applications to take the UTDRO Final Examination will be submitted by the candidate to the Program Director.
2. An application will include a current curriculum vitae, an abstract of an oral presentation (20-minutes or as defined in instructions from the chair of the review committee) on a clinical topic to be made by the applicant during the review, and copies of all of the candidates evaluation forms.
3. The final exam will be conducted by 3 faculty physicists (at minimum 1senior (or chief) physicist) and a radiation oncologist.
4. The exam will consist of an oral presentation (on resident research project) followed by in-depth examination of that subject. In addition there will be general radiation oncology physics questions which evaluate the candidate's knowledge of clinical radiation oncology physics.
5. The candidate's interpersonal skills, clinical physics accomplishments, written communication skills and planning and organising ability will be assessed and scored by the candidate's local site coordinator prior to the examination.
6. The local site coordinator's assessment will be submitted in writing to the Chair of the examining committee at the time of the examination after the other examiners have completed their scoring.
7. Questions on general Radiation oncology physics will be drafted by faculty. Candidate's responses could lead to supplementary questions. The contents of the actual exam will be kept confidential and maintained by the Program Director.
8. To pass the Review the candidate must demonstrate a degree of competence which would indicate that the candidate is able to carry out clinical physics duties safely and effectively with minimum supervision.
9. All scores will be entered into the form UTDRO Final Examination Scoring Sheet (***Book of Forms, Form 7).***
10. If two or more reviewers fail the candidate, the candidate will receive a failing grade regardless of the other reviewers' scores. If the resident fails the examination they must wait 3 months to re-attempt the examination. During this time the resident will be required to follow a remediation plan and will be placed on remediation with probation status.
11. A candidate will be notified as soon as possible of the result and this will be confirmed in writing.
12. A candidate may request feedback, with respect to the results, from the site coordinator or Program Director.

Appendix G

University of Toronto Department of Radiation Oncology
Physics Residency Program
Candidate Evaluation Form

The Admissions Committee members will evaluate the potential candidate for admission into the Toronto Residency Program in Radiation Oncology Physics using the following criteria to evaluate the application package, presentation and interview. Each Admission Committee member will complete one candidate selection form per applicant. The Admission Committee will meet and review the summarized results of the application process. A summary of the selection is presented at the PRPC meeting.

Candidate:	**Interview date:**
Admission Committee Member:	

	Unacceptable	Basic	Good	Comprehensive	Outstanding
1. Motivation					
2. Oral presentation					
3. Leadership					
4. Future goals					
5. Manageability					
6. Problem-solving					
7. Strengths and weaknesses					
8. Review of Application package					
9. Reference Letters					

Additional comments