Goals and Expectations for Radiation Oncology Physics Residents

**Program Objectives:**

The Radiation Oncology Physics Residency Program at MUSC is a two year comprehensive post-graduate program designed to provide clinical training and experience in radiation oncology physics and to prepare the resident for ABR certification and the independent practice of radiation oncology physics. The primary focus of the resident’s experience is clinical training, clinical experience, and educational activities. The program is designed to meet the standards recommended by the Commission on Accreditation of Medical Physics Education Programs, Inc. (CAMPEP) revised March, 2015. Consistent with these standards, the objective of our program is to instill into its graduates a level of competency sufficient to engage in independent clinical physics practice in radiation oncology. The knowledge and skills that the resident should attain during residency education include:

1.1. The technical knowledge and skills related to the sophisticated technologies used in the practice of radiation oncology medical physics;
1.2. A critical awareness and evaluation of research and scholarship in the field;
1.3. An understanding of the protocols and practices essential to the deployment of technologies to detect, diagnose and treat various illnesses and injuries;
1.4. The ability to use analytical and research methods to solve problems arising in the clinical environment;
1.5. The professional attributes and the ethical conduct and actions that are required of medical physicists;
1.6. The communication and interpersonal skills that are necessary to function in a collaborative environment;
1.7. An awareness of the complexity of knowledge in the field and receptiveness to other interpretations, new knowledge, and different approaches to solving problems;
1.8. An awareness of the need for confidentiality of patient information and familiarity with relevant regulations;
1.9. An appreciation of the clinical purpose and applications of sophisticated technologies;
1.10. The acknowledgement of the role of medical physicists in a clinical environment in which physicians, nurses, technologists and others work in cooperation;
1.11. The sensitivity to potential hazards that residents may encounter and appropriate measures to take to prevent risks to themselves and equipment;
1.12. The recognition and correction of suboptimal application or unsafe use of technologies;
1.13. The commitment to continued education so that practice knowledge and skills remain current.

**Completion Requirements:**

The resident is expected to satisfactorily complete all nine clinical rotations and any special projects within a 24 months period. Satisfactory completion of a rotation consists of accomplishing all rotation objectives with a satisfactory rating from the rotation’s chief mentor and the Program Director.
plus the resident must receive a satisfactory rating on their rotation oral examination. A rating of
unsatisfactory by two or more oral examiners will result in failure of the oral exam necessitating a
repeat examination for that rotation. Failure of the second oral examination will be cause for remedial
training and projects. The resident will be given a third and final opportunity to pass that rotation’s oral
examination. Failure of this third attempt will result in termination from the program. Should the
educational objectives of the program not be met due to time away from the program (or due to other
circumstances), the resident may be required to extend their residency beyond 24 months in order to
successfully complete the program. The duration of the extension and the specific completion
requirements will be determined by the Program Director on a case by case basis and approved by the
Physics Residency Program Committee. Due to limited funding, the required extension time may be
with or without pay. Departure from the program without successful completion of all requirement or
prior to 24 months after the start of the program is unsatisfactory and a certificate of training
completion will not be awarded.

Procedures for addressing academic and other deficiencies and plus removal from the program are
discussed separately.

**Addition training requirements for program completion:**

- **Ethics and Professional Training:**
  - CAMPEP requires completion of Ethics and Professionalism training. In order to
    meet this requirement, the MUSC physics resident is required to complete the
    ABR/ACR/RSNA/AAPM/ASTRO/ARR/ARS Online Modules on Ethics and
    Professionalism [http://www.aapm.org/education/onlinemodules.asp]
    All modules shall be completed prior to end of the first rotation and a
    certification of completion for each module shall be provided to the Physics
    Residency Program Director.
  
- **Diagnostic Imaging Physics Training:**
  - In order to insure a fundamental knowledge of imaging physics, the MUSC
    physics resident is also required to complete the RSNA/AAPM Physics Education
    OKEN=d26771950d588f25-2585D489-CBB8-196E-
    BC476E9D31D3CF04&jsessionid=5AA352B403B0D729EEFA2FE46B49BF5F.cfusion]
    All modules shall be completed prior to end of the first year and a certification
    of completion for each module shall be provided to the Physics Residency Program Director.

- **Didactic Training:**
  - Physics residents will attend the formal medical resident lectures in
    Radiobiology and Radiation Oncology. They will also take the RAPHEX Radiation
    Oncology Physics exam. During their second year of residency, the resident will
    present at least two of the radiation oncology physics lectures. The resident is
    expected to attend all lectures unless superseded (with approval of the Program
    Director) by a special clinical case or procedure or an approved absence from the
    hospital.
• **Daily morning rounds:**
  o Each morning from 8:00-9:00AM, the physics residents will meet with the medical residents and various faculty members for morning rounds. Morning rounds consist of a variety of venues including journal club, special topics, chart rounds, and guest lecturers. Periodically, special procedures may take priority over morning rounds, but not on a frequent basis. Attendance is mandatory unless superseded (with approval of the Program Director) by a special clinical procedure or an approved absence from the hospital.

• **Tumor Boards, Seminars, Special Topics:**
  o Physics residents will attend various multi-disciplinary tumor boards throughout their training. In addition, they will participate in periodic seminars and special topics sessions. Residents will keep a log of these activities. Residents are expected to attend at least 2 sessions each of the Head & Neck, Thoracic, GYN, Pediatric, Neurosurgery, Breast, and GU tumor boards. The Melanoma and Leukemia Tumor Boards are optional.

• **Optional Research:**
  o Challenges that often arise in the clinic as well as projects related to new technology are potential research projects for residents. The chief rotation mentor will determine if any projects are applicable to the individual resident based on the individual resident’s knowledge, motivation, and ability to successfully complete the project in addition to meeting all of the basic rotation objectives. If the resident is having difficulty with the basic objectives of the rotation, the chief rotation mentor will not assign any additional projects that may further hinder the successful completion of the rotation’s core objectives.

• **Clinical Training and Practical Experience:**
  o As previously stated, the physics resident will rotate through all nine focused rotations. Each rotation has a Chief Mentor who is responsible for coordinating the resident’s activities during that particular rotation in order to insure that the resident meets all rotation objectives and acquires valuable clinical experience. The resident is expected to shadow their mentor in the clinic during the mentor’s clinical rotations both scheduled and non-scheduled unless otherwise directed by the rotation mentor. There may be occasions when the resident will be asked to participate in a procedure outside the focused rotation in order to gain opportunistic experience in a specific area, but the primary rotation focus will not be compromised. The resident will keep a log of the clinical procedures that they have performed. These procedures will be recorded under the applicable rotation as well as their general ledger. Each rotation has rotation objectives, specific tasks, conferences, and reading assignments. Some reading assignments are for general familiarity while others require a more detailed study. The reading assignments serve to familiarize the resident with various resources as well as to increase their professional knowledge. The
A resident will work closely with the rotation’s Chief Mentor and will meet at least monthly with the Program Director to discuss their progress in the residency program and address any potential problems or deficiencies.

- **Professional Knowledge:**
  - During the course of the two year residency program, the resident will be expected to become familiar with all applicable AAPM Task Group Reports and well as major textbooks and references. Many of these will be listed in the description of the rotation, but the resident is expected to search the literature and review current issues of Medical Physics, the physics section of the International Journal of Radiation Oncology Biology and Physics, and Physics in Medicine and Biology. The resident will be expected to take the RAPHEX exam with the medical residents as well as Part 1 of the American Board of Radiology examination in addition to Part 2 if qualified according to ABR guidelines.

- **Professional Conduct:**
  - Physics residents are expected to conduct themselves professionally at all times while in the clinic. This includes maintaining a professional appearance and conducting themselves in a professional manner. The AAPM Code of Ethics will be used as the guideline for professional behavior. The resident is expected to be familiar with this document and adhere to the standards developed and promoted by this professional organization. ([http://www.aapm.org/org/policies/details.asp?id=260&type=PP&current=true](http://www.aapm.org/org/policies/details.asp?id=260&type=PP&current=true))

  In addition, the guidelines and intent of the ACGME policy on professionalism in the ACGME resident handbook will also be followed. ([http://academicdepartments.musc.edu/gmehandbook/policies/res_profess.html](http://academicdepartments.musc.edu/gmehandbook/policies/res_profess.html))

**Program Changes:**
Resident performance and completion requirements shall be those in effect at the time the resident enters the program. Improvements and minor changes may be approved by the Physics Residency Committee but shall not extend the overall length of the program.

**Certification of Program Completion:**
Upon successful completion of all residency program requirements, the resident will be issued a completion certificate attesting to satisfactory completion of the Radiation Oncology Medical Physics Residency Program.

*I have read and understand all of the above requirements for successful completion of the MUSC Radiation Oncology Physics Residency Program.*

Resident: __________________________

Signature witnesses:
Physics residency Program Director: __________________________
Director of Radiation Oncology Medical Physics: __________________________