

DEPARTMENT OF RADIATION MEDICINE
RADIATION ONCOLOGY RESIDENCY TRAINING PROGRAM
Arthur G. James Cancer Hospital & Richard J. Solove Research Institute
The Ohio State University, Columbus, Ohio

A. PROGRAM DEMOGRAPHICS

Host Institution: The Ohio State University Hospital
Specialty: Radiation Oncology
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B. INTRODUCTION

History: The Radiation Oncology Program at The Ohio State University has been accredited since May 1, 1971. More than 30 radiation oncologists have graduated from the program over the intervening period.

Duration & Training Criteria: The Division offers a four-year residency program after one year of clinical training in medicine, family practice, obstetrics/gynecology, surgery, pediatrics, or in a transitional year program. Residents enter the program through the National Residency Matching Program in the second year of training after completing the first year of clinical training at any other accredited program.

Goals and Objectives: It is our goal to broaden the medical and personal skills of our trainees to enable them to practice medicine with special skills in radiation oncology. Our facilities in a Comprehensive Cancer Center provide an outstanding environment to acquire those skills. Our department provides a complete spectrum of radiation therapy modalities, so that all technical skills can be learned in an optimal setting. In our cancer hospital, other medical and oncological specialties are in close proximity, providing opportunities for clinical, educational, and research interactions. We emphasize the need for radiation oncologists to function as partner in a multidisciplinary cancer medicine team.

Program Certification: This program is fully accredited by the ACGME.

C. RESOURCES

Staff: There are presently five Radiation Oncologists who are responsible for clinical and didactic instruction:

John Grecula, MD
Nina Mayr, MD
Douglas Martin

Joseph Montebello, MD
Simon S. Lo, MD

and five physicists on staff:

Cristos Kanellitsas, PhD
Nilendu Gupta, PhD
Kaile Li, PhD

Jian Wang, PhD
Hualin Zhang, PhD

Three faculty in the Division of Radiation Biology provide the biology teaching.

Facilities: All training takes place in the Department of Radiation Medicine at the James Cancer Hospital in Columbus, Ohio.

D. EDUCATIONAL PROGRAM

Clinical Component: The clinical component of the program is organized to fulfill the requirements of the ACGME. Resident education in radiation oncology includes 5 years of accredited, clinically oriented graduate medical education. The first year of postgraduate clinical training is spent in medicine, family practice, obstetrics/gynecology, surgery, pediatrics, or a transitional year program. This clinical experience is then followed by 4 years in radiation oncology.

No fewer than 36 months of the 4-year program is spent in the clinical core curriculum of radiation oncology. In addition, the program provides a 2-month rotation or its equivalent in hematology/medical oncology, including adult and pediatric patients and exposure to oncologic pathology, either by its integration into the conference schedules and tumor boards or by a 1-month rotation in oncologic pathology. The remaining months allow for in-depth experience in individually selected areas applicable to clinical radiation oncology.

Research: A research component, either clinical or basic laboratory research, is desirable. The director will advise each resident regarding elective rotations and or research options, keeping in mind that person's educational background, performance and individual goals. Research projects are available in radiation oncology and the Comprehensive Cancer Center. The main purpose of clinical or basic research during our residency program is allow the resident to benefit from faculty scholarly experience and to learn the principles of scientific inquiry and critical analysis. Although the publication of a paper is commendable, it is not the sole purpose of this research time. The research requirement can be satisfied by the presentation of findings at a local, regional, or national meeting.

Participant's Supervisory and Patient Care Responsibilities: Patient care is the ultimate responsibility of the Attending staff. No final patient care decisions during consultation, treatment, or follow-up are made without the physical presence of Attending Staff during all essential components of the service. However, for the optimum training of residents, it is important that they participate in patient care with responsibilities matching their level of training and competence.

Residents are assigned to one Attending for a period of three months. The Program Director meets with the Chief Resident to develop a yearly roster of clinical assignments and required and elective rotations. Care is taken to insure that each resident receives exposure to all clinical services. The resident in the fifth year of training has the privilege of selecting clinical services or rotations to optimally achieve personal goals, provided no remedial rotations are required by the Program Director. During the assignment to a clinical service, the respective Attending becomes the direct supervisor of the resident in all aspects involving clinical care, including attendance at clinics, conferences, and vacation schedules. All Attendings are expected to follow the general departmental guidelines on patient care with resident participation. If disagreements develop, they will be addressed according to the guidelines described.

The General Guidelines for Resident Participation in Patient Care: For any new patient, the resident is responsible for collecting any relevant clinical or radiographic information before seeing the patient. It has become customary that the nursing staff will retrieve this information to the extent possible. The resident will then meet with the new patient for the History and Physical examination. The findings are then presented to the Attending, who will independently confirm them and examine the patient to detect any discrepancies. The need for any additional examinations or procedures is then determined; these are usually scheduled by auxiliary staff. The resident is then responsible for submitting a draft of a Consult reply no later than the beginning of the next business day to the Attending, who will proof and correct the draft. If outside films are used during consultation, they are also scanned into the database and promptly returned. This information then is available for review and discussion in morning conference. The resident will present the patient in the presence of all available attendings and peers, propose a treatment or management plan, and defend it based on inquiry into the literature and level of experience. During the presentations, the staging information is displayed for evaluation by all and will be approved or corrected in conference. An Attending who temporarily has no resident on his/her service will follow the same procedure.

Guidelines for Treatment of Patients: The resident will review all treatment records daily and indicate by his/her signature that the patient is approved for treatment the following day. In simple cases, up to 3 days may be signed in advance. All treatment port films must be reviewed by the end of the day. Typically, this is done on the digitized image on computer. The Attending will review the same computerized port film by the beginning of the next treatment day and finalize the approval. The resident is encouraged to review the films critically and to annotate any changes believed necessary. The Attending's evaluation of resident performance will consider the thoroughness and understanding demonstrated in this port review. The computer is programmed so that no change will be accepted as final unless the Attending approves the changes with his personal password. These films can also be reviewed in conference.

An important part of the morning conference is the review of simulations or treatment starts on the preceding day. The simulation film is projected visible to all for learning, discussion and critique. Ultimately, the responsibility for a given treatment plan or simulation field rests with the Attending in charge of the particular patient. Patients on treatment must be seen at least weekly, but may be seen daily, if necessary, or at any time requested by the patient. In general, the resident will see the patient first, take an appropriate history and perform a focused examination. He/she will then present the findings to the attending, who will meet the patient to confirm or supplement the findings. The findings are documented and signed by both residents and attendings. If there are no residents assigned to an attending, the attending will follow the same procedure.

Guidelines for Follow-up of Patients: The department has always given the highest priority to the regular follow-up of our patients. In general, the resident will first review the chart, meet the patient to take an interim history, and perform a focused physical examination. The findings will be presented to the Attending who will confirm or supplement them. Particular attention must be paid to any sign of late normal tissue effects. Any grade 3 or higher normal tissue effect must be presented in Morbidity and Mortality conference.

Didactic Components

Lecture Series: Didactic lectures are offered to provide perspectives and opportunities for discussion. They are not substitutes for critical, independent study. The resident is encouraged to prepare for lectures and seminars so as to derive their full benefit. Didactic lectures also do not replace the need for thorough research into each patient's problem at the time of patient contact. After 5 years of training, the resident

must be prepared and able, through critical self study, to continuously adapt to new developments in oncology throughout his/her professional life.

General Radiation Oncology (Rad Onc Faculty)
Oncology by Disease Site (Hem Onc Faculty)
Brachytherapy (Dr Nag)
Radiation Physics (Dr Kanellitsas, physics faculty)
Dosimetry (Patty Werner and staff)
Radiation Biology (Radiobiology Faculty)
Board Review Series (Multidisciplinary Faculty)

Multidisciplinary Conferences:

Head and Neck Tumor Board	Neuro Tumor Board
Breast Disease Specific Tumor Board	GU Tumor Board
Pediatric Tumor Board	GYN Tumor Board
General Tumor Board	

Progression of Responsibilities in this 4-year Program

First Year (PGY2): Clinical—Technical, Basic Oncology, Basic Biological and Physical Principles

Goals: By the end of the first year, the resident will have demonstrated his general medical skills and will have learned to apply them to oncology. He/she will have a good understanding of the principles of patient evaluation and work up in oncology and a thorough knowledge of staging and coding of acute and late normal tissue effects. He/she will understand the general process of

radiation oncology, have an understanding of the physical and biological principles, be able to perform basic dose calculations, and will understand the impact of fractionation, time, and dose factors. He/she will have demonstrated an understanding of the natural history of at least one major cancer in a presentation to the department.

Training emphasis: The resident will spend the first month in orientation at the simulator, in dosimetry, and on the treatment units and will, of course, participate in the departmental lecture series. Regular participation is considered of sufficient importance to justify being excused from clinical work. When assigned to a clinical service, the resident will follow the general procedures outlined above, with the following modification: at the time of simulation, the resident is expected to be thoroughly familiar with the patient's clinical history, findings, and general treatment intent (definitive, palliative, adjuvant, etc.).

The resident will present for discussion when the Attending gives the detailed instructions for immobilization and simulation. As the resident's level of experience grows, he/she will learn to formulate these instructions for approval by the Attending. Entry of the Gross Tumor Volume into the planning system will be encouraged, if applicable. With the Attending, the resident will review this volume and discuss and participate in the delineation of the Clinical Target Volume. The Clinical Target Volume is a concept of general significance in oncology, requiring knowledge of tumor growth and spread probabilities. This activity therefore is a very important learning opportunity. In addition, the resident will participate in the delineation of the Planning Target Volume with the Attending and dosimetry or physics staff, as needed.

Because of the heavy class work, the First Year Resident should participate in the follow-up of his/her patients, but may be excused from the Attending's general follow-up.

Evaluation: During the first 6 months, the resident will be evaluated primarily on general medical skills. At the end of the year, the evaluation will be based on knowledge of general oncological work-up, staging, and coding of acute and late normal tissue effects. Knowledge of the processes involved in treatment and a basic understanding of the physical and biological basis of radiation therapy will be evaluated. A presentation on behavior of one major cancer site is used to evaluate clinical progress.

Second Year: Technical / General Oncology

Goals: During the second year the resident will develop full competency in the technical, physical and biological principles of radiation oncology and will develop the skill to apply them to general oncology. At the end of the second year, he/she will be able to give instructions for immobilization, simulation, and Treatment planning (including Volume definitions) and will be able to monitor these processes while requiring progressively less need for correction by the Attending. Depending on the rotation schedule, the resident will learn some special procedures (IMRT, radiosurgery, brachytherapy, intraop, TBI, Total Skin Irradiation). The resident will now have an understanding of the biological behavior of all major malignancies and a thorough understanding of early and late normal tissue effects from radiation, chemotherapy, and combined treatment programs. She/he will understand basic principles of effective patient care and will understand how to avoid unhelpful tests and procedures so that patient discomfort and cost will be minimized.

Training emphasis: In the second year, the resident will work very closely with the assigned attendings in all aspects of their service. He/she will become more assertive in proposing evaluations and treatment plans and will be comfortable monitoring all treatment programs with the Attending. The Attendings will allow the resident more independence to initiate processes and will typically initiate only corrective actions or discussions after the resident has put forward an initial attempt. In conference, the resident will actively participate in the discussion of all cases presented. Required and elective rotations are often part of the second year.

Evaluation: Fundamental knowledge of radiation therapy physics and biology is now evaluated, as well as clinical skills and the ability to communicate with radiation oncology staff, peers, and patients.

Third Year: Special Techniques, General Oncology—Integration of All Oncological Knowledge

Goals: At the end of the third year, the resident will be generally familiar with all special techniques used in the department and will now specifically focus on the use of radiation therapy in the context of general oncology. The resident will thoroughly understand the role of all major oncological specialties, surgical or medical, and the special needs of the very young (pediatric) or older patient. He/she will be able to recognize special needs of any patient and will understand how emotional, spiritual, or economic assistance can be offered. He/she will learn to offer help in a tactful, modest and respectful way.

Training emphasis: The resident again works closely with the assigned attending in all aspects of care, but this work will require less frequent monitoring. He/she will actively participate in departmental and interdepartmental conferences and will introduce independent ideas from both experience and knowledge of the literature. The resident will present cases at multidisciplinary tumor boards and participate in the discussions. He/she will interact with residents from other specialties and participate in teaching. He/she will usually complete any required rotations in the third year and may chose to complete elective rotations in the fourth year.

Evaluation: Beyond the fundamental knowledge in Radiation Oncology, the resident's general knowledge in Oncology will be evaluated. Participation in teaching and quality of presentations in conference and in the clinic will be scored. Effectiveness of communication with all members of the professional, technical,

and auxiliary staff will be assessed.

Fourth Year: Integration of All Principles of Radiation Therapy and General Oncology

Goals: In the fourth year, the resident will complement previous experience. He/she will discuss with the Program Director any perceived shortcomings or special interests. The resident will bear primary responsibility for the selection of these assignments, unless deficiencies are found by the Program Director. Research projects are encouraged during the final year. In general, the resident will try to integrate all knowledge in Oncology and basic Sciences during the final year.

Training emphasis: The resident is expected to show independent thought in the interaction with the Attendings and in conferences. He/she will be an important contributor to the teaching in the department and will be expected to assist junior residents.

Evaluation: Board level competence is expected as well as attainment of the clinical, social, and personal skills required for practice. If major deficiencies are identified at this stage, the candidate may not be recommended for admission to the Board exam.

E. EVALUATION

One resident is typically assigned to one Attending for a 3-month period. At the end of each rotation, the Attending will evaluate the performance based on criteria discussed in "Educational Goals and Objectives." The Attending will discuss the evaluation with the resident and communicate it in written form to the Program Director. The evaluation will include assessment of intellectual abilities, attitudes, interpersonal relationships, clinical competence, decision making, and clinical management skills. Adverse actions are described under "Residency Promotion, Resident Dismissal."

The overall educational process is seen as progressive and adaptable to individual needs that become apparent over time. To this end, the resident will participate in a process of evaluation that will include self-evaluations and periodic evaluations by attendings, nursing staff, peers, and medical students when possible. The written evaluations will be based on the basic competencies described the ACGME:

Patient Care	Professionalism
Medical Knowledge	Systems-based Practice
Practice-based Learning & Improvement	Technical Competency
Interpersonal & Communication Skills	Maturity of Understanding

Evaluations will be completed by attendings after each rotation and by departmental staff biannually (360 degree evaluations). Self-evaluations will be a component of the post-rotation conference with the Program Director, which is described below. Other evaluative measures (e.g., responses by medical students observing during a visiting rotation) will used as circumstances allow.

After each rotation, the Program Director will meet with the resident to review that rotation's results and to determine the direction of the resident's ongoing profession plan. The resident is responsible for maintaining a portfolio of all evaluative materials and other academic and/or research documentation that describes his/her progress in the program. The Program Coordinator will provide guidance and assistance in the maintenance of this portfolio.

This evaluation process is intended as a means of providing focus for each resident's personal professional plan.

POLICIES AND PROCEDURES

Resident Eligibility and Selection

Eligibility

The Ohio State University Hospitals Radiation Oncology residency program selects new residents using the National Residency Matching Program's computerized system, ERAS. All inquiries for program information are answered. For program information, applicants are referred to our WEB address (<http://radmed.osu.edu/>) and can receive program information by mail if requested. To be considered, applicants must be enrolled in and eligible for graduation from an accredited medical school. Foreign medical graduates must be eligible for a J-1 visa or have a green card. Radiation Oncology residency is an advanced program admission to which requires completion of a preliminary year (PGY-1) of clinical training in medicine, family practice, obstetrics/gynecology, surgery, pediatrics, or in a transitional year program at another accredited institution. OSU does not offer a PGY-1 year. All applicants are given equal consideration based on merit regardless of gender, race, origin, or faith.

All available faculty and residents participate in the interview process. All interviewed candidates found acceptable to the program are ranked, and the ranking list is entered into the NRMP computer as specified in their policy.

The Selection Process

We usually receive about 130 applications annually. Each of these is reviewed by the faculty, who select a subset of potential candidates for interviews. Approximately 20 of the top ranking candidates in this subset are chosen by the faculty in conference to be invited to interview. The applications receiving the highest scores are then reviewed again and ranked by the faculty after consideration in a Committee of the Whole. The criteria considered for this ranking process may include USMLE scores, letters of recommendation, rotation grades, and publications. The top ranking candidates are invited to interview. All available faculty and residents participate in the interview process. All interviewed candidates found acceptable to the program will then be ranked by the faculty, and the ranking list will be entered into the NRMP computer as specified in their policies.

Resident Evaluation

One resident is typically assigned to one Attending for a 3-month period. During each rotation, the resident and Attending will meet at the approximate midway point to assess progress and plan the remainder of the rotation. This meeting is recorded and the form is included with the end of rotation evaluation that is submitted to the Program Director at the rotation's end. At the end of each rotation, the Attending will evaluate the performance based on criteria discussed in "Educational Goals and Objectives." The Attending will discuss the evaluation with the resident and communicate it in written form to the Program Director. The evaluation will include assessment of intellectual abilities, attitudes, interpersonal relationships, clinical competence, decision making, and clinical management skills.

Biannual Resident Evaluation

The Program Director meets with each resident twice yearly. Together they will determine what steps should be taken to ensure acceptable progress towards completion of the program. Remedial steps may be required if progress is not acceptable. Adverse actions are described under "Residency Promotion, Resident Dismissal." The results of these evaluation sessions are recorded and kept in the resident's permanent folder.

Faculty Evaluation

The residents are asked to provide an evaluation of each faculty member. This is done yearly on a typed form to assure confidentiality. The Program Director will meet with the residents once per year to

discuss their evaluations.

Program Evaluation

The Program Director meets with all residents individually and as a group to get feedback for the program. A form is used for this evaluation.

Resident Promotion

In general, residents are assigned to a clinical service for 3 months. Since our services are not specialized in any given disease site, the resident will be exposed to practice patterns of different Attendings, uniform within the guidelines of the department, but individually different enough to provide a real world experience. Only the Brachytherapy and Pediatric rotations are somewhat different in their educational content. The learning objectives of the resident are therefore similar in all rotations at a given level of training, as described in "Educational Goals and Objectives." At the end of an assignment, the resident will be evaluated by the attending to whom he/she was assigned. If the resident has not performed satisfactorily, the program director may counsel, advise, and/or test the candidate. The program director may then declare the rotation as not satisfactorily completed after due discussion with the Attending involved and all Radiation Oncology Faculty. This action will delay the candidate's admission to the Board examination and may require additional training. The Program Director meets with each resident at least twice yearly to discuss progress.

After each completed year of training, the evaluations of all rotations will be carefully reviewed by the Program Director. These will be discussed with the faculty and the individual residents. If the faculty determines that the aggregate evaluations are insufficient for graduation into the next year of training, an additional year of training may be required. The process of quarterly evaluation by faculty should virtually eliminate the possibility that the resident would be confronted for poor performance without warning.

One resident will be promoted to "Chief Resident" by the Program Director. This will typically be the most senior resident. Should there be more than one qualifying resident, the Program Director will choose based on performance and previous aggregate quality of service in the program.

Resident Dismissal

Evidence of dishonesty, unprofessional behavior, substance abuse, or harassment may lead to termination, after due process, as provided by the Arthur G. James Cancer Hospital and Richard J. Solove Research Institute Medical Staff bylaws.

The employment agreement may be terminated by the Residency Program Director for reasons of unsatisfactory performance after at least two evaluations result in "not satisfactorily completed rotation." If the faculty advises the program director that the performance is unlikely to be corrected by additional training, a written notification shall be given 4 months prior to the expected termination. The resident will be given an opportunity to discuss and review any dissatisfaction or grievances with the Program Director, Attendings involved, and the radiation oncology faculty at large. Due process will be followed as provided by the Arthur G. James Cancer Hospital and Richard J. Solove Research Institute Medical Staff bylaws.

Monitoring stress and assistance

It is the Program Director's responsibility to monitor residents and staff for signs of stress that may impede satisfactory progress. This includes mental and emotional conditions or learning and drug or alcohol-related dysfunction. The Director may approach individuals to offer assistance and will be available to residents or staff at any time to discuss stressful situations or problems. Help will be provided within the capabilities of the program or the Medical Center.

Benefits (stipends, travel, meetings)

Salary and benefits are provided as described in the Medical Center's Resident Agreement and Contract. Additional benefits provided by the program faculty are:

1. A personal computer, networked to the departmental network and to the hospital network and hospital PACS.
2. \$1000 initial stipend to purchase educational materials
3. Support for a national meeting in the 3rd or 4th year (\$1000)

Duty Hours

Duty hours are defined as all clinical and academic activities related to the training program and include patient care, administrative duties, provision of transfer patient care, time spent in-house while on call, and scheduled academic activities. Duty hours also include any research activity that is part of the required curriculum for the training program. Duty hours do not include reading time and preparation time spent when not on duty. Radiation Oncology residents do not take in-house call, but have at-home call only, as described below.

A team of one resident and one Attending is typically assigned to be on at-home call for after hour emergencies. We have very thoroughly analyzed the call volume and found that an on call rotation of 7 contiguous days was the most desired scheme. The residents have requested in writing that this schedule be maintained. It is very rare that we are called back into the hospital or have a heavy weekend load. Residents have always been able to leave the hospital in evening and have always spent the majority of the weekend at home. Duty hours are limited to a maximum of 80 hours per week, averaged over a 4 week period (either a calendar month or a 4 week period within one rotation). In practice, on call work hours have never approached 80 hours. Attendings and residents feel that this is not an excessive workload, considering the historical and expected call volume. This policy can be changed if any staff requests a change.

Duty hour totals are monitored by the Program Director during each rotation and reported with each rotation's evaluation.

Moonlighting

Moonlighting is not permitted.