Basic Standards for
Residency Training in
Radiation Oncology

American Osteopathic Association
and
American Osteopathic College of Radiology

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BASIC STANDARDS FOR
RESIDENCY TRAINING IN RADIATION ONCOLOGY

I. Introduction

These are the Basic Standards for Residency Training in Radiation Oncology as established by the American Osteopathic College of Radiology (AOCR) and approved by the American Osteopathic Association (AOA). These standards are designed to provide the osteopathic resident with advanced and concentrated training in radiation oncology and to prepare the resident for examination for certification in radiation oncology by the American Osteopathic Board of Radiology (AOBR).

II. Mission

The mission of the osteopathic radiation oncology training program is to provide residents with comprehensive structured cognitive and clinical education that will enable them to become competent, proficient and professional osteopathic radiation oncologists.

III. Education Program Goals

The goals of a radiation oncology residency training program are to achieve proficiency of the following core competencies:

A. Osteopathic Philosophy and Osteopathic Manipulative
   3.1 The Integration of osteopathic principles into the daily practice of radiation oncology.

B. Medical Knowledge
   3.1 Demonstrate competency in the understanding and application of radiation to patient care.
   3.2 Know and apply the foundations of clinical medicine to radiation oncology.
   3.3 Demonstrate a desire to continually improve his/her medical knowledge and that of others.
   3.4 Understand the principles of external beam radiation and the proper calibration and operation of linear accelerators.
   3.5 Understand the principles of brachytherapy, both high dose and low dose radiation therapy and unfilled sources.
   3.6 Demonstrate an understanding of radiation safety issues as it relates to patient care and public safety.

C. Patient Care
   3.1 Demonstrate the ability to develop a multi-modality cancer management and radiation treatment plan based on current standard of care in evaluation and treatment of neoplastic and selected benign diseases.
   3.2 Demonstrate proper technique in planning and performing radiation treatment upon the various maladies encountered in a standard radiation oncology practice.
   3.3 Demonstrate an awareness of psychosocial issues and incorporate health promotion into clinical practice.
D. Interpersonal and Communication Skills
3.1 Demonstrate effective doctor-patient relationships.
3.2 Exhibit effective listening, written and oral communication skills in professional interactions with patients, families, and other healthcare professionals.
3.3 Be able to provide full informed consent in regard to the patient’s disease state and treatment site.

E. Professionalism
3.1 Demonstrate respect for patients and families and advocate for the primacy of patient’s welfare and autonomy.
3.2 Adhere to ethical principles in the practice of medicine.

F. Practice-Based Learning and Improvement
3.1 Treat patients based upon the most current medical knowledge on diagnostic and therapeutic effectiveness.
3.2 Perform self-evaluations of clinical practice patterns and practice-based improvement activities using a systematic methodology.
3.3 Understand research methods, medical informatics, and the application of technology as applied to radiation oncology.

G. Systems-Based Practice
3.1 Understand national and local health care delivery systems and how they affect patient care and professional practice.
3.2 Advocate for quality health care on behalf of patients and assist them in their interactions with the complexities of the medical system.

IV. Institutional Requirements
A. Base Institution
4.1 Must provide Program Director with authority to organize and fulfill administrative and teaching responsibilities to achieve the educational goals.
4.2 Must provide Program Director at least one-half day a week or equivalent protected time to fulfill the responsibilities inherent in meeting the educational goals of the program.
4.3 Must have both a full-time radiation physicist and dosimetrist.
4.4 The full-time radiation physicist must have time designated for resident teaching.

B. Department of Radiation Oncology Requirements
4.1 Record systems and teaching file
   a. Must have a system of records for all cases in which consultation, therapy, and follow-up care have been provided.
   b. Must have a pathologic cross-indexed file that uses standard nomenclature.
   c. The American College of Radiology (ACR) teaching file must also be present and kept current.
4.2 Must provide office space for residents.

4.3 Library resources relevant to radiation oncology and general medicine must be accessible from the radiation oncology department 24 hours a day.

C. **Consortium Program**

Institutions seeking participation in a radiation oncology residency integrated program must meet the following criteria:

4.1 In addition to meeting the consortium requirements in the AOA Basic Documents, the following are required:
   a. All participating institutions must be within a driving distance that allows resident attendance at rounds and conferences (physical or virtual), unless there is a comparable educational experience provided at each institution.
   b. The Program Director must spend time at each institution to administer the program.
   c. Provide all residents with equal access to all the Program’s educational experiences.

V. **Program Requirements and Content**

A. **General Program Requirements**

5.1 The radiation oncology program shall adhere to a four-year curriculum that meets or exceeds the requirements listed within this document and prepares the resident for specialty certification in radiation oncology through provision for a combination of didactic and clinical training opportunities.

5.2 This environment must include exposure to both the clinical applications of radiation oncology as well as the skills necessary to develop the proper attitudes towards patients, professional staff, and administration of the institution.

5.3 The program will have 100% of graduates participate in the AOBR examination process by completion of residency training.
   a. During the most recent 5-year period, at least 50% of the program’s graduates shall pass without condition the written and oral examination on the first attempt.

B. **Didactic**

5.1 Each area of training must have specified reading assignments.

5.2 Residents must be excused from clinical duties to attend planned educational experiences.

5.3 The didactic component of instruction will include:
   a. Instruction in all allied basic sciences pertinent to radiation oncology including radiation physics, radiation dosimetry, radiation biology and knowledge of computer based planning system pertaining to the use and measurement of radioactivity including treatment planning and pathology with emphasis on neoplasms.
   b. Multi-modality conferences related to general tumor diagnosis and management, as well as site specific conferences such as breast cancer, lung cancer, colorectal cancer, etc.
   c. Documented training in radiation physics, radiation biology, radiation protection and basic radioisotope handling techniques under the direction of a qualified radiation physicist to meet current Nuclear Regulatory Commission (NRC) licensure requirements.
d. Regularly scheduled journal club.

C. Clinical Components

5.1 Patient caseload should be of sufficient magnitude to provide a broad experience in consultation, actual treatment, and follow-up of the various types of cancer and benign disease amenable to radiation therapy. To assure adequate numbers and variety of patients for residency training, at least 600 patients must receive external beam irradiation yearly, including stereotactic radiosurgery procedures, in the primary clinical, integrated and affiliated sites.

5.2 Residents must be able to provide patient care that is compassionate and effective manner for the treatment of health problems and the promotion of health. Residents must:

a. Treat a minimum of 450 patients with external beam irradiation during the four year residency; however, the resident must not treat more than 250 patients with external beam irradiation in any academic year.

b. Perform no fewer than 5 interstitial implants and 15 intracavitary implants during four year residency program.

c. Participate in the administration of no fewer than 6 procedures using radioimmunotherapy, other targeted therapeutic radiopharmaceuticals, or unsealed radioactive sources.

d. Treat at least 12 pediatric patients of whom a minimum of 9 have solid tumors.

e. Participate in the treatment planning and administration of at least 10 cases of stereotactic radiosurgery in at least 10 of the brain and at least 5 cases of stereotactic body radiation therapy of the liver, lung, spine or other extracranial sites. Stereotactic radiosurgery may be delivered by a variety of available technologies using image guided stereotactic localization procedures and may be either intracranial or extracranial. As defined, radiosurgery may be administered in a single fraction or extended to a maximum of five fractions. More protracted courses of stereotactic radiation should be classified as external beam radiation cases.

5.3 Training must include use of linear accelerators with electron capability as well as current treatment planning and computerized dosimetry equipment. The radiation therapy planning system shall include three-dimensional conformal computerized treatment planning, intensity modulated radiation therapy, a system for the construction of treatment aids, and equipment to perform interstitial and intracavitary brachytherapy.

5.4 No fewer than 36 months of the four-year program must be spent in clinical radiation oncology (for programs using 4 week rotations, the relative exposure will be preserved). The program must provide a two-month rotation in medical oncology, as well as a one-month rotation in both pathology and diagnostic imaging. The remaining 8 months must allow for in-depth experience in individually-selected areas applicable to clinical radiation oncology.

a. The medical oncology requirement may be met by documented attendance at regularly-scheduled multidisciplinary conferences (at least four hours per month during the clinical rotations). The pathology and diagnostic imaging requirements may be satisfied through multidisciplinary conferences if pathology and imaging material for both pediatric and adult patients are shown and discussed (at least one hour per month during the clinical rotations for each discipline).
5.5 Practical experience that allows the resident to develop a thorough knowledge in the performance of radiation oncology procedures as well as the surgical and medical skills to safely perform the procedures and treat potential complications.

5.6 Each resident must have certification in basic life support, and certification in advanced cardiac life support.

D. Resident Research

5.1 During their training, each resident must participate in an investigative project under faculty supervision. This may take the form of laboratory research, clinical research, or the retrospective analysis of data from patients.

5.2 The results of such projects shall be suitable for publication and presentation at local, regional or national scientific meetings and may be utilized to meet the requirement for exhibition at an AOCR Annual Convention.

VI. Faculty and Administration

A. Program Director

6.1 The program director of the radiation oncology residency training program must possess the following qualifications:

a. Involvement in research and academic pursuits.

6.2 The program director shall have the following responsibilities:

a. Preparation of a Radiation Oncology Residency Program Manual outlining the curriculum and educational goals and objectives of the program with respect to knowledge, skills, and other attributes of residents at each level of training and for each major rotation or other program assignment.

   1. Update annually the Manual and distribute to each resident and faculty.
   2. Obtain written confirmation of receipt of the Manual and annual updates from each resident.
   3. The Manual shall be readily available for review.

b. Must establish an attendance policy for all scheduled conferences and maintain a record of attendance for all lectures, journal club, etc.

c. Establish a process to evaluate the residents, faculty, and the radiation oncology residency program and submit the required reports to the responsible parties as outlined in the AOA Basic Documents for Postdoctoral Training.

d. Develop an explicit written description of supervisory lines of responsibility for the care of patients to include the performance of radiation oncology procedures.

   1. This policy will also describe the process which documents direct supervision to indirect supervision.
   2. Such guidelines must be communicated to all members of the Program faculty.
   3. Residents must be provided with prompt, reliable systems for communication and interaction with supervisory physicians.
   4. A faculty radiation oncologist must be available at all times for consultation with the
resident.

e. Notifies the AOCR of all residents enrolled in the training program on an annual basis.

f. Ensure that residents complete required in service examinations and submit results to the director of medical education and the AOCR.

g. Ensure that the AOA, OPTI and AOCR are informed immediately of major changes in the program, including but not limited to, changes in program directors, institutional ownership and affiliation, radiation oncology department staff or other major administrative changes.

h. Attend program directors meetings (on site or conference call) as required by the AOCR to facilitate Program Director and Faculty development activities.

B. Faculty

6.1 The sponsoring institution, in conjunction with the program director shall appoint a minimum of four (4) full time equivalent faculty members who shall participate in the radiation oncology residency program. There must be a minimum of one (1) faculty member for every two (2) resident positions to provide adequate supervision of residents. Part time faculty will be counted based upon the percentage of time of active participation in the teaching program. Locum tenens radiation oncologists cannot qualify as faculty members. Each faculty member must:

a. Maintain current certification in radiation oncology by the AOBR or the ABR.

b. Possess current medical licensure and staff appointment.

c. Be provided with non-clinical time to devote to the educational program to fulfill their supervisory and teaching responsibilities and to demonstrate a strong interest and commitment in the education of residents.

d. Devote time teaching and supervising residents to assure that the curriculum is implemented.

1. Provide a minimum of one formal educational activity per month, averaged over a year. A formal educational activity may include but is not limited to conducting a journal club, tumor boards, imaging case conference, multi-specialty conference, educational media presentation or providing a formal didactic lecture.

2. Participate in inter-department teaching sessions.

3. Provide training in research techniques and provide guidance and technical support to residents when engaged in research activity.

e. Be organized and have regular documented meetings to review the goals and objectives as well as program effectiveness in achieving them. At least one resident representative will participate in these reviews.

f. Provide timely evaluations and effective feedback to residents on their performance.

g. Supervise the resident in their daily duties in accordance with the program’s supervision policy.

1. All treatment plans must be reviewed and the resident’s dictation shall be checked and approved by an attending radiation oncologist.
h. Be on call with the resident and must assume responsibility for all actions of the resident(s) under his/her supervision.

1. Specific responsibilities shall be delegated to the resident at the discretion of the institution and/or department resident supervisory plan.

C. Other Personnel

6.1. The institution shall have a designated administrative and other non-physician staff committed to the program to support teaching in the Radiation Oncology residency program.

VII. Resident Requirements

A. An applicant for radiation oncology residency training must:

7.1 Have successfully completed an AOA-approved radiation oncology preliminary year.

B. Resident Responsibilities

7.1 Must be a full-time resident of the training institution and must not be a trainee in any other residency training program at the same time.

7.2 The resident is legally, morally, and ethically responsible to pursue exclusively the agreed upon program of training.

7.3 May not act as an unsupervised consultant in radiation oncology and must be designated in such a manner to retain his/her identity as a resident (e.g., name tag, signature block, etc.).

7.4 Shall maintain formal records of all activities related to the educational program.

a. These records shall be submitted monthly to the program director and DME for review and verification.

7.5 Residents are required to contribute to the teaching file in format and frequency as defined by the Program Director.

7.6 Be responsible to participate in education activities and opportunities that address ethical behavior as formulated by the program, especially the ethical dimensions of the practice of medicine.

7.7 Submit an annual report to the AOCR and the DME. An annual report must be evaluated as a twelve (12)-month period of residency training that must be under contract with a single institution.

7.8 Must present one exhibit at an Annual Convention of the AOCR no later than the Annual Convention of the resident’s third year of training.

a. An abstract of the exhibit shall be submitted by established AOCR deadlines in the resident’s second year of training.

b. The abstract must be submitted according to the AOCR’s Guidelines for Resident Scientific Exhibits.

7.9 Participate in radiation oncology related and other conferences including journal club.

7.10 Must complete all AOCR requirements as well as any additional requirements of the individual residency training program or the OPTI each year prior to AOCR approval for that year of training.
7.11 Must participate in the required in service examination as first, second, third year residents, and at the discretion of the program director, the fourth year residents.

VIII. Evaluation

The program must demonstrate an effective plan for continuous improvement of resident performance and competency utilizing regular assessments of the residents, faculty and the program.

A. Resident Evaluations

8.1 Annual Evaluation

The resident may progress on to the next year of training only after satisfactory performance in all rotations and in the core competencies as documented in the annual report.

8.2 Final Evaluation

A final evaluation will be completed per AOA Basic Documents for Postdoctoral Training requirements and must attest to the resident’s professional abilities and competency at graduation to independently practice radiation oncology.

   a. A copy must be sent to the AOCR office and to the program’s OPTI.

B. Faculty Evaluation

8.1 The program director and program faculty shall be peer evaluated at least annually for their teaching, scholarly activities, and development of the program.

8.2 At the end of each rotation the resident shall evaluate in writing their training experience and faculty in a confidential manner.

C. Program Evaluation

8.1 There will be a program evaluation committee consisting of the program director, one faculty member and the chief resident to prepare an evaluation of the program at least annually and prepare a report as a method for revision and updating of the program.

8.2 Program assessments and measured outcomes for continuous quality improvement shall be done on an ongoing basis, with an annual summative evaluation of the quality of the program.

   a. This information shall be used for program improvement activities.

   b. Documentation of this performance improvement shall be maintained on file and available for program reviews.

8.3 Multiple measures shall be used for program review and evaluation to obtain a comprehensive view of program quality.

8.4 Program directors shall use the results of the required in service examination to improve their individual programs.
Appendix

Advanced Standing Guidelines

Advanced Standing for OGME-1 preliminary radiation oncology year

Advanced standing in lieu of preliminary year in radiation oncology may be awarded for any AOA approved first year of training.

Documentation required:

1. a letter from the institution where the first year of GME training occurred stating the specific rotations, their length of time, and also indicate if the individual has/will successfully complete the year of GME training.