DEPARTMENT OF RADIATION ONCOLOGY

Residency Program Manual

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Department Chairman: Walter Curran, M.D.

Supplement to the Radiation Oncology Residency Website:
http://www.emoryradiationoncology.org
# Table of Contents

<table>
<thead>
<tr>
<th>Section</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Background</td>
<td>4</td>
</tr>
<tr>
<td>A. Mission Statement</td>
<td>4</td>
</tr>
<tr>
<td>B. General</td>
<td>5</td>
</tr>
<tr>
<td>I. Emory University</td>
<td>5</td>
</tr>
<tr>
<td>II. Atlanta</td>
<td>7</td>
</tr>
<tr>
<td>C. Setting for Residency Program</td>
<td>8</td>
</tr>
<tr>
<td>2. Faculty</td>
<td>13</td>
</tr>
<tr>
<td>3. Program Director and Committee (CCC and PEC) Responsibilities</td>
<td>14</td>
</tr>
<tr>
<td>4. Competencies</td>
<td>18</td>
</tr>
<tr>
<td>A. General</td>
<td>18</td>
</tr>
<tr>
<td>B. Teaching and Assessment Methods</td>
<td>19</td>
</tr>
<tr>
<td>Recommended Practice Performance Tools</td>
<td>22</td>
</tr>
<tr>
<td>5. Core Curriculum</td>
<td>26</td>
</tr>
<tr>
<td>A. Rotation Component</td>
<td>26</td>
</tr>
<tr>
<td>B. Didactic Component</td>
<td>30</td>
</tr>
<tr>
<td>Typical Weekly Schedule</td>
<td>32</td>
</tr>
<tr>
<td>Detailed Didactic Schedules</td>
<td>33</td>
</tr>
<tr>
<td>6. Goals and Objectives – Overall</td>
<td>52</td>
</tr>
<tr>
<td>7. Goals and Objectives - Curriculum – Rotation Component</td>
<td>59</td>
</tr>
<tr>
<td>Breast Cancer Rotation</td>
<td>60</td>
</tr>
<tr>
<td>Central Nervous System Rotation</td>
<td>68</td>
</tr>
<tr>
<td>Gastrointestinal Cancer Rotation</td>
<td>76</td>
</tr>
<tr>
<td>Genitourinary Cancer Rotation</td>
<td>84</td>
</tr>
<tr>
<td>Gynecological Malignancies Rotation</td>
<td>92</td>
</tr>
<tr>
<td>Head and Neck Cancer Rotation</td>
<td>99</td>
</tr>
<tr>
<td>Lung/Thoracic Cancer Rotation</td>
<td>108</td>
</tr>
<tr>
<td>Lymphoma Rotation</td>
<td>116</td>
</tr>
<tr>
<td>Pediatrics Rotation</td>
<td>123</td>
</tr>
<tr>
<td>Sarcoma/Soft Tissues Rotation</td>
<td>130</td>
</tr>
<tr>
<td>Diagnostic Radiology Rotation</td>
<td>136</td>
</tr>
<tr>
<td>Medical/Pediatric Oncology Rotation</td>
<td>137</td>
</tr>
<tr>
<td>Pathology Rotation</td>
<td>138</td>
</tr>
<tr>
<td>Physics/Dosimetry Rotation</td>
<td>139</td>
</tr>
<tr>
<td>Research Rotation</td>
<td>141</td>
</tr>
<tr>
<td>8. Goals and Objectives – Curriculum – Didactic Component</td>
<td>142</td>
</tr>
<tr>
<td>9. Duty Hours / Call</td>
<td>166</td>
</tr>
<tr>
<td>10. Policies</td>
<td>168</td>
</tr>
<tr>
<td>Lines of Responsibility (Including Supervision)</td>
<td>169</td>
</tr>
<tr>
<td>Duty Hours and Work Environment</td>
<td>174</td>
</tr>
<tr>
<td>Moonlighting</td>
<td>180</td>
</tr>
<tr>
<td>Resident Recruitment and Appointment</td>
<td>181</td>
</tr>
<tr>
<td>Promotion</td>
<td>183</td>
</tr>
<tr>
<td>Grievance, Due Process, and Appeal</td>
<td>184</td>
</tr>
<tr>
<td>Disciplinary Actions</td>
<td>185</td>
</tr>
</tbody>
</table>

Page 2 of 286
Leave/Vacation Time – Intradepartmental Policies ........................................ 188
Others: Benefits, Application Process .......................................................... 189
Emory GME and ABR/FMLA ...................................................................... 190
11. Program Requirements
ACGME Program Requirements .................................................................. 191
The Holman Pathway ................................................................................. 219
Radiation Oncology Milestones ................................................................. 222
11. Appendix
Forms ....................................................................................................... 247
Evaluations of Residents:
  Meeting with Program Director – Checklist ............................................. 248
  Radiation Oncology Global Rating Form ............................................... 249
  Direct Observation of Brachytherapy ...................................................... 251
  Direct Observation of Simulation Treatment Process-Preparation ........ 252
  Resident Rotation Evaluation by Nursing Staff ...................................... 253
  Resident Rotation Evaluation by Radiation Therapists ......................... 255
  Elective Resident Evaluation .................................................................. 257
  Clinical Physics Rotation for Medical Residents Evaluation ............... 258
  Resident Oral Examination – Radiation Oncology ............................... 262
Evaluations by Residents:
  Year-End Program Evaluation ............................................................... 263
  Program-End Evaluation (Evaluation of Program and Rotations) .......... 265
Self-reflection/Self-Assessment Form ......................................................... 267
Attending/Alumni evaluations of program:
  Faculty program evaluation form ......................................................... 269
  Resident Post-Graduation Survey .......................................................... 271
Other:
  Rotation Goals and Objectives Attestation Form ................................... 277
  Morbidity and Mortality (CQI/M&M) Report Form ............................... 278
  Monthly Resident Timesheet ................................................................. 279
  Sign-in sheets Faculty .......................................................................... 280
  Oral I-131 and Parenteral Administration Log ....................................... 281
  Vacation/Meeting Request .................................................................... 282
  PGY-II Interviewer Assessment Form ................................................... 283
  Milestone Feedback Form ..................................................................... 285
1. Background

A. Mission Statement

The mission of the Residency Program in the Department of Radiation Oncology at Emory University Affiliated Hospitals is multifold:

to train residents in the principles and practice of radiation oncology, including the applied principles of physics and radiobiology, treatment techniques, the radiation oncology literature, and the integration of this knowledge with surgical and medical oncology;

to ensure that the residents are adequately prepared to pass their certifying examinations;

to instill the importance of well-designed and conducted clinical and basic research;

to teach, by example, the importance of exhibiting the highest level of professionalism and ethics in all interactions with patients and colleagues; and

to train radiation oncologists who will be leaders in our profession.

The four-year Radiation Oncology residency follows completion of a one-year internship in Internal Medicine. The program prepares residents for certifying examinations given by the American Board of Radiology.

The Radiation Oncology Residency Program at Emory University is committed to providing its residents with the educational experiences necessary in order to attain competence in:

Patient Care that is compassionate, appropriate, and effective for the treatment of health problems and the promotion of health;

Medical Knowledge about established and evolving biomedical, clinical, and cognate (eg, epidemiological and social-behavioral) sciences and the application of this knowledge to patient care;

Practice-Based Learning and Improvement that involves investigation and evaluation of their own patient care, appraisal and assimilation of scientific evidence, and improvements inpatient care;

Interpersonal and Communication Skills that result in effective information exchange and teaming withpatients, their families, and other health professionals;

Professionalism as manifested through a commitment to carrying out professional responsibilities, adherence to ethical principles, and sensitivity to a diverse patient population;

Systems-Based Practice as manifested by actions that demonstrate an awareness and responsiveness to the larger context and system of health care and the ability to effectively call on system resources to provide care that is of optimal value.
B. General

I. Emory University

Background of University:

http://www.emory.edu/about_eu.cfm

Located just 15 minutes from downtown Atlanta in the tree-lined suburban neighborhood of Druid Hills, Emory University is positioned along the Clifton Corridor, which also includes the U.S. Centers for Disease Control and Prevention.

Emory University is home to nine major academic divisions, numerous centers for advanced study, and a host of prestigious affiliated institutions. In addition to Emory College, the University encompasses a graduate school of arts and sciences; professional schools of medicine, theology, law, nursing, public health, and business; and Oxford College, a two-year undergraduate division on the original campus of Emory in Oxford, Ga.

Emory was founded at Oxford by the Methodist Church in 1836. Led by President James W. Wagner, the University has 12,000 students and more than 3,000 faculty members who represent all regions of the United States and dozens of other countries.

Background of Emory University School of Medicine:

http://www.med.emory.edu/information/index.cfm

Emory University School of Medicine, a component of Emory’s Robert W. Woodruff Health Sciences Center, is ranked among the nation’s finest institutions for biomedical education. The School of Medicine is located on the main Emory University campus in the Druid Hills section of Atlanta and in Emory-owned and affiliated medical facilities throughout metropolitan Atlanta.

The School of Medicine’s three-part mission encompasses teaching, scholarship, and service. Its wide-ranging educational and training programs include medical students, graduate students, residents, fellows, postdoctoral students, and students in the allied health professions. In 2006, the School received 49 applications for each first-year position. In addition to 455 medical students, the school trains more than a thousand residents and fellows in 74 accredited primary care and specialty medicine programs. It also includes 61 MD/PhD students, including some in a joint program with the Georgia Institute of Technology. The MD/PhD program is one of 34 selected for sponsorship by the National Institutes of Health. Students also may earn the MD/MPH degree or the Master of Science in Clinical Research degree through joint programs with the Rollins School of Public Health. Six allied health programs train 390 students. Allied health programs include a physician assistant program ranked third in the nation by US News & World Report and a physical therapy program ranked eighth. Nearly 7,000 physicians and other health care professionals come to Emory each year to participate in one of the nation’s largest and most successful continuing medical education programs.

Medical education at all levels emphasizes problem solving within the context of excellent
patient care, advanced biomedical research, preventive medicine, and ethical concerns. Graduates of Emory School of Medicine are trained to become leaders in medicine and science. Ongoing changes in the curriculum are designed to help students become active and independent learners and thinkers — skills they will need to deal effectively, efficiently, and humanely with the multiple challenges that will confront them as physicians in the 21st century. Atlanta’s large and diverse patient population, combined with Emory’s extensive research facilities, provide an excellent environment for a complete medical education. National public health organizations located nearby, such as the US Centers for Disease Control and Prevention, the American Cancer Society, and The Carter Center, also provide special educational opportunities. Distinguished faculty members who are dedicated to their clinical and research areas of expertise, yet committed to a close, interactive relationship with students, provide the foundation of the School of Medicine’s teaching programs. Faculty include 1,804 full-time members and 997 volunteer members.

Emory School of Medicine is renowned as a premier research institution. The school received $292.2 million in research funding in 2005-2006, and now ranks 19th among all US medical schools in total NIH research support. Among Emory’s extensive research facilities are the Woodruff Memorial Research Building, the Rollins Research Center, the Winship Cancer Institute, the Biomedical/Dental Building, the vaccine research center, and the Whitehead Memorial Research Building. Emory medicine is well known for its pioneering treatment and research in specialty areas, including cardiovascular diseases, cancer, renal diseases, ophthalmology, and geriatrics. As clinicians in Emory’s seven owned or affiliated teaching hospitals, faculty members are responsible for 2,975 hospital beds and more than 2.2 million patient encounters annually. Emory Healthcare is the clinical arm of the Emory University Woodruff Health Sciences Center. As the largest, most comprehensive health care system in Georgia, Emory Healthcare includes The Emory Clinic, Emory Children's Center, Emory Medical Affiliates, Emory Specialty Associates, Dialysis Access Center of Atlanta, Emory Genetics Laboratory, Emory Medical Foundation, Emory Physical Therapy, Emory University Hospital, Emory University Hospital Midtown (formerly Emory Crawford Long Hospital), Wesley Woods Center, the jointly owned Emory-Adventist Hospital, and the jointly-owned Emory Johns Creek Hospital. Emory Healthcare has revenues of $1.5 billion and approximately 10,000 employees.

Emory doctors also operate within Grady Health Systems, one of the Southeast's largest & busiest Emergency Care facilities. Grady Memorial Hospital (pictured above) treats over 100,000 emergency cases per year and an average 300 per day.

Emory University School of Medicine is accredited by the Liaison Committee on Medical Education of the American Medical Association and the Association of American Medical Colleges.
II. Atlanta

http://en.wikipedia.org/wiki/Atlanta

Atlanta is the capital and the most populous city in the state of Georgia, and the core city of the ninth most populous metropolitan area in the United States. As of July 2007, the city of Atlanta had a population of 519,145, and a combined statistical area population of 5,626,400.

Atlanta has in recent years undergone a transition from a city of regional commerce to a city of international influence, and has been among the fastest growing cities in the developed world for much of the 1990s and 2000s. Between 2000 and 2006, the metropolitan area grew by 20.5%, making it the fastest growing metropolitan area in the nation.

Atlanta hosts a variety of museums on subjects ranging from history to fine arts, natural history, and beverages. The Martin Luther King, Jr. National Historic Site honors Atlanta's participation in the civil rights movement. Other history museums and attractions include the Atlanta History Center; the Atlanta Cyclorama; the Carter Center; historic house museum Rhodes Hall; and the Margaret Mitchell House and Museum. The Fernbank Science Center is a children's museum.

Atlanta features the world's largest aquarium, the Georgia Aquarium, which officially opened to the public on November 23, 2005. The new World of Coca-Cola, opened adjacent to the Aquarium in May 2007, features the history of the world-famous soft drink brand and provides visitors the opportunity to taste different Coca-Cola products from around the world. Underground Atlanta, a historic shopping and entertainment complex, lies under the streets of downtown Atlanta. Atlantic Station, a huge new urban renewal project on the northwestern edge of Midtown Atlanta, officially opened in October 2005.

Piedmont Park hosts many of Atlanta's festivals and cultural events. Atlanta Botanical Garden sits next to the park. Zoo Atlanta, in Grant Park, features a panda exhibit. Just east of the city rises Stone Mountain, the largest piece of exposed granite in the world.

Atlanta's classical music scene includes the Atlanta Symphony Orchestra, Atlanta Opera, Atlanta Ballet, New Trinity Baroque, and the Atlanta Boy Choir. Classical musicians include renowned conductors such as the late Robert Shaw and the Atlanta Symphony's Robert Spano.

Atlanta is home to several professional sports franchises, including teams from all four different major league sports in the U.S. (the Atlanta Falcons, Atlanta Braves, Atlanta Hawks, and Atlanta Thrashers).

Atlanta was the host city for the Centennial 1996 Summer Olympics. Centennial Olympic Park, built for 1996 Summer Olympics, sits adjacent to CNN Center and Philips Arena.
C. Setting for Residency Program:

**Background of Department:**

The Department of Radiation Oncology at Emory was formed in November 1991 and operates two facilities in Atlanta, both of which are adjacent to hospitals that are part of the Emory Healthcare System. The Clifton Road campus is adjacent to Emory University Hospital and Egleston Children's Hospital. The second facility is adjacent to Emory University Hospital Midtown (formerly Crawford Long Hospital). In addition, our physicians practice at the Veterans Administration Medical Center and the Edward C. Loughlin Radiation Oncology Center of Grady Memorial Hospital. All radiation oncologists in the department have active appointments with the Emory University School of Medicine. Over the past 15 years, our department has transformed itself by being an early adopter of new technology which included CT simulation, IMRT and IGRT.

The Emory Department of Radiation Oncology serves the community through advanced innovation, translational research and clinical application of radiation therapy. The department is committed to excellence in scholarship and to the training of the next generation of radiation oncologists, technologists, and medical physicists. The department's goal is to provide the highest quality patient care through clinical investigation and implementation of improved treatment planning and delivery technologies.

**Division of Clinical Affairs**

The Division of Clinical Affairs consists of the team of professionals who diagnose, treat, and care for our radiation oncology patients.

**Mission Statement**

The patient is the primary focus of the Department of Radiation Oncology. Our team of highly trained professionals—physicians, physicists, nurses, therapists, and others—is committed to treating patients with neoplastic diseases in a caring and efficient environment using cutting edge technology and the most up-to-date information available.

**Clinical Team**

The Radiation Oncology clinical team consists of highly qualified professionals dedicated to providing the best possible care to all patients.

Our physicians (radiation oncologists) are board-certified, some in more than one specialty. All have areas of particular interest and expertise. In addition to patient care and research, they are involved in teaching the department's resident physicians (radiation oncologists in training).

Department physicists use treatment planning software to determine how to deliver the prescribed radiation therapy; they perform necessary maintenance and calibration of the
department's equipment; they investigate the integration of new technology to optimize patient care; and they are involved in teaching the next generation of physicists.

Excellent radiation therapists, some of whom have been with the department for many years, are experienced and highly qualified. They have mastered the intricacies of delivering complex treatment plans—a very important skill in our environment of advanced technology.

Our oncology nurses bring not only special expertise to the treatment and management of cancer patients, particularly regarding the side effects of radiation therapy, but also extraordinary empathy and compassion.

The department's social worker counsels patients and families and facilitates solutions to the myriad problems encountered by radiation oncology patients.

Our resident physicians (radiation oncologists in training) assist in the care and treatment of patients under the direct supervision of the staff physicians. Their inquiring minds and compassion also provide an extra dimension to the department mission.

**Division of Cancer Biology**

The Division of Cancer Biology in the Department of Radiation Oncology is a unique group of scientists conducting cutting-edge research focused on understanding the causes of and finding potential cures for human cancer. The division consists of three full-time faculty and their research laboratories which are located at both Emory's main campus and at the Edward C. Loughlin Radiation Oncology Center at Grady Memorial Hospital. The research interests of the faculty include the molecular basis for genetic damage and its repair, cell stress responses, signal transduction, and epigenetic mechanisms of gene regulation.

These research programs are supported by a number of agencies including the National Institutes of Health and the American Cancer Society. The division also provides a vibrant and intellectually stimulating training environment for graduate and medical students, physician residents in radiation oncology, postdoctoral fellows, and visiting scientists from around the world. The Division of Cancer Biology represents an important component of the Atlanta area cancer research community and Emory's Winship Cancer Institute.

**Division of Medical Physics**

The mission of the Division of Medical Physics is to improve the efficacy of radiation therapy and well-being of our patients through

- High-quality clinical service;
- Clinical investigation and implementation of improved treatment planning and delivery technologies; and
- Through basic and applied research programs intended to improve the efficiency and efficacy of radiation therapy.
The Division of Medical Physics is focused on clinical service, teaching and research. One of the main areas for Medical Physics is clinical service which includes the delivery of high-quality clinical treatments. IMRT was implemented in 1998 with ~50% of our external beam patients receiving IMRT treatments. In 2004, we initiated our image-guided radiation therapy (IGRT) program using Varian Medical Systems’ On-Board Imaging technology. In addition to clinical service, teaching is a priority with the joint Medical Physics program with Nuclear Engineering at GT as well as medical resident teaching. The research theme of DMP centers on techniques for adaptive and image-guided radiation therapy, automated treatment planning, dose computation methods, and quality assurance projects.

Over the past 15 years, our department has transformed itself by being an early adopter of new technology which included CT simulation, IMRT and IGRT. Using a centralized R&V system (Varian’s ARIA), we are able to perform treatment planning on any patient located at the other clinical sites. This allows us to assist other sites with treatment planning.

Division of Medical Physics participates in teaching of both graduate students in engineering as well as the medical residents within our department. In 2004, Emory Radiation Oncology cooperated with Georgia Tech’s Nuclear and Radiological Engineering (NRE) Program in developing a Master of Science in Medical Physics (MSMP) program. We also assist the Residency Program Director for the physic’s curriculum for the residents. We present medical physics lectures to radiation oncology residents throughout the year. These lectures are provided for 1.5 hours on a weekly basis.

The major research effort focuses on modeling and computational methodologies for medical imaging, cancer treatment planning and dose computation methods. Our faculty members are engaged in a number of projects that reach beyond the department with close interaction with GT as well as other clinical departments. We have received foundation and industrial funding for some of the projects. The research performed by Division of Medical Physics can be broken into two broad areas of software and experimental/machine projects. The following research areas are being pursued by our division:

1. Molecular Imaging & Image Registration
2. Image-Guided Radiation Therapy & Adaptive Radiation Therapy
3. Treatment Planning Optimization
4. Radiation Measurements & Dose Computation Methods
5. Treatment Process Efficiencies

The Division of Medical Physics implements and maintains the networking and computational infrastructure associated with the department. We have implemented computer-controlled technology for treatment simulation, planning and delivery. Over the past 15 years, we have built a robust wide-area network (WAN) to connect our four clinical sites: Main Campus, EUHM, Grady and VA-Atlanta.

The Radiation Oncology Residency Program was reestablished during the 1993-1994 school year at the Emory University School of Medicine. Positions are filled through the National
Resident Matching Program. Applicants are accepted at the PGY-1 level and receive their first year of training with the Department of Medicine. The program consists of a one-year internship in internal medicine followed by a four-year residency in radiation oncology. Twenty residents have completed their training in the department since the program was reestablished. Of those residents, 100% have passed their board examinations and 100% have found employment, primarily in the Southeast.

The program utilizes all of the resources of the Emory University System of Healthcare. This system includes the facilities and patient bases of Emory University Hospital, The Emory Clinic, Children's Healthcare of Atlanta, Grady Memorial Hospital, Emory University Hospital Midtown and the Veterans Affairs Medical Center.

For their clinical rotations in radiation oncology, residents are assigned to one of the facilities on a rotating basis. Most clinical rotations are three months in duration. The resident is expected to learn the presentation, evaluation, staging, radiation therapy techniques, relevant literature, and clinical management of each patient encountered on the rotation. Progressive and increasing responsibilities are delegated to residents commensurate with their knowledge and experience. Clinical research protocols are available through our affiliation with RTOG, GOG, ECOG, NSABP, POG and Brain Tumor Study Group. Residents also are encouraged to enroll patients on institutional protocols.

The requirements for successful completion of the residency program include preparation of at least one manuscript suitable for publication. Usually during the PGY-3 or -4 year, residents have a six-month research rotation in clinical radiation oncology, radiation biology, radiation physics, or some combination of these. Residents may elect rotations in other oncologic subspecialties including surgical oncology, medical oncology, pediatric medical oncology and pathology.

Presently there are twenty full-time faculty members in the Department of Radiation Oncology, comprising twelve radiation oncologists in the Clinical Division, four physicists in the Division of Medical Physics, and four biologists in the Division of Cancer Biology.

Program Structure

The residents' educational experience comprises four institutions affiliated with Emory Healthcare. These are:

- Emory Clinic/Emory University Hospital/Children's Healthcare of Atlanta
- Grady Memorial Hospital Edward Loughlin Radiation Oncology Center
- Emory University Hospital Midtown
- Atlanta Veterans Affairs Medical Center

Each of these institutions provides the residents with a unique educational experience. The Emory Clinic serves as the base for the residency program. The facility at Emory gives the residents a unique exposure to neuro-oncology and pediatric radiation oncology with emphasis in stereotactic radiotherapy for central nervous system tumors. The residents also see a large number of patients with head and neck, breast, hematologic, genitourinary and gastrointestinal
malignancies. Residents will gain experience in IMRT, all aspects of stereotactic radiotherapy planning, PET-CT fusion, and prostate brachytherapy. There is also the opportunity to see plaque brachytherapy for ocular melanoma. This facility has a GE AdvantageSim simulator, which allows great precision in setup and planning of radiation treatment. There is also a Varian Acuity system for setup verification. The four Varian linear accelerators all utilize multileaf collimators. One of these linear accelerators is a new Clinac 23EX-based Trilogy system and another Clinac 23EX has on-board imaging and respiratory gating capabilities. The other two linear accelerators are a Clinac 23EX and a Clinac 600C. Stereotactic radiotherapy is performed with the BrainLAB system. Residents also may use the GliaSite for CNS brachytherapy. Novoste and Guidant systems are utilized for intravascular brachytherapy.

The Emory Clinic at Emory University Hospital Midtown provides the residents with experience in treating malignancies of the breast, lung, and genitourinary system, as well as soft tissue sarcomas. The resident also will gain experience in high-dose rate intracavitary brachytherapy for lung and gynecological tumors, as well as low-dose rate interstitial prostate and low-dose rate intracavitary cervical implants. This facility has a Varian Acuity simulator, one Varian linear accelerator with multileaf collimators, and a high dose-rate remote afterloading unit.

The Grady Memorial Hospital, Edward Loughlin Radiation Oncology Center sees patients with a wide range of head and neck, lung, breast, gynecologic and gastrointestinal tumors. Unfortunately patients often have advanced stages of disease, which offer a unique challenge in treatment planning and delivery. Residents also gain experience in low- and high-dose rate brachytherapy for gynecologic malignancies. This facility has a linear accelerators, a high dose-rate remote afterloading unit, and a planning CT scan.

The Atlanta Veterans Affairs Hospital provides the residents with experience in treating head and neck, lung and genitourinary malignancies. The facility has two Varian linear accelerators with multileaf collimators and a treatment planning CT scan.
2. Faculty

Detailed information about the Clinical, Physics, and Biology Faculty can be found under the “Faculty&Staff” tab at the Department Website: http://www.emoryradiationoncology.org

**Clinical**
Arif Ali, M.D.
Jonathan Beitler, M.D., M.B.A., F.A.C.R.
Ian Crocker, M.D., F.A.C.R.
**Walter Curran, M.D.**
Scott Edelman, M.D.
Natia Esiashvili, M.D.
**Karen Godette, M.D.**
Bruce Hershatter, M.D.
Kristin Higgins, M.D.
**Ashesh B. Jani, M.D., M.S.E.E.**
Shannon Kahn, M.D.
**Mohammad Khan, M.D., Ph.D.**
Jerome Landry, M.D., M.B.A.
Prethesh Patel, M.D.
Peter Rossi, M.D.
Joseph Shelton, M.D.
**Hui-Kuo Shu, M.D., Ph.D.**
Mylin Torres, M.D.
Jeffrey Vahnstein, M.D.
David Yu, M.D.

**Physics**
Anees Dhabhan, Ph.D.
Eric S. Elder, Ph.D.
Tian Liu, Ph.D.
Justin Roper, Ph.D.
Eduard Schreibmann, Ph.D.

**Biology**
Xingming Deng, M.D., Ph.D.
Paul W. Doetsch, Ph.D.
William Dynan, Ph.D.
Yoke Wah Kow, Ph.D.
Shuyi Li, Ph.D.
Michael Rossi, Ph.D.
Harold Saavedra, Ph.D.
**Hui-Kuo Shu, M.D., Ph.D.**
Paula M. Vertino, Ph.D.
Huichen Wang, Ph.D.
Ya Wang, Ph.D.
David Yu, M.D., Ph.D.

Core Faculty are in boldface above.
*Denotes member of the Clinical Competence Committee (see section 3.2).
The faculty of the CCC plus the Chief Resident comprise the Program Education Committee (see section 3.3).
Both committees meet regularly to discuss residency policies and issues, including review of the Residency Manual.
3. Program Director and Committee (CCC and PEC) Responsibilities

3.1 - Program Director

The Residency Program director is Ashesh B. Jani, M.D. He operates in accordance with the guidelines for program director responsibilities as outlined in section IIA of ACGME’s Program Requirements for Graduate Medical Education in Radiation Oncology (bolded items below are common program requirements, non-bolded are radiation-oncology specific):

II.A. Program Director

II.A.1. There must be a single program director with authority and accountability for the operation of the program. The sponsoring institution’s GMEC must approve a change in program director. (Core)

II.A.1.a) The program director must submit this change to the ACGME via the ADS. (Core)

II.A.1.b) The program director should be a full time faculty member at the primary clinical site. (Detail)

II.A.2. The program director should continue in his or her position for a length of time adequate to maintain continuity of leadership and program stability. (Detail)

II.A.2.a) The program director should have a term of at least three years. (Detail)

II.A.3. Qualifications of the program director must include:

II.A.3.a) requisite specialty expertise and documented educational and administrative experience acceptable to the Review Committee; (Core)

II.A.3.b) current certification in the specialty by the American Board of Radiology, or specialty qualifications that are acceptable to the Review Committee; and, (Core)

II.A.3.b)(1) The program director must actively participate in Maintenance of Certification in radiation oncology through the American Board of Radiology. (Core)

II.A.3.c) current medical licensure and appropriate medical staff appointment. (Core)

II.A.4. The program director must administer and maintain an educational environment conducive to educating the residents in each of the ACGME competency areas. (Core)

The program director must:

II.A.4.a) oversee and ensure the quality of didactic and clinical education in all sites that participate in the program; (Core)

II.A.4.b) approve a local director at each participating site who is accountable for resident education; (Core)

II.A.4.c) approve the selection of program faculty as appropriate; (Core)

II.A.4.d) evaluate program faculty; (Core)
II.A.4.e) approve the continued participation of program faculty based on evaluation; (Core)

II.A.4.f) monitor resident supervision at all participating sites; (Core)

II.A.4.g) prepare and submit all information required and requested by the ACGME. (Core)

II.A.4.g).(1) This includes but is not limited to the program application forms and annual program resident updates to the ADS, and ensure that the information submitted is accurate and complete. (Core)

II.A.4.h) ensure compliance with grievance and due process procedures as set forth in the Institutional Requirements and implemented by the sponsoring institution; (Detail)

II.A.4.i) provide verification of residency education for all residents, including those who leave the program prior to completion; (Detail)

II.A.4.j) implement policies and procedures consistent with the institutional and program requirements for resident duty hours and the working environment, including moonlighting, (Core) and, to that end, must:

II.A.4.j).(1) distribute these policies and procedures to the residents and faculty; (Detail)

II.A.4.j).(2) monitor resident duty hours, according to sponsoring institutional policies, with a frequency sufficient to ensure compliance with ACGME requirements; (Core)

II.A.4.j).(3) adjust schedules as necessary to mitigate excessive service demands and/or fatigue; and, (Detail)

II.A.4.j).(4) if applicable, monitor the demands of at-home call and adjust schedules as necessary to mitigate excessive service demands and/or fatigue. (Detail)

II.A.4.k) monitor the need for and ensure the provision of back up support systems when patient care responsibilities are unusually difficult or prolonged; (Detail)

II.A.4.l) comply with the sponsoring institution’s written policies and procedures, including those specified in the Institutional Requirements, for selection, evaluation and promotion of residents, disciplinary action, and supervision of residents; (Detail)

II.A.4.m) be familiar with and comply with ACGME and Review Committee policies and procedures as outlined in the ACGME Manual of Policies and Procedures; (Detail)

II.A.4.n) obtain review and approval of the sponsoring institution’s GMEC/DIO before submitting information or requests to the ACGME, including:

II.A.4.n).(1) all applications for ACGME accreditation of new programs; (Detail)

II.A.4.n).(2) changes in resident complement; (Detail)

II.A.4.n).(3) major changes in program structure or length of training; (Detail)

II.A.4.n).(4) progress reports requested by the Review Committee; (Detail)

II.A.4.n).(5) responses to all proposed adverse actions; (Detail)

II.A.4.n).(6) requests for increases or any change to resident duty hours; (Detail)

II.A.4.n).(7) voluntary withdrawals of ACGME-accredited programs; (Detail)
II.A.4.n).(8) requests for appeal of an adverse action; (Detail)

II.A.4.n).(9) appeal presentations to a Board of Appeal or the ACGME; and, (Detail)

II.A.4.n).(10) proposals to ACGME for approval of innovative educational approaches. (Detail)

II.A.4.o) obtain DIO review and co-signature on all program application forms, as well as any correspondence or document submitted to the ACGME that addresses: (Detail)

II.A.4.o).(1) program citations, and/or, (Detail)

II.A.4.o).(2) request for changes in the program that would have significant impact, including financial, on the program or institution. (Detail)

II.A.4.p) ensure that each resident keeps a detailed, well-organized, and accurate electronic log of those procedures noted in Program Requirement IV.A.6. (Core)

II.A.4.p).(1) The log should include patients simulated, procedures performed, and modalities used. (Detail)

II.A.4.q) review the logs with all residents at least semiannually to ensure accuracy and to verify that the case distribution meets the standards specified; and, (Detail)

II.A.4.q).(1) The program director must provide documentation of these discussions for the resident’s record maintained by the program; and, (Detail)

II.A.4.r) submit the cumulative experience of graduating residents to the Review Committee annually in accordance with the format and the due date specified by the Review Committee. (Core)

3.2 – Clinical Competence Committee (CCC)

The program director has appointed the Clinical Competence Committee, which currently has the following members:

Walter Curran, M.D.
Anees Dhabbaan, Ph.D.
Karen Godette, M.D.
Ashesh B. Jani, M.D., M.S.E.E.
Mohammad Khan, M.D., Ph.D.
Hui-Kuo Shu, M.D., Ph.D.

The Responsibilities of the CCC are to:

a. Meet at least semi-annually to assist the program director in evaluating the full range of activities that reflect resident performance in the 6 core competencies

Each semiannual review will include review of all available feedback from the prior period, including but not limited to:

Attending evaluations (global assessments) from clinical rotations
Multisource (Nursing and therapist) evaluations
b. Report Milestone evaluations for each resident semi-annually to ACGME

c. Advise the PD regarding resident progress, including promotion, remediation, and dismissal

3.3 – Program Education Committee (PEC)

The program director has appointed the Program Education Committee (PEC), which currently consists of the Clinical Competence Committee (CCC) (in section 3.2 above) plus the chief resident.

The responsibilities of the PEC are to:

a. Actively participate in planning, developing, implementing, and evaluating educational activities of the program

b. Review and make recommendations for revision of competency-based curriculum goals and objectives

c. Address areas of non-compliance with ACGME standards

d. Meet at least once a year (annually) to evaluate the full range of activities related to resident training with focus on improving training in the 6 core competencies, and in this meeting to submit/render a written Annual Program Evaluation (APE). The APE will document formal, systematic review and evaluation by the PEC [and typically peer-selected resident in each PGY-year, and additional faculty as appropriate]:

- curriculum goals and objectives
- evaluation of the program by faculty, residents, and others
- resident performance
- faculty development
- graduate performance, including performance on the ABR certification examination
- program quality, and
  - Faculty confidential evaluations of the program (including Annual ACGME Faculty survey)
  - Resident confidential evaluations of the program (including Annual ACGME Resident survey)
- progress on previous year’s action plans
4. Competencies

A. General:

Our residency program requires our residents to obtain competencies in the 6 areas below to the level expected of a new practitioner. Toward this end, we define the specific knowledge, skills, and attitudes required and provide educational experiences as needed in order for our residents to demonstrate:

a. **Patient Care** that is compassionate, appropriate, and effective for the treatment of health problems and the promotion of health [Gather data; order diagnostic tests; interpret data; make decisions; perform procedures; manage patient therapies; work with others to provide patient-focused care.]

b. **Medical Knowledge** about established and evolving biomedical, clinical, and cognate (e.g. epidemiological and social-behavioral) sciences and the application of this knowledge to patient care [Fund of knowledge; active use of knowledge to solve medical problems.]

c. **Practice-Based Learning and Improvement** that involves investigation and evaluation of their own patient care, appraisal and assimilation of scientific evidence, and improvements in patient care [Analyze practice performance and carry out needed improvements; locate and apply scientific evidence to the care of patients; critically appraise the scientific literature; use the computer to support learning and patient care; facilitate the learning of other health care professionals.]

d. **Interpersonal and Communication Skills** that result in effective information exchange and teaming with patients, their families, and other health professionals. [Develop a therapeutic relationship with patients and their families; use verbal and non-verbal skills to communicate effectively with patients and their families; work effectively as a team member or leader.]

e. **Professionalism**, as manifested through a commitment to carrying out professional responsibilities, adherence to ethical principles, and sensitivity to a diverse patient population. [Demonstrate integrity and honesty; accept responsibility; act in the best interest of the patient; demonstrate sensitivity to patients' ethnicity, age, and disabilities.] and

f. **Systems-Based Practice**, as manifested by actions that demonstrate an awareness of and responsiveness to the larger context and system of health care and the ability to effectively call on system resources to provide care that is of optimal value. [Demonstrate awareness of interdependencies in the health care system that affect quality of care; provide cost-effective care; advocate for quality patient care; work with hospital management and interdisciplinary teams to improve patient care].
### B. Teaching and Assessment Methods

<table>
<thead>
<tr>
<th>Core Competencies</th>
<th>Teaching methods that our program uses to teach core competencies</th>
</tr>
</thead>
<tbody>
<tr>
<td>Patient Care</td>
<td>Clinical Experiences</td>
</tr>
<tr>
<td></td>
<td>Clinical Teaching</td>
</tr>
<tr>
<td>Medical Knowledge</td>
<td>Clinical Teaching</td>
</tr>
<tr>
<td></td>
<td>Didactics</td>
</tr>
<tr>
<td></td>
<td>Clinical Experiences</td>
</tr>
<tr>
<td>Interpersonal &amp; Communication Skills</td>
<td>Clinical Experiences</td>
</tr>
<tr>
<td></td>
<td>Didactics</td>
</tr>
<tr>
<td>Professionalism</td>
<td>Clinical Experiences</td>
</tr>
<tr>
<td></td>
<td>Clinical Teaching</td>
</tr>
<tr>
<td>Practice Based Learning &amp; Improvement</td>
<td>Clinical Experiences</td>
</tr>
<tr>
<td></td>
<td>Clinical Teaching</td>
</tr>
<tr>
<td></td>
<td>Individual Projects</td>
</tr>
<tr>
<td>Systems Based Practice</td>
<td>Clinical Experiences</td>
</tr>
<tr>
<td></td>
<td>Multi-disciplinary Conference</td>
</tr>
</tbody>
</table>
Methods of evaluation used for assessing resident competence in each of the six required ACGME competencies:

<table>
<thead>
<tr>
<th>Competency</th>
<th>Assessment Method</th>
<th>Evaluator(s)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Interpersonal &amp; Communication Skills</td>
<td>Global assessment</td>
<td>Faculty Supervisor</td>
</tr>
<tr>
<td>Interpersonal &amp; Communication Skills</td>
<td>Multisource assessment</td>
<td>Nurse Other Self</td>
</tr>
<tr>
<td>Medical Knowledge</td>
<td>Formal oral examination</td>
<td>Evaluation Committee Faculty Supervisor</td>
</tr>
<tr>
<td>Medical Knowledge</td>
<td>Global assessment</td>
<td>Faculty Supervisor</td>
</tr>
<tr>
<td>Medical Knowledge</td>
<td>In-training examination</td>
<td>Program Director</td>
</tr>
<tr>
<td>Patient Care</td>
<td>Direct observation</td>
<td>Faculty Supervisor</td>
</tr>
<tr>
<td>Patient Care</td>
<td>Global assessment</td>
<td>Faculty Supervisor</td>
</tr>
<tr>
<td>Patient Care</td>
<td>Review of case or procedure log</td>
<td>Program Director</td>
</tr>
<tr>
<td>Practice-based Learning &amp; Improvement</td>
<td>Global assessment</td>
<td>Faculty Supervisor</td>
</tr>
<tr>
<td>Practice-based Learning &amp; Improvement</td>
<td>Multisource assessment</td>
<td>Nurse Other Self</td>
</tr>
<tr>
<td>Practice-based Learning &amp; Improvement</td>
<td>Other</td>
<td>Evaluation Committee Faculty Supervisor</td>
</tr>
<tr>
<td>Practice-based Learning &amp; Improvement</td>
<td>Structured case discussions</td>
<td>Evaluation Committee Program Director</td>
</tr>
<tr>
<td>Professionalism</td>
<td>Global assessment</td>
<td>Faculty Supervisor</td>
</tr>
<tr>
<td>Professionalism</td>
<td>Multisource assessment</td>
<td>Nurse Other Self</td>
</tr>
<tr>
<td>Professionalism</td>
<td>Other</td>
<td>Evaluation Committee Program Director</td>
</tr>
<tr>
<td>Systems-based Practice</td>
<td>Global assessment</td>
<td>Faculty Supervisor</td>
</tr>
<tr>
<td>Systems-based Practice</td>
<td>Multisource assessment</td>
<td>Nurse Other Self</td>
</tr>
</tbody>
</table>
Following are outcomes measures currently used by our program:

1. Resident

   End-of-Rotation evaluations
     (Global Assessment, Focused Observation, and Multisource assessment)
   Mock Oral Examinations
   Written Examinations
     In-Training Examinations
     Biology (Rabex and Departmental) Examinations
     Physics (Raphex and Departmental) Examinations
   Case Logs
   Conference Logs
   Resident Project Reports
     Resident Research Day
     Progress reports during Research Rotation(s)

2. Faculty

   Faculty Evaluations by Residents
   Faculty Evaluations by Chairman/Program Director

3. Program Evaluations

   By Resident (Year-End, Program-End)
   By Faculty
   By Alumni
### PATIENT CARE

<table>
<thead>
<tr>
<th>COMPETENCY DEFINITION</th>
<th>PRACTICE PERFORMANCE MEASUREMENTS</th>
</tr>
</thead>
</table>
| Provide patient care through safe, efficient, appropriately utilized, quality-controlled radiation therapy and effectively communicate with the referring physician and/or other appropriate individuals in a timely manner. | 1. Global faculty evaluation (to include evaluation of knowledge about safety issues such as radiation dose, correct-patient exam-site verification, use of standard abbreviations)  
2. Case/procedure logs  
3. Direct observation of select procedures ([OSCE - Objective Standardized Clinical Examination], simulation, treatment planning, and/or brachytherapy) and other critical processes such as obtaining informed consent  
4. 360 degree evaluations |

### MEDICAL KNOWLEDGE

<table>
<thead>
<tr>
<th>COMPETENCY DEFINITION</th>
<th>PRACTICE PERFORMANCE MEASUREMENTS</th>
</tr>
</thead>
</table>
| Engage in continuous learning using up to date evidence and applying appropriate state of the art radiation therapy techniques to meet the needs of patients, referring physicians and the health care system. | 1. Global faculty evaluation  
2. Yearly objective test (e.g., mock oral boards, ACR in-service examination, ABR written examination)  
3. Resident learning portfolio (including documentation of conferences attended, courses attended, self-assessment modules completed, etc.)  
4. Journal club to evaluate skills in accessing, interpreting and applying best evidence in the literature to patient care |
<table>
<thead>
<tr>
<th>PRACTICE BASED LEARNING AND IMPROVEMENT</th>
</tr>
</thead>
<tbody>
<tr>
<td>COMPETENCY DEFINITION</td>
</tr>
<tr>
<td>Participation in the evaluation of one's personal practice utilizing scientific evidence, practice guidelines and standards as metrics, and self-assessment programs in order to optimize patient care through lifelong learning.</td>
</tr>
<tr>
<td>PRACTICE PERFORMANCE MEASUREMENTS</td>
</tr>
<tr>
<td>1. Global faculty evaluation</td>
</tr>
<tr>
<td>2. Resident learning portfolio (to include utilization of self assessment modules)</td>
</tr>
<tr>
<td>3. Documentation of participation in personal and/or departmental QI/QA (e.g., M&amp;M conferences) and regulatory activities</td>
</tr>
<tr>
<td>4. Chart Rounds</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>INTERPERSONAL AND COMMUNICATION SKILLS</th>
</tr>
</thead>
<tbody>
<tr>
<td>COMPETENCY DEFINITION</td>
</tr>
<tr>
<td>Communicate effectively with patients, colleagues, referring physicians and other members of the health care team concerning informed consent, safety issues, and the indications for and the benefits, risks, and side effects of radiation, as well as the integration with other treatment modalities and the proper work-up and follow-up of patients. Communicate effectively with all members of the health care team regarding specific patient management issues.</td>
</tr>
<tr>
<td>PRACTICE PERFORMANCE MEASUREMENTS</td>
</tr>
<tr>
<td>1. Global faculty evaluation</td>
</tr>
<tr>
<td>2. 360 degree evaluations</td>
</tr>
<tr>
<td>3. Evaluation of quality of reports</td>
</tr>
<tr>
<td>4. OSCE or direct observation of communication issues (e.g., informed consent, speaking with patients and colleagues about adverse events or outcomes of radiation therapy)</td>
</tr>
<tr>
<td>5. Patient surveys</td>
</tr>
</tbody>
</table>
### PROFESSIONALISM

<table>
<thead>
<tr>
<th>COMPETENCY DEFINITION</th>
<th>PRACTICE PERFORMANCE MEASUREMENTS</th>
</tr>
</thead>
</table>
| Commit to high standards of professional conduct, demonstrating altruism, compassion, honesty and integrity. Follow principles of ethics and confidentiality and consider religious, ethnic, gender, educational and other differences in interacting with patients and other members of the health care team | 1. Global faculty evaluation  
2. 360 degree evaluations  
3. Verify status of medical license, if appropriate  
4. Documentation of compliance with institutional and departmental policies (e.g., conference attendance, HIPPA, JCAHO, dress code) and ethical standards  
5. Patient surveys |

### SYSTEM-BASED PRACTICE

<table>
<thead>
<tr>
<th>COMPETENCY DEFINITION</th>
<th>PRACTICE PERFORMANCE MEASUREMENTS</th>
</tr>
</thead>
</table>
| Understand how the components of the local and national healthcare system function interdependently and how changes to improve the system involve group and individual efforts. Optimize coordination of patient care both within one’s own practice and within the healthcare system. Consult with other healthcare professionals, and educate healthcare consumers, regarding the most appropriate utilization of radiation oncology resources. | 1. Global faculty evaluation  
2. Resident learning portfolio (to include documentation of active participation in multi-disciplinary conferences and tumor boards)  
3. Documentation of resident participation in analysis of systems-based problems. (See Appendix) |
1. Helping patients coordinate complexities of healthcare across multiple specialties
2. Proper referral of patients to other specialties
3. Making other resources available to patients
4. Participation in departmental QA – regular systematic reviews of departmental performance and quality measures
5. Knowledge of departmental systems and procedures in delivery of patient care and radiation safety
6. Departmental morbidity and mortality conferences
7. Understanding of financial insurance models
8. Analysis of a patient’s bill
9. Awareness of billing and reimbursement for optimal value including cost-awareness and risk-benefit of other treatment options
10. Financial resources for uninsured patients
11. Knowledge of disease prevention

Posted: October 18, 2007
5. Core Curriculum

Training at the PGY-1 level in Internal Medicine at Emory University must be completed prior to entering training in Radiation Oncology. The Residency Program currently consists of 12 residents distributed among the PG-2 through PG-5 years.

There are 2 major components to the curriculum: the Rotation Component and the Didactic Component:

A. Rotation Component

The Rotation Component of the training program is organized according to the structure of the Department of Radiation Oncology.

Patients are divided among primary clinical services denoted Emory1, Emory2, Emory3, Emory4, Emory5, EUHM (Emory University Hospital Midtown) [formerly Crawford-Long Hospital], Grady, and the VA.

Below is the current Rotation / Disease Site / Service Attending breakdown:

<table>
<thead>
<tr>
<th>Year 1</th>
<th>Block</th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
</tr>
</thead>
<tbody>
<tr>
<td>Institution</td>
<td>Site 1</td>
<td>Site 4</td>
<td>Site 1</td>
<td>Site 2</td>
<td></td>
</tr>
<tr>
<td>Rotation Name</td>
<td>Emory 1</td>
<td>Grady</td>
<td>Emory 2</td>
<td>Emory Midtown</td>
<td></td>
</tr>
<tr>
<td>% Outpatient</td>
<td>100</td>
<td>100</td>
<td>100</td>
<td>100</td>
<td></td>
</tr>
<tr>
<td>% Research</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td></td>
</tr>
</tbody>
</table>

*Note: Vacation time is requested at least one month in advance and may be taken in any rotation.

<table>
<thead>
<tr>
<th>Year 2</th>
<th>Block</th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
</tr>
</thead>
<tbody>
<tr>
<td>Institution</td>
<td>Site 1</td>
<td>Site 3</td>
<td>Site 1</td>
<td>Site 1</td>
<td></td>
</tr>
<tr>
<td>Rotation Name</td>
<td>Elective/clinic</td>
<td>VA</td>
<td>Emory 5</td>
<td>Emory 3</td>
<td></td>
</tr>
<tr>
<td>% Outpatient</td>
<td>100</td>
<td>100</td>
<td>100</td>
<td>100</td>
<td></td>
</tr>
<tr>
<td>% Research</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td></td>
</tr>
</tbody>
</table>

*Note: Vacation time is requested at least one month in advance and may be taken in any rotation.

<table>
<thead>
<tr>
<th>Year 3</th>
<th>Block</th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
</tr>
</thead>
<tbody>
<tr>
<td>Institution</td>
<td>Site 1</td>
<td>Site 1</td>
<td>Site 1</td>
<td>Site 2</td>
<td></td>
</tr>
<tr>
<td>Rotation Name</td>
<td>Research/Lab</td>
<td>Emory 1</td>
<td>Research/Lab</td>
<td>Emory Midtown</td>
<td></td>
</tr>
<tr>
<td>% Outpatient</td>
<td>0</td>
<td>100</td>
<td>0</td>
<td>100</td>
<td></td>
</tr>
<tr>
<td>% Research</td>
<td>100</td>
<td>0</td>
<td>100</td>
<td>0</td>
<td></td>
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</tbody>
</table>

*Note: Vacation time is requested at least one month in advance and may be taken in any rotation.
<table>
<thead>
<tr>
<th>Block</th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
</tr>
</thead>
<tbody>
<tr>
<td>Institution</td>
<td>Site 4</td>
<td>Site 1</td>
<td>Site 1</td>
<td>Site 3</td>
</tr>
<tr>
<td>Rotation Name</td>
<td>Grady</td>
<td>Emory4</td>
<td>Elective/clinic</td>
<td>VA</td>
</tr>
<tr>
<td>% Outpatient</td>
<td>100</td>
<td>100</td>
<td>100</td>
<td>100</td>
</tr>
<tr>
<td>% Research</td>
<td>0</td>
<td>0</td>
<td>100</td>
<td>100</td>
</tr>
</tbody>
</table>

*Note: Vacation time is requested at least one month in advance and may be taken in any rotation.

Site 1 - Emory University Hospital
Site 2 - Emory University Hospital Midtown
Site 3 - VA Medical Center
Site 4 - Grady Memorial Hospital

Emory1 - H&N
Emory2 – Breast/Lung
Emory3 -Peds/Lymphoma
Emory4 - GU/GI/GYN/Skin
Emory5 - CNS

Each service has a clinical secretary, an assigned nursing team and dedicated physics/dosimetry support. Some services have mid-level clinical support as well (Nurse Practitioner or Physician Assistant).

Residents are expected to participate in all clinical activities on the service (listed in order of importance on educational impact): procedures, new consultations, simulations, contouring, treatment planning, status checks, follow-ups, multi-disciplinary conferences, service meetings, and port-film review.

Residents are expected to enter all cases (simulations, intracavitary procedures, interstitial procedures, unsealed source procedures) in their case logs (both the ACGME WebAds log and their unsealed sources log) which are reviewed semi-annually.

Residents in PGY 2-5 complete two (or, in some cases, three) rotations on each of the primary clinical services. Thus, they will gain broad exposure to the entire spectrum of oncology patients and their treatment. This organization has the strength of providing the resident with a limited number of cancer types toward which to devote his/her learning energies at any one time, and ensures individual attention from an attending physician who can provide a consistent, methodical educational experience.

If repeated (as most rotations are), typically one rotation is done in the PGY-2 or PGY-3 year and the second rotation is done in the PGY-4 or PGY-5 year. In rare circumstances a rotation is done three times. Depending on the PGY level and demonstrated level of competence, the resident is given progressively greater responsibility for patient management.

PGY 4&5 residents also oversee the educational experience of the more junior residents and assume an increased level of clinical responsibility under the guidance of the attending physicians, and oversee the functioning of an individual service when the primary attending physician is absent, under the guidance of a covering attending.
Lab (research) time (which can be in the areas of basic science, physics, or clinical research) is typically done in either 3-month blocks or as one extended 6-month block in the PGY-4 year. The Lab rotation is open only to residents who are in good standing in the program (i.e.- have acceptable performance in their clinical rotations, written examinations, mock oral examinations) and have a research proposal approved by the residency committee prior to the start of the lab rotation.

The goals and objectives on each rotation are as outlined in the Curriculum – Goals and Objectives – Rotation Component (section 8) of this manual. The Goals and objectives are outlined by disease site, competency, and year of training. For instance, a PGY-4 resident rotating on the Emory 3 rotation would be expected to perform at (and to be evaluated on) meeting the Goals and Objectives of the Head & Neck and Breast goals and objectives as listed for the second (PGY 4-5) rotation on this service.

The rotations at Emory are more disease-site specific. The rotations at the other integrated sites – Emory University Hospital Midtown (formerly Crawford-long Hospital [CLH]), VA Hospital, and Grady Hospital – are more general in nature. At these sites, the level of performance expected of the resident (and on which evaluations are based) relate to all of the Goals and Objectives for the appropriate level of training for all of the disease sites listed in section 8.

Certain disease sites are, however, emphasized more at certain hospitals:

Emory University Hospital Midtown:
- Sarcoma, Breast, CNS (Radiosurgery), Lung/Thoracic, and Genitourinary (LDR Brachytherapy) Malignancies

Grady Hospital:
- Genitourinary, Gynecology (HDR Brachytherapy), and Gastrointestinal Malignancies

Atlanta VA Medical Center:
- Head & Neck, Genitourinary, and Lung/Thoracic malignancies.

Attending responsibilities on each of the clinical rotations include:
- reviewing the goals and objectives that are specific to the rotation and to the year of training (and upon which evaluations will be based)
- conduct discussions with the resident on service regarding disease management
- provide interim feedback on resident’s performance, including areas requiring improvement and quality of dictations.
- conduct end-of-rotation review and evaluation of resident’s performance.

Electives can consist of 1-month rotations in medical physics/dosimetry, medical/pediatric oncology, diagnostic radiology, or other areas if approved beforehand by the residency committee. A portion of the medical physics/dosimetry may be done at Emory St. Joseph’s hospital in an observership capacity.
Typically one or two PGY 5 resident(s) is/are designated and serves as ‘chief resident(s)’; chief residents are selected by faculty vote. The chief resident(s) perform academic and administrative responsibilities, which include organization of the educational conference schedule and performance of other administrative matters.

An individual resident’s schedule can vary significantly from the sample schedule shown above depending on resident interest in a particular disease site, based on case log numbers, based on service needs, and based on participation in the Holman pathway.
B. Didactic Component

Below are the current didactics. Resident presence at all didactics is required unless otherwise noted:

Weekly

Chart Rounds
(Monday & Friday 7:15 AM – 8:30 AM)
Winship Cancer Institute (WCI) / Medical Oncology Grand Rounds
(Wednesday 7:30 AM – 8:30 AM)
Resident Clinical Didactic
(Friday 8:30 AM – 10:00 AM)
In-service Question Review
(Friday 9:30 AM – 10:00 AM), as allowed after Clinical Conference
Biology (optional for PGY-5’s who have passed Biology board exam)
(Friday 10:00 AM – 11:00 AM)
Physics (optional for PGY-5’s who have passed Physics board exam)
(Friday 11:00 AM – 12:00 AM)
Service-specific Multidisciplinary Conferences
(at least 4 per month during the clinical rotations are required)
Radiology noon-time lectures (during Research Rotation only)
(Mon-Fri, 12:00 PM – 1:00 PM)
Surgical Oncology Grand Rounds [selected weeks]
(Thursday 7:00 AM – 8:00 AM)

Biweekly

Attending Didactics
(Tuesday 8:00 AM – 9:00 AM)
Visiting/Guest Lectures
(Tuesday 8:00 AM – 9:00 AM)

Monthly

Chair Rounds
(Tuesday 7:00 AM – 8:00 AM)
Journal Club
(Monday 5:00 PM – 6:00 PM)
Morbidity and Mortality Conference
(Monday 7:30 AM – 8:30 AM)
GMEC meeting (required >50% annual attendance by resident GME representative)
(Wednesday 12:15 PM – 1:15 PM)
Grady Medical Ethics Grand Rounds [Optional, when rotating at Grady]
(Thursday 12:00 PM – 1:00 PM)

Quarterly/Semiannually
Visiting Professorships
(Schedule varies - typically ~3 hours in AM)
Program Director Individual Meeting
(Friday 9:30 AM – 10:00 AM)

Annual
Resident Research Day
(Schedule Varies – typically Tuesday 3:30 PM – 6:00 PM)
Winship Oncology Biostatistics Journal club (~6 monthly sessions)
(Thursday 8:00 AM – 9:00 AM)
Stress Management & Fatigue Awareness
(Thursday 7:30 AM – 8:30 AM)
Mock Oral exam
(Monday 3:00 PM – 6:00 PM)

During Internship year
Medical Ethics

Elective-specific conferences
Medical Oncology, Pediatric Oncology, Radiology, Pathology, or other
(Schedule varies)

Others [ad hoc]
Chief Resident Leadership Conference
Presentation Coach
Following is a typical schedule for the Didactic Component of the Curriculum:

Monday
7:15 AM – 8:30 AM: Chart Rounds (weekly)
7:45 AM – 8:30 AM: Morbidity & Mortality Conference (monthly)
5:00 PM – 6:00 PM: Journal Club (monthly)
3:00 PM – 6:00 PM: Mock Oral Exam (annually)

Tuesday
7:00 AM – 8:00 AM: Chair Rounds (monthly)
8:00 AM – 9:00 AM: Attending Didactic / Visiting Lecture
3:30 PM – 6:00 PM: Resident Research Day (annually)

Wednesday
7:30 AM – 8:30 AM: WCI Grand Rounds (weekly)
12:15 PM – 1:15 PM: GMEC meeting (once monthly by GME rep)

Thursday
7:00 AM – 8:00 AM: Surgical Oncology Grand Rounds (selected weeks)
8:00 AM – 9:00 AM: Biostatistics (~6 monthly sessions every year)

Friday:
7:00 AM – 8:30 AM: Chart Rounds (weekly)
8:30 AM – 10:00 AM: Resident Clinical Didactic (weekly)
9:30 AM – 10:00 AM: In-service Questions (weekly, time permitting)
9:30 AM – 10:00 AM: Program Director Meeting (semiannual)
10:00 AM – 11:00 AM: Biology Course (weekly)
11:00 AM – 12:00 AM: Physics Course (weekly)

Notes:
Above schedule does not include conferences with varying schedule, such as multidisciplinary conferences/tumor boards (which are rotation specific), visiting professorships (once quarterly), elective-specific (medical/pediatric oncology, diagnostic radiology, etc) conferences, or conferences (such as stress management) primarily done annually.
Didactic Component - Schedule

Following schedules are shown individually:

- Biology Course
- Biostatistics Course
- Journal Club
- Multidisciplinary Conferences/Tumor Boards
- Physics Course
- Resident Research Day
- Resident Seminar
### Biology Course

**2012-2013 Radiobiology Course Schedule**

11.00 am to 12.00 am, Fridays at Clinic A Conference Room  
Text Book: Radiobiology for the Radiologist, Seventh Edition; Hall and Giaccia

<table>
<thead>
<tr>
<th>Date</th>
<th>Chapter</th>
<th>Subject</th>
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<tbody>
<tr>
<td><strong>Fall 2012</strong></td>
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<tr>
<td>24-Aug</td>
<td>1</td>
<td>Physics &amp; Chemistry of Radiation Absorption</td>
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<tr>
<td></td>
<td>2</td>
<td>Molecular mechanism of DNA and Chromosome Damage and Repair</td>
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<tr>
<td>31-Aug</td>
<td>5</td>
<td>Fractionated Radiation and the Dose Rate Effect</td>
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<tr>
<td>7-Sep</td>
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<td>Labour Day Weekend</td>
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<tr>
<td>14-Sep</td>
<td>3</td>
<td>Cell Survival Curves</td>
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<tr>
<td>21-Sep</td>
<td>4</td>
<td>Radiosensitivity and Cell Age in the Mitotic Cycle</td>
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<tr>
<td>28-Sep</td>
<td>18</td>
<td>Cancer Biology I (+ literature review)</td>
</tr>
<tr>
<td>5-Oct</td>
<td>18</td>
<td>Cancer Biology II (+ literature review)</td>
</tr>
<tr>
<td>12-Oct</td>
<td>18</td>
<td>Cancer Biology III (+ literature review)</td>
</tr>
<tr>
<td>19-Oct</td>
<td>16(6th Ed)</td>
<td>Molecular Techniques in Radiobiology (updated + literature)</td>
</tr>
<tr>
<td>26-Oct</td>
<td></td>
<td>ASTRO</td>
</tr>
<tr>
<td>2-Nov</td>
<td></td>
<td>ASTRO</td>
</tr>
<tr>
<td>9-Nov</td>
<td>3</td>
<td>Linear energy Transfer and Relative Biological Effectiveness</td>
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<tr>
<td>16-Nov</td>
<td>14</td>
<td>Radiologic Terrorism</td>
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<tr>
<td>23-Nov</td>
<td></td>
<td>Thanksgiving</td>
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<tr>
<td>30-Nov</td>
<td>6</td>
<td>Oxygen Effect and Reoxygenation (+angiogenesis + literature)</td>
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<td></td>
<td>26</td>
<td>The Biology and Exploitation of Tumor hypoxia</td>
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<td>7-Dec</td>
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<td>makeup/review</td>
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<tr>
<td>14-Dec</td>
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<td>Exam #1</td>
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<tr>
<td><strong>Spring 2013</strong></td>
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<tr>
<td>21-Dec</td>
<td>8</td>
<td>Acute Radiation Syndrome</td>
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</tbody>
</table>
9 Radioprotectors (+ literature)

28-Dec Christmas

4-Jan New Year

11-Jan 10 Radiation Carcinogenesis

18-Jan 13 Radiation Cataractogenesis
23 (6th Ed) Predictive Assay

25-Jan 11 Hereditary Effects of Radiation
12 Effects of Radiation on the Embryo and Fetus

1-Feb 16 Doses and Risks in Diagnostic Radiology, Interventional Radiology and Cardiology, Nuclear Medicine

8-Feb 19 Dose-Response Relationships for Model Normal Tissues

15-Feb 20 Clinical Response of Normal Tissues

22-Feb Makeup/review

1-Mar 21 Model Tumor Systems
22 Cell, Tissue, and Tumor Kinetics

8-Mar 15 Molecular Imaging
26(6th Ed) Gene Therapy

15-Mar 23 Time, Dose, and Fractionation in Radiotherapy

22-Mar 27 Chemotherapeutic Agents from the Perspective of the Radiation Biologist (+ hormonal therapy)

29-Mar 28 Hyperthermia

5-Apr 24 Retreatment after Radiotherapy: The Possibilities and the Perils
25 Alternative Radiation Modalities

12-Apr Makeup/review

19-Apr Exam # 2

26-Apr

Competencies taught: Medical Knowledge.
<table>
<thead>
<tr>
<th>Date</th>
<th>Clinical Reviewer</th>
<th>Statistical Reviewer</th>
<th>Biostatistics and Bioinformatics Topic</th>
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<tbody>
<tr>
<td>02/28/2013</td>
<td>None</td>
<td>Jeanne Kowalski</td>
<td>Introduction: How to analyze an article for journal club</td>
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<tr>
<td>03/28/2013</td>
<td>Syed Zafar (Med Onc)</td>
<td>Jeffrey Switchenko</td>
<td>Descriptive Measures (e.g., p-values, confidence intervals)</td>
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<tr>
<td>04/25/2013</td>
<td>William Hall (Rad Onc)</td>
<td>Nelson Chen</td>
<td>Phase I trials</td>
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<tr>
<td>05/23/2013</td>
<td>Divya Tiwari Khoura- (Med Onc)</td>
<td>Jeanne Kowalski</td>
<td>Phase II trials</td>
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<td>06/27/2013</td>
<td>Bree Eaton (Rad Onc)</td>
<td>Mike Kutner</td>
<td>Phase III trials</td>
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<tr>
<td>07/25/2013</td>
<td>Elisavet Paplomata (Med/Rad Onc)</td>
<td>Yuan Liu</td>
<td>Retrospective Study Design and Analysis (e.g., case-control, nested case-control, propensity score)</td>
</tr>
</tbody>
</table>

**Faculty Co-Directors:**  
Dr. Jeanne Kowalski - biostatistics – (jeanne.kowalski@emory.edu)  
Dr. Ashesh Jani - radiation oncology – (abjani@emory.edu)  
Dr. Bassel El-Rayes - medical oncology – (bassel.el-rayes@emoryhealthcare.org)

**Coordinators:**  
Dr. Roshan Prabhu - radiation oncology chief resident – (rprabhu@emory.edu)  
Dr. Rathi Pillai (medical oncology chief fellow) – (rnpilla@emory.edu)  
Dr. Loretta Nastoupil (medical oncology chief fellow) – (loretta.nastoupil@emory.edu)

Competencies taught: Medical Knowledge.
<table>
<thead>
<tr>
<th>Speaker#</th>
<th>1</th>
<th>2</th>
<th>3</th>
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<tbody>
<tr>
<td>7/16/2012</td>
<td>David</td>
<td>Ed</td>
<td>Raj</td>
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<tr>
<td>8/20/2012</td>
<td>Bill</td>
<td>Shan</td>
<td>Andy</td>
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<tr>
<td>9/17/2012</td>
<td>Sheela</td>
<td>John</td>
<td>Shravan</td>
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<td>10/15/2012</td>
<td>Jane</td>
<td>Bree</td>
<td>KP</td>
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<td>11/12/2012</td>
<td>Trevor</td>
<td>Ronica</td>
<td>Shan</td>
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<td>Naresh</td>
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<tr>
<td>1/21/2013</td>
<td>Greg</td>
<td>John</td>
<td>Sheela</td>
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<td>2/18/2013</td>
<td>Jane</td>
<td>David</td>
<td>Bree</td>
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<td>3/18/2013</td>
<td>Ronica</td>
<td>Naresh</td>
<td>Trevor</td>
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<td>4/15/2013</td>
<td>KP</td>
<td>Shravan</td>
<td>Vorakarn</td>
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<td>5/20/2013</td>
<td>Andy</td>
<td>Naresh</td>
<td>Raj</td>
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<td>6/17/2013</td>
<td>Ronica</td>
<td>Trevor</td>
<td>KP</td>
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<td>Conference Name</td>
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<td>Location</td>
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<tr>
<td>Head &amp; Neck</td>
<td>Tuesday 6:30 AM</td>
<td>Bldg C R-5012</td>
<td>Weekly</td>
</tr>
<tr>
<td>Brain</td>
<td>Tuesday 1:00 PM</td>
<td>Bldg C R-3018</td>
<td>Weekly</td>
</tr>
<tr>
<td>Gastrointestinal</td>
<td>Tuesday 4:30 PM</td>
<td>Bldg C R-3018</td>
<td>Weekly</td>
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<tr>
<td>Thoracic/Esophageal</td>
<td>Tuesday 5:00 PM</td>
<td>Building A Rad/ Onc Conference Room</td>
<td>Weekly</td>
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<tr>
<td>Ocular</td>
<td>Wednesday 7:00 AM</td>
<td>Bldg B Calhoun Auditorium, Learning Resource Ctr Tunnel Level</td>
<td>3rd Wednesday</td>
</tr>
<tr>
<td>Skin Melanoma</td>
<td>Wednesday 4:00 PM</td>
<td>Bldg C R-3018</td>
<td>Weekly</td>
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<tr>
<td>Gynecology</td>
<td>Thursday 7:00 AM</td>
<td>Building A Rad/Onc Conference Room</td>
<td>Bi-Weekly 1st &amp; 3rd Thursday</td>
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<td>Genitourology</td>
<td>Thursday 7:00 AM</td>
<td>Bldg C R-5012</td>
<td>3rd Thursday</td>
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<td>Hematology</td>
<td>Thursday 11:45 AM</td>
<td>Bldg C R-3018</td>
<td>Weekly</td>
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<td>Breast</td>
<td>Thursday 5:00 PM</td>
<td>Bldg C R-3018</td>
<td>Weekly</td>
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<td>Thyroid</td>
<td>Friday</td>
<td>Bldg C</td>
<td>3rd</td>
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<tr>
<td>Time</td>
<td>Location</td>
<td>Day</td>
<td>Frequency</td>
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<td>7:30 AM</td>
<td>R-3018</td>
<td>Friday</td>
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<tr>
<td>Lymphoma</td>
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<td>Friday</td>
<td>Bi-Weekly 2nd &amp; 4th</td>
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<td>8:00 AM</td>
<td>Bldg C</td>
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Grady / Atlanta VA / EUHM / CHOA
CANCER CONFERENCE MEETING SCHEDULE

<table>
<thead>
<tr>
<th>Meeting</th>
<th>Day</th>
<th>Time</th>
<th>Location</th>
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<tbody>
<tr>
<td>Tumor Board</td>
<td>Monday</td>
<td>12:00 p.m.</td>
<td>VAMC</td>
</tr>
<tr>
<td>ENT</td>
<td>Monday (biweekly)</td>
<td>12:00 p.m.</td>
<td>Grady</td>
</tr>
<tr>
<td>Medical Oncology</td>
<td>Monday</td>
<td>1:00 p.m.</td>
<td>VAMC</td>
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<tr>
<td>Breast</td>
<td>Monday</td>
<td>4:00 p.m.</td>
<td>Grady</td>
</tr>
<tr>
<td>GYN</td>
<td>Monday (3rd)</td>
<td>5:00 p.m.</td>
<td>Grady</td>
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<tr>
<td>Pulmonary</td>
<td>Wednesday</td>
<td>4:00 p.m.</td>
<td>VAMC</td>
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<tr>
<td>Pediatric Tumor Board</td>
<td>Wednesday</td>
<td>4:30 p.m.</td>
<td>CHOA</td>
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<td>Pulmonary</td>
<td>Thursday (biweekly)</td>
<td>12:00 p.m.</td>
<td>Grady</td>
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<td>Megaconference</td>
<td>Thursday</td>
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<td>Tumor Board</td>
<td>Thursday</td>
<td>12:30 p.m.</td>
<td>EUHM</td>
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<tr>
<td>Sarcomas</td>
<td>Thursday (monthly)</td>
<td>5:00 p.m.</td>
<td>EUHM</td>
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<tr>
<td>Date</td>
<td>Textbook</td>
<td>Subject</td>
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<tr>
<td>31-Jul</td>
<td>Basic Math Unit Calculations</td>
<td>Eric Elder, PhD</td>
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<td>31-Aug</td>
<td>Labor Day Weekend</td>
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<tr>
<td>2-Sep</td>
<td>Khan 1</td>
<td>Structure of matter</td>
<td>Eric Elder, PhD</td>
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<tr>
<td>1-Sep</td>
<td>Khan 2</td>
<td>Nuclear Transformation</td>
<td>Eric Elder, PhD</td>
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<tr>
<td>2-Sep</td>
<td>Khan 3</td>
<td>Production of isotopes</td>
<td>Eric Elder, PhD</td>
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<tr>
<td>5-Oct</td>
<td>Khan 4</td>
<td>Radioactive generators</td>
<td>Eric Elder, PhD</td>
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<tr>
<td>12-Oct</td>
<td>Khan 5</td>
<td>Interactions of Ionizing Radiation</td>
<td>Eric Elder, PhD</td>
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<tr>
<td>19-Oct</td>
<td>Khan 5</td>
<td>Interactions of Ionizing Radiation</td>
<td>Eric Elder, PhD</td>
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<tr>
<td>26-Oct</td>
<td>Khan 5</td>
<td>ASTRO</td>
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<tr>
<td>1-Nov</td>
<td>Khan 6</td>
<td>ASTRO</td>
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<tr>
<td>8-Nov</td>
<td>Khan 7</td>
<td>Quality of Control beams</td>
<td>Aamer Ashrafi, PhD</td>
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<tr>
<td>16-Nov</td>
<td>Khan 8</td>
<td>Measurement of absorbed dose-1</td>
<td>Aamer Ashrafi, PhD</td>
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<tr>
<td>23-Nov</td>
<td>Thanksgiving</td>
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<tr>
<td>30-Nov</td>
<td>Khan 9</td>
<td>Measurement of absorbed dose-2</td>
<td>Aamer Ashrafi, PhD</td>
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<tr>
<td>7-Dec</td>
<td>TGD1</td>
<td>Radiation Measurement and Calibration-1</td>
<td>Aamer Ashrafi, PhD</td>
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<tr>
<td>14-Dec</td>
<td>Khan 7</td>
<td>Radiation Detection and Measurement (other domains)</td>
<td>Aamer Ashrafi, PhD</td>
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<tr>
<td>21-Dec</td>
<td>Khan 9</td>
<td>Dose Distribution and Source Analysis-1</td>
<td>Aamer Ashrafi, PhD</td>
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<tr>
<td>28-Dec</td>
<td>Khan 9</td>
<td>Christmas</td>
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<tr>
<td>4-Jan</td>
<td>Khan 7</td>
<td>New Year</td>
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<td>11-Jan</td>
<td>Khan 9</td>
<td>Exam 1 (Chapter: 1-3)</td>
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<td>18-Jan</td>
<td>Khan 10</td>
<td>Dose Distribution and Source Analysis-2</td>
<td>Aamer Ashrafi, PhD</td>
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<tr>
<td>25-Jan</td>
<td>Khan 13</td>
<td>Systems of Geometry Calculations</td>
<td>Aamer Ashrafi, PhD</td>
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<td>1-Feb</td>
<td>Khan 11</td>
<td>Treatment Planning-1</td>
<td>Tim Lin, PhD</td>
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<td>8-Feb</td>
<td>Khan 14</td>
<td>Electron Beam Therapy-1 (Beam Characterization and Treatment Planning)</td>
<td>Justin Rogers, PhD</td>
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<td>15-Feb</td>
<td>Khan 14</td>
<td>Electron Beam Therapy-2 (Beam Characterization and Treatment Planning)</td>
<td>Justin Rogers, PhD</td>
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<tr>
<td>4-Mar</td>
<td>Khan 15</td>
<td>Clinical Physics 1 (Radiation Sources)</td>
<td>Aamer Ashrafi, PhD, Viktor Atkinson, MS</td>
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<td>5-Mar</td>
<td>Khan 15</td>
<td>Clinical Physics 2 (dosimetry calculation and computer systems)</td>
<td>Aamer Ashrafi, PhD, Viktor Atkinson, MS</td>
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<td>15-Mar</td>
<td>Dickinson &amp; Orms 17</td>
<td>Radiation Physics</td>
<td>Ed Schenkman, PhD</td>
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<td>22-Mar</td>
<td>Khan 17</td>
<td>Quality Assurance</td>
<td>Arsalan Tabatabai, MS</td>
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<td>8-Apr</td>
<td>Dickinson &amp; Orms 17</td>
<td>Imaging in Radiation Therapy (Dose, PALS, and Data Management)</td>
<td>Tim Fox, PhD</td>
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<tr>
<td>15-Apr</td>
<td>Final Exam</td>
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**Final Exam**

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<th>Subject</th>
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<tbody>
<tr>
<td>17-Apr</td>
<td>Proton Beam Therapy</td>
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<tr>
<td>19-Apr</td>
<td>Iodine-125 Implant Application</td>
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<tr>
<td>26-Apr</td>
<td>Total Body Irradiation</td>
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<td>3-May</td>
<td>Dosimetry Algorithms</td>
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<td>10-May</td>
<td>Stereotherapeutic Radiosurgery</td>
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<td>17-May</td>
<td>Intensity Modulated Radiation Therapy</td>
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<td>24-May</td>
<td>Radiopharmaceuticals and Dosimetry</td>
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<tr>
<td>31-May</td>
<td>Image-Guided Radiation Therapy</td>
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<td>7-Jun</td>
<td>Proton Beam Therapy</td>
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Resident Research Day

Emory University School of Medicine, Department of Radiation Oncology
18th Annual Resident Research Day
Wednesday, October 10, 2012
Eighth Event in Honor of Dr. Zbigniew “Ziggy” Olkowski

1:30 p.m. Welcome and Introduction

1:35-1:45 p.m. Raj Rajpara, M.D. (PGY3) Project Mentor: Dr. Kristin Higgins
“Analyzing Locoregional Tumor Failure in Association with Pre-Treatment FDG PET Parameters and Radiation Dose Among Patients with Locally Advanced Non-Small Cell Lung Cancer (NSCLC)”

1:45-1:50 p.m. Questions & Answers

1:50-2:00 p.m. Sheela Hanasoge, MBBS, PhD (PGY3) Project Mentor: Dr. Jerome Landry
“Re-irradiation for Cancers of the Rectum and Anal Canal: The Emory University Experience”

2:00-2:05 p.m. Questions & Answers

2:05-2:15 p.m. Ed Marchan, M.D. (PGY4) Project Mentor: Dr. Ian Crocker
“Eleven Year Experience with Multileaf Collimation Radiosurgery for Cerebral AVMs”

2:15-2:20 p.m. Questions & Answers

2:20-2:30 p.m. Bill Hall, M.D. (PGY4) Project Mentor: Dr. Jerome Landry
“The Influence of Adjuvant Radiation Therapy Dose on Overall Survival for Resected Pancreatic Adenocarcinoma: An Analysis of 1385 Patients”

2:30-2:35 p.m. Questions & Answers

2:35-3:35 p.m. W. Robert Lee, M.D., M.S., M. Ed., Professor of Radiation Oncology, Associate Professor of Urology, Duke University School of Medicine
“‘Hype’-o-Fractionation for Prostate Cancer”

3:35-3:50 p.m. BREAK

3:50-4:00 p.m. Shravan Kandula, M.D. (PGY3) Project Mentor: Dr. Ian Crocker
“Association of Complete Clinical Response and Long-Term Outcome Among Patients with Biopsy-Proven Orbital Pseudotumor Receiving Modern Radiotherapy”

4:00-4:05 p.m. Questions & Answers

4:05-4:15 p.m. John Mikell, M.D. (PGY3) Project Mentor: Dr. Jerome Landry
“Tumor Size on Abdominal MRI Versus Pathologic Specimen in Resected Pancreatic Adenocarcinoma: Implications for Radiotherapy Planning”

4:15-4:20 p.m.  Questions & Answers

4:20-4:30 p.m.  Jane Shi, M.D., PhD (PGY5)  Project Mentor: Dr. Mohammad Khan
“Patterns of failure in advanced stage diffuse large B-cell lymphoma (DLBCL) patients treated with R-CHOP chemotherapy and the emerging role of consolidative radiotherapy”

4:30-4:35 p.m.  Questions & Answers

4:35-4:45 p.m.  Andy Camarata, M.D. (PGY3)  Project Mentors: Drs. Ashesh Jani & Peter Rossi
“A Surveillance, Epidemiology, and End Results Registry (SEER) Analysis of Treatment in Prostate Cancer: Practice Trends with Regard to Certificate of Need Policy”

4:45-4:50 p.m.  Questions & Answers

4:50-5:00 p.m.  Bree Eaton, M.D. (PGY4)  Project Mentor: Dr. Tim Fox
“Image-Based Dosimetry for Y90 Selective Internal Radiation Therapy (SIRT) of Hepatic Metastatic Melanoma: Dose-Volume Analysis Predict FDG-PET Response”

5:00-5:05 p.m.  Questions & Answers

5:05-5:15 p.m.  David Marcus, M.D. (PGY4)  Project Mentor: Dr. Mylin Torres
“A Comparison of Neoadjuvant Hormonal Therapy and Chemotherapy in Older Patients Undergoing Lumpectomy for ER-Positive Breast Cancer”

5:15-5:20 p.m.  Questions & Answers

5:20-5:30 p.m.  Roshan Prabhu, M.D. (PGY5)  Project Mentor: Dr. Walter Curran
“The Effect of the Addition of Chemotherapy to Radiotherapy on Cognitive Function in Patients with Low Grade Glioma: Secondary Analysis of RTOG 98-02”

5:30-5:35 p.m.  Questions & Answers
### Resident Seminar Schedule for 2012-2013

<table>
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<tr>
<th>Date</th>
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<tr>
<td>8/15/2012</td>
<td>Bree</td>
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<tr>
<td>9/12/2012</td>
<td>David</td>
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<tr>
<td>10/17/2012</td>
<td>Shan</td>
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<tr>
<td>11/14/2012</td>
<td>Bill</td>
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<td>12/12/2012</td>
<td>Ed</td>
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<tr>
<td>1/16/2013</td>
<td>Jane</td>
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<td>2/13/2013</td>
<td>John</td>
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<td>3/13/2013</td>
<td>Shravan</td>
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<tr>
<td>4/17/2013</td>
<td>Sheela</td>
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<tr>
<td>5/15/2013</td>
<td>Raj</td>
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<td>6/12/2013</td>
<td>Andrew</td>
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Resident Didactics Schedule for 2012-2013

(Note - July 2012- thru Jan 2013 only; Feb 2013 thru June 2013 not included)

Attending Didactics (Attending Conference)
Chair Rounds
Chart Rounds
New Patient Conference (Weekly Patient Case Management Meeting)
Program Director Meeting
Resident Clinical Didactic
Stress Management & Fatigue Awareness
Visiting/Guest Lectures
Visiting Professorships
Winship Cancer Institute (WCI) / Medical Oncology Grand Rounds
## July, 2012

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<td>7:00 AM</td>
<td>Resident On Call: John</td>
<td>7:30 AM</td>
<td>Faculty Meeting</td>
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<td>New Patient Conference</td>
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<td>7:00 AM</td>
<td>Resident On Call: Sheila</td>
<td>7:30 AM</td>
<td>New Patient Conference</td>
<td>Winship Grand Rounds: &quot;Genomics of Hematopoietic Cell Transplantation&quot;</td>
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<td>9:00 AM</td>
<td>Journal Club: David Ed Raj, Dinner: Andy</td>
<td>7:30 AM</td>
<td>New Patient Conference</td>
<td>Winship Grand Rounds: &quot;Gastrointestinal GVHD: Biomarkers and Biology&quot;</td>
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<td>Resident On Call: Bill</td>
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<td>Chairman rounds</td>
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<td>7:30 AM</td>
<td>New Patient Conference</td>
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<td>Winship Grand Rounds: &quot;Allogeneic Hematopoietic Cell Transplantation: Today and Tomorrow&quot;</td>
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<td>7:00 AM</td>
<td>Resident On Call: David</td>
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<td>Winship Grand Rounds: &quot;Metastatic Melanoma: State of the art 2012&quot;</td>
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<td>Resident On Call: Shrawan</td>
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<td>H&amp;M conference</td>
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<tr>
<td>8:00 AM</td>
<td>Resident Didactic - Shrawan/salivary Raj</td>
<td>7:20 AM</td>
<td>Winship Grand Rounds: &quot;State of the art 2012&quot;</td>
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### June 2012
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- June 17 - 22: 17 18 19 20 21 22 23
- June 24 - 30: 24 25 26 27 28 29 30
- July 1 - 6: 1 2 3 4 5 6 7
- July 8 - 13: 8 9 10 11 12 13 14
- July 15 - 20: 15 16 17 18 19 20 21
- July 22 - 27: 22 23 24 25 26 27 28
- July 29 - 31: 29 30 31 1 2 3 4

### July 2012
- July 29 - 31: 29 30 31 1 2 3 4
- August 1 - 6: 5 6 7 8 9 10 11
- August 13 - 18: 13 14 15 16 17 18 19
- August 21 - 26: 21 22 23 24 25 26 27
- August 29 - 31: 29 30 31 1 2 3 4

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**Shan 2012 - 2013**

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Page 10 of 20
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<td>7:00 AM</td>
<td>Resident On Call: Shreavan</td>
<td>7:30 AM Winship Grand Rounds: Metastatic Melanoma: State of the art 2012</td>
<td>7:00 AM Chart rounds</td>
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<td>7:30 AM</td>
<td>M&amp;M conference</td>
<td>8:00 AM Attending Didactic: Dr. Saba HN chemotherapy</td>
<td>8:30 AM Medical Student Lecture: Mohamed Fakhreddine Baylor</td>
<td>8:30 AM Medical Student Lecture: Olivia Barrett UAB</td>
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<td>7:30 AM NO GRAND ROUNDS</td>
<td>9:00 AM Attending Didactic: Dr. Allen - Radiology</td>
<td>9:00 AM Attending Didactic: Dr. Andrew - Radiology</td>
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<td>7:00 AM</td>
<td>Resident On Call: Bree</td>
<td>8:00 AM Attending Didactic: Dr. Saba HN chemotherapy</td>
<td>7:00 AM Chart rounds</td>
<td>11:00 AM Lawrence Geller Medical Management</td>
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<td>7:30 AM</td>
<td>New Patient Conference</td>
<td>7:30 AM Winship Grand Rounds: &quot;Outliers, Fellow Travelers and Invisible Gorillas: Concepts Important for Drug Development of Molecular Targeted Agents*&quot;</td>
<td>9:00 AM Attending Didactic: Dr. Andrew HN Surgery</td>
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<td>8:00 PM Resident Seminar: Bree</td>
<td>5:00 PM Resident Seminar: Bree</td>
<td>19:30 PM Bill EndNote Session</td>
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<td>Resident On Call: Andy</td>
<td>7:00 AM Chart rounds</td>
<td>8:30 AM Medical Student Lecture: Alan Lee SUNY Upstate</td>
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<td>7:30 AM</td>
<td>New Patient Conference</td>
<td>8:00 AM Attending Didactic: Dr. Higgins NKP</td>
<td>9:00 AM Attending Didactic: Dr. Andrew HN Surgery</td>
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<td>5:00 PM Resident Seminar: Bree</td>
<td>8:00 AM Attending Didactic: Dr. Andrew HN Surgery</td>
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<td>Resident On Call: Raj</td>
<td>7:00 AM Chart rounds</td>
<td>8:30 AM Medical Student Lecture: Rick Cassidy U Florida</td>
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<td>7:30 AM</td>
<td>New Patient Conference</td>
<td>8:00 AM Resident Didactic: Biologic Advances in Myeloma</td>
<td>9:00 AM Resident Didactic: HGG Trevor</td>
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<td>3:30 PM Journal Club: Bill Shan Andy, Dinner: Naanah</td>
<td>3:30 PM Resident Didactic: HGG Trevor</td>
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<td>Resident On Call: Ed</td>
<td>7:00 AM Chart rounds</td>
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<td>M&amp;M conference</td>
<td>7:30 AM Winship Grand Rounds: &quot;Intensity Modulated Proton Therapy for Head and Neck Tumors: The Dawn of a New Era&quot;</td>
<td>9:00 AM Attending Didactic: Dr. Andrew HN Surgery</td>
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<td>8:00 AM Attending Didactic: Edelman Sinonasal</td>
<td>8:30 AM Resident Didactic: Brain Mets Andy</td>
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<td>7:00 AM 8 Resident On Call: Ed</td>
<td>8:00 AM 8 Attending Didactic: Edelman Sinonasi</td>
<td>8:00 AM 8 Winship Grand Rounds: Steven Frank</td>
<td>7:00 AM 8 Resident On Call: Ed</td>
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<td>7:30 AM 8 Intensity Modulated Proton Therapy for Head and Neck Tumors: The Dawn of a New Era</td>
<td>7:30 AM 8 Visiting Professor Dr. Steven Frank</td>
<td>8:00 AM 8 Medical Student Lecture: Caleb Dulaney U Mississippi</td>
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<td>9:00 AM 8 Resident Didactic: Brain M. D. Andy</td>
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<td>7:00 AM 8 Resident On Call: Ed</td>
<td>8:00 AM 8 Attending Didactic: Edward A. Shank</td>
<td>7:30 AM 8 Faculty Meeting: Dr. Bethania J. Shank</td>
<td>7:00 AM 8 Chart rounds</td>
<td>9:00 AM 8 Resident Didactic: Pituitary/Cranio David</td>
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<td>8:00 AM 8 Attending Didactic: Amit Saldana</td>
<td>8:00 AM 8 NO Winship Grand Rounds: Update on Lung Cancer</td>
<td>8:00 AM 8 Medical Student Presentation: Jaymin Jhaveri, Miami</td>
<td>9:00 AM 8 Resident Didactic: SCLC Bill</td>
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<td>CNS Radios</td>
<td>5:00 PM 8 Resident Seminar: David</td>
<td>7:00 AM 8 Chart rounds</td>
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<td>7:00 AM 8 Resident On Call: Shravan</td>
<td>7:30 AM 8 Attending Didactic: Shravan</td>
<td>7:30 AM 8 NO Winship Grand Rounds: Update on Lung Cancer</td>
<td>8:00 AM 8 Medical Student Presentation: Cayt Roundtree, Mercer</td>
<td>9:00 AM 8 Resident Didactic: SCLC Shravan</td>
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<td>7:00 AM 8 Resident On Call: John</td>
<td>7:00 AM 8 Chairman rounds</td>
<td>8:00 AM 8 Medical Student Presentation: Dr. Bethania J. Shank, Rheumatology</td>
<td>8:00 AM 8 iPad lecture by Dr. Slavensky</td>
<td>7:00 AM 8 Chart rounds</td>
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<td>7:30 AM 8 New Patient Conference</td>
<td>8:00 AM 8 Attending Didactic: Dr. Dan Rashid, CNS Pathology</td>
<td>8:00 AM 8 Medical Student Presentation: Cayt Roundtree, Mercer</td>
<td>8:00 AM 8 Medical Student Lecture: Noel W. Williams, UF</td>
<td>8:00 AM 8 Resident Didactic: Early NSCLC</td>
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<td>9:30 AM 8 Journal Club: Shreya</td>
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<td>7:00 AM 8 Resident On Call: Raj</td>
<td>7:30 AM 8 Attending Didactic: Dr. Bechara Interventional Palm</td>
<td>7:30 AM 8 Winship Grand Rounds: &quot;Lung Cancer: An Integrated Approach to Diagnosis and Treatment&quot;</td>
<td>8:00 AM 8 Resident Didactic: Raj</td>
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<td>7:00 AM 8 Educational meeting: Bill</td>
<td>7:30 AM 8 Winship Grand Rounds: &quot;Non-small Cell Lung Cancer: An Integrated Approach to Diagnosis and Treatment&quot;</td>
<td>7:00 AM 8 Chart rounds</td>
<td>7:00 AM 8 Resident Didactic: Bill</td>
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<td>Resident On Call: Jane</td>
<td>Attending Didactic: Dr. Stapleford Lung</td>
<td>Winship Grand Rounds: &quot;Three Decades of RTOG Prostate Trials: What Have We Learned?&quot;</td>
<td>Resident On Call: Jane</td>
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<td>Attending Didactic: Felix Fernandez CT surgery</td>
<td>On Call Didactic for PGY-2 Residents by Shan</td>
<td>Medical Student Presentation: Emory McIver Mercer</td>
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<tr>
<td>Journal Club: Jane Brea KP, Dinner: Trevor</td>
<td>Faculty Candidate Talk: Roshan Prabhu</td>
<td>Resident Didactic: Palliation Ra</td>
<td>Resident Didactic: DCIS Ronica</td>
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<td>Resident On Call: KP</td>
<td>Winship Grand Rounds: &quot;Modeling the Molecular Pathogenesis of Colorectal Cancer&quot;</td>
<td>Attending Didactic: Dr. Auffemann Thoracic Rads 1</td>
<td>Resident On Call: KP</td>
<td>Chart rounds</td>
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<td>Faculty Candidate Talk: Roshan Prabhu</td>
<td>Chart rounds</td>
<td>Resident Didactic: None</td>
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<td>ASTRO Boston</td>
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<tr>
<td>Resident On Call: Michael</td>
<td>Winship Grand Rounds</td>
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<td>Chart rounds</td>
<td>Resident Didactic: Early Breast Cancer Starlak</td>
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<td>Faculty Candidate Talk: Roshan Prabhu</td>
<td>Resident Didactic: Early Breast Cancer Starlak</td>
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# November, 2012

## Shan 2012 - 2013

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<td>Journal Club: Trevor Renko Sar; Dinner: Michael</td>
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### December, 2012

Shan 2012 - 2013

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<td>6:00 AM Physics Make Session</td>
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<td>9:00 AM $\cdot$ Resident Didactic: Esophageal CA John</td>
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# January, 2013

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<td>- Journal Club: Greg, John Mikell, Sheela. Dinner by David</td>
<td>- Attending Didactic: Dr. Bill Dyan</td>
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<td>- MEK Jr Holiday</td>
<td>- Winship Grand Rounds</td>
<td>- Attending Didactic: Dr. Kooby GI Surg Onc</td>
<td>- early prostate ed</td>
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<td>- attending Didactic: Dr. Garbow &quot;Probing Brain Tumors and Radiation Necrosis by Physiologic Functional MRT&quot;</td>
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<td>- Keller Lecture: Dr. Adam Dicker</td>
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Page 51 of 286
6. Overall Goals and Objectives

The Radiation Oncology Residency Program at Emory University is dedicated to the education and training of residents in the clinical care of patients with cancer and the use of radiation therapy in their management. The Program is oriented toward providing residents with a solid foundation for understanding the scientific advances that are constant in this field. Emphasis is placed on the development and assessment of residents’ skills in each of the following competencies, as is also required by the Accreditation Council for Graduate Medical Education (ACGME):

- **Patient Care** – Residents must be able to provide patient care that is compassionate, appropriate, and effective for the treatment of health problems and the promotion of health;
- **Medical Knowledge** – Residents must demonstrate knowledge about established and evolving biomedical, clinical, and cognate (e.g., epidemiological and social-behavioral) sciences and the application of this knowledge to patient care;
- **Practice-based Learning & Improvement** – Residents must be able to investigate and evaluate their patient care practices, appraise and assimilate scientific evidence, and improve their patient care practices;
- **Interpersonal & Communication Skills** – Residents must be able to demonstrate interpersonal and communication skills that result in effective information exchange and learning with patients, their patients’ families, and professional associates;
- **Professionalism** – Residents must demonstrate a commitment to carrying out professional responsibilities, adherence to ethical principles, and sensitivity to a diverse patient population;
- **Systems-based Practice** – Residents must demonstrate an awareness of and responsiveness to the larger context and system of health care and the ability to effectively call on system resources to provide care that is of optimal value.

The clinical training in radiation oncology is appropriately broad in scope and directed toward providing the resident with a firm understanding of the following:

- The etiology, epidemiology and natural history of malignant disease
- Special considerations unique to each cancer type
- Indications for and outcomes of radiation therapy
- Thoughtful treatment planning to optimize the delivery and distribution of radiation
- Standard radiation therapy techniques for dose delivery
- The use of innovative and investigational therapeutic modes, including conformal, stereotactic and intensity modulated radiation techniques
- Normal tissue radiosensitivity and tumor radioresponsiveness
- Integration of the other standard therapeutic modalities (surgery and systemic therapy) in disease eradication within a multidisciplinary framework
- Creative laboratory modeling to simulate clinical problems
More specifically, residents are trained in the use of various external radiation techniques (megavoltage photon and electron therapy), computerized treatment planning and simulation, intracavitary and interstitial brachytherapy techniques, brain and body stereotactic radiosurgery techniques, and the use and/or understanding of altered fractionation schemes, total body irradiation in the setting of bone marrow transplantation, radiosensitizers and protectors, and radiolabelled antibody therapy.

During the course of training, residents are expected to become familiar with clinical investigation, biostatistics, epidemiology, computer data management and analysis, ethical considerations in investigation, and biomedical writing. This is accomplished through the development of a research project with the guidance of a faculty mentor, leading to presentation and publication.
Following are overall Goals and Objectives by PGY-year (note that the Goals and Objectives for the Rotation Component [organized by disease site, competency, and year of training] and the Didactic Component of the program are found in later sections of this Residency Manual):

**PGY-1**

The first year of training is a preliminary internship with the Department of Medicine. The radiation oncology interns share patient care, call, conference presentations, and clinic duties with the categorical medicine and other interns. The year is divided into twelve rotations; most will be performed at Grady Memorial Hospital, but a few rotations may be at Emory University Hospital or the Veterans' Affairs Medical Center. The year typically consists of eight months of inpatient medicine wards, one emergency medicine month, one medicine ICU month, one ambulatory medicine month, and one elective month.

Each intern has a longitudinal medicine clinic that is held one half-day each week for the entire year. This clinic allows the intern to gain experience managing outpatient issues over a more extended time than is possible on the scheduled rotations.
PGY-2

Evaluation of Patients:

- Learn how to obtain a pertinent history, perform a system oriented physical exam, review pertinent radiographs, pathology and tumor markers to make patient management decisions. Learn how to present this information to attending physicians in an organized manner.
- Learn and master the staging system for each cancer site and correlate each patient’s stage with treatment and prognosis.
- Learn how to manage radiation oncology emergencies, such as spinal cord compression and superior vena cava syndrome.

Treatment of Patients:

- Develop an awareness of all available treatment options (radiation, surgical, and medical) for patients referred to radiation oncology.
- Develop competence in treatment set-ups and treatment planning of low to intermediate levels of complexity.
- Learn the radiation dose tolerance of each organ so that the prescribed dose to the tumor will not exceed the tolerance of important structures in close proximity.
- Develop skills in setting up appropriate radiation fields for specific stages of disease and prescribe appropriate radiation doses. The resident is expected to master the treatment set up and dose prescriptions of the patients with diagnoses within the expertise of the service's attending physician(s), and to have a good working knowledge of the same for other patients.
- Develop some understanding of the psychological effects that a diagnosis of cancer has on some patients and develop a supportive resident-patient relationship.

Examinations:
The first year residents are required to take the American College of Radiology In-Service training exam. Although the scores are not used for promotion, residents are expected to score above the 50th percentile for all first year residents. The RAPHEX examination is administered to first year residents in June.

Evaluation and Promotion: At the completion of each three-month rotation, each first year resident receives a written evaluation of his/her fund of knowledge, technical skills, professionalism, teaching skills and leadership skills. The resident must receive a satisfactory performance in the summary evaluation. At the end of the first year, a composite evaluation is performed by the program director taking into account the four quarterly evaluations. The Academic Committee meets in March of each year to discuss each resident’s evaluations for the year. Contracts for the PGY-3 year will be offered to residents who obtain an overall satisfactory evaluation.
Evaluation of Patients:

- Residents are expected to refine their history, physical examination and interpretation of pertinent radiographic and pathologic information to make more advanced decisions in patient management.
- Residents will exhibit more independence in the management of radiation oncology emergencies, but the attending physician must approve the resident’s treatment set-ups prior to delivering treatment.
- Usually during this year, the residents spend a three-month block with two attendings in pediatric radiation oncology. The resident will master the work-up of both pediatric and brain tumors. During the other rotations, the resident is expected to master the oncologic work-up of all patients evaluated.

Treatment of Patients:

- Begin to integrate the different treatment options available for oncologic patients that provide the highest potential for cure and control of tumors.
- Expand competence in treatment set-up and treatment planning, including radiation treatment fields of intermediate to high level of complexity.
- Expand skills in setting up appropriate radiation treatment fields for specific stages of disease and understand any variations in set-up between Emory and other academic institutions. The resident is expected to master the treatment set-up and radiation dose employed for all patients seen with the attending physicians.

Examinations:
The resident is expected to score above the 50th percentile for second year residents on the ACR in-service examination. The RAPHEX examination also is administered.

Evaluation and Promotion:
Each resident is evaluated at the completion of each three-month rotation. At the end of the second year a composite evaluation is performed by the program director with emphasis on improvement in the resident’s performance from the prior year. The Academic Committee meets in March of every year and reviews each resident’s evaluations. Contracts for the PGY-4 year will be offered to those residents who have an overall satisfactory evaluation.
Evaluation of Patients:

- Residents should refine their patient presentations to a concise encapsulation of the patient’s history, physical examination, radiographic studies and treatment plan.

Treatment of Patients:

- Residents should master the most difficult treatment planning options and patient management issues.
- Residents should master treatment of all tumor sites by stage of disease, and should be able to substantiate therapies with the relevant literature.

Examinations:
The resident is expected to score above the 50th percentile for all third year residents on the ACR in-service examination. The RAPHEX examination also is administered.

Chief Resident:
One of the PGY-4 residents is selected to be the chief resident for the next year by a vote of the Academic Committee.

Evaluation and Promotion:
Residents are evaluated at the completion of each three-month rotation. At the end of the third year, a composite evaluation is performed by the program director; the resident is expected to show an improvement in performance over the previous years. The Academic Committee meets in March each year to review each resident’s performance. Contracts for the PGY-5 year will be offered to residents with overall satisfactory evaluations.
Evaluation and Treatment of Patients:

- Residents function more independently; they are expected to evaluate patients, determine appropriate therapy, plan radiation fields, and complete all of the service's other clinical duties with minimal direction from attending physicians. Attending physicians still must verify treatment plans before radiation therapy is initiated.
- During this year residents should assess their skills and fund of knowledge, and concentrate on strengthening any deficient areas in clinical radiation oncology, radiation physics, or radiation biology.

Examinations:
The resident is expected to score above the 50th percentile for all fourth year residents on the ACR in-service examination. The RAPHEX examination also is administered.

PGY-5 Residents are typically eligible to take the Biology and Physics portion of their ABR Radiation Oncology Certification Written Examination and can sit for this exam. If a passing score is obtained then attendance in the year-long Biology and Physics courses is optional.

Evaluation and Criteria for Graduation:
Residents are evaluated at the completion of each three-month rotation. The Academic Committee meets in March to review each resident’s performance. Satisfactory completion of each rotation is required.

Each resident must perform 15 intracavitary brachytherapy procedures and 5 interstitial brachytherapy procedures, and observe 6 (3 thyroid and 3 non-thyroid) unsealed source treatments. Each resident is required to simulate at total of 450 new patients (600 minimum is recommended, however) during their entire training. They also must complete at least one manuscript suitable for publication on a clinical or basic science topic.
7. Goals and Objectives – Curriculum – Rotation Component

Note that residents must complete a Goals & Objectives attestation sheet (and obtain appropriate supervision signatures) at the beginning of each rotation.

For each of the below rotations, the Goals and Objectives are provided by disease site, competency, and year of training:

Clinical Radiation Oncology Rotations:

Breast Cancer Rotation
Central Nervous System Tumors Rotation
Gastrointestinal Cancer Rotation
Genitourinary Cancer Rotation
Gynecological Cancer Rotation
Head and Neck Cancer Rotation
Lung/Thoracic Cancer Rotation
Lymphoma/Leukemia Rotation
Pediatric Malignancies Rotation
Sarcoma/Soft Tissue Tumors Rotation

Other Clinical Rotations:

Diagnostic Radiology Rotation
Medical/Pediatric Oncology Rotation
Pathology Rotation
Physics/Dosimetry Rotation

Non-clinical Rotations:

Lab/Research Rotation

Residents provide anonymous feedback on the clinical rotations on an annual basis.
Residents will evaluate adult patients with breast neoplasms. These patients are discussed in a multidisciplinary context with surgical and medical oncologists, radiologists, pathologists, and other support personnel. The rotation provides opportunities for enhancing the resident’s multidisciplinary knowledge and management abilities for patients with breast malignancies.

In addition, the resident gains training experience and eventual proficiency in the management of breast cancer patients during consultation of patients outside the multidisciplinary clinic, weekly patient-under-treatment visits, and follow-up clinics. The resident is expected to see each patient under treatment on a weekly basis and a majority of the follow-up patients, under the supervision of the attending. The resident is expected to gain training experience and eventual proficiency in the simulation and treatment planning of patients with breast cancer using external beam techniques, including conformal radiation and brachytherapy techniques as these become available.

While the resident will not likely to gain direct experience in every site and/or stage of disease, it is expected that enough experience will have been gained during the rotations for the resident to be able to apply the knowledge and experience to the unique situation when it presents itself.

Service-specific Topics
- Ductal carcinoma in-situ
- Role of radiation therapy in breast conservation therapy (BCT)
- Selection factors and contra-indications to BCT
- Management of lymph node regions
- Locally advanced breast cancer
- Inflammatory breast cancer
- Role of radiation therapy post-mastectomy
- Salvage of isolated locoregional recurrence after mastectomy

General Goals and Objectives
1) Know staging of breast cancer.
2) Learn proper breast examination technique.
3) Know work-up, types of biopsy, mammography views.
4) Know treatment options for all stages of breast cancer sequencing, systemic options and local options.
5) Know how to set up standard radiotherapy fields: tangents, 3 field, PAB, IMN.
6) Know major studies: NSABP B04, B06, B12, B24, PO1, Milan, Oxford overview analyses, Recht (upfront/outback), Overgaard, Ragaz, etc.
7) Understand natural history of breast cancer, patterns of failure, patterns of nodal drainage, treatment of local recurrence.
8) Know expected side effects and complications of therapy.
9) Know the criteria for good candidates for partial breast radiation and various techniques to deliver partial breast -mammosite, 3D conformal, IMRT.
Medical Knowledge

- Describe anatomy of breast, and relevant regional anatomic structures (draining lymphatics).
- Understand radiation effects of the breast and surrounding normal tissue: acute/chronic radiation effects; complications.
- Identify epidemiologic and etiologic risk factors, tumor markers/molecular genetics for breast cancer.
- Understand natural history, typical clinical presentations and diagnostic work-up, staging and clinicopathologic manifestations of breast cancer.
- Understand principles of multidisciplinary treatment and management for early stage breast cancer, including:
  - Ductal carcinoma in-situ (DCIS);
  - Early stage invasive carcinoma;
  - The role of radiation therapy in breast conservation therapy (BCT) for early stage breast cancer (DCIS and invasive);
  - Surgical techniques: breast conserving surgery; axillary dissection; sentinel node biopsy;
  - Selection factors and contra-indications to BCT;
  - Appropriate management of lymph node regions.
- Understand principles of multidisciplinary management and treatment of:
  - Locally advanced breast cancer;
  - Inflammatory breast cancer;
  - Types/use of systemic therapy (chemotherapy, hormonal therapy);
  - Role of radiation therapy (post-mastectomy).
- Be able to describe expected therapeutic outcomes of treatments, including expected control rates.
- Be able to apply principles of radiological physics and radiobiology appropriate to radiation therapy for breast cancer:
  - Understand the importance of time dose factors, including radiotherapy timing in relation to surgery; integration of radiotherapy and systemic therapy;
  - Know basic isodose distributions for various sized electron fields for different electron beam energies.
  - Know isodose distributions for irradiation of intact breast, including use of wedge compensators.

Patient Care

- Be able to gather and organize essential important information about a breast cancer patient, including taking an accurate history of present illness, past medical/surgical history, allergies, social/family history, particularly as they pertain to the current illness.
- Complete a full physical examination and be able to interpret all hematological, biochemical, and radiologic studies (eg, mammograms, bone scans, CT scans, ultrasound) used to assess the breast cancer patient.
- Be able to determine whether radiation is appropriate, based on diagnostic information and medical/scientific information, using clinical judgment.
Be able to complete chart appropriately, including timely completion of staging sheets, consultation notes, treatment notes, and summaries.

Develop and implement patient management plans for breast cancer patients with early stage, locally advanced and metastatic disease, including determination of intent of treatment (palliative/definitive).

Learn to perform radiation therapy techniques (including 3-D conformal radiation therapy [3-D CRT] and intensity-modulated radiation therapy [IMRT] as they become integrated into the therapy of these patients), and evaluate treatment plans and dosimetry for:

- Irradiation of the intact breast, including:
  - Determination of treatment volume clinically and on CT scans;
  - Alignment of tangential beam with chest wall contour, including determination and calculation of isocenter point;
  - Boost field techniques (electron-field set-up and dose determination), assistance and performance of interstitial brachytherapy (as this becomes available);
  - Determination of appropriate doses and fractionation, depending on clinical/pathologic circumstances;
  - Irradiation technique of regional lymphatics, including supraclavicular, axillary and internal mammary lymph nodes;
- Irradiation of chest wall, including:
  - Determination of treatment volumes clinically and on CT scan;
  - Field arrangements and matchline techniques, and doses, including use of electron fields vs. tangential fields;
  - Set-up of supraclavicular/posterior axillary and internal mammary fields;
- A variety of palliative situations (CNS metastasis – brain, bone/spinal metastasis).

Learn basic critical organ dose parameters and begin to integrate this information into the patients radiation therapy treatment plan. Particular attention should be paid to skin; breast; lung/heart tolerances.

Be involved in the treatment planning from CT to removal of Mammosite.

Be able to identify and manage side effects of patients under treatment and in follow-up, and counsel breast cancer patients on appropriate follow-up measures (eg, mammograms, self breast exam) aimed at maintaining health.

Be able to demonstrate caring behavior and communicate effectively with breast cancer patients and families; and work effectively with other health care providers, including nurses, therapists, and social workers.

Practice-based Learning & Improvement
Interpersonal & Communication Skills
Professionalism
Systems-based Practice

The PGY 2-3 resident is expected to begin acquiring experience in those skills associated with practice-based learning & improvement, interpersonal & communication skills, professionalism, and systems-based practice, as may be appropriate for patients with breast cancer.
Practice-based Learning & Improvement

- Begin to locate, evaluate and assimilate evidence from scientific studies related to breast cancer patients and which support patient care decisions, ie, become familiar with scientific evidence as may be presented in a standard textbook.
- Begin to apply knowledge of study design and statistical methods in order to appraise clinical studies and other information on diagnostic and therapeutic effectiveness: know study design of major randomized studies and non-randomized studies that support the use of breast conservation therapy vs. mastectomy; post-mastectomy irradiation; radiation therapy for DCIS.
- Use information technology to manage information, access on-line medical information and support own education.
- Begin to assist the learning of students and other health care providers, including nurses, therapists, and other junior residents.

Interpersonal & Communication Skills

- Begin developing and sustaining a therapeutic and ethically sound relationship with breast cancer patients. This is begun during consultation, continues during simulation and develops during the course of treatment.
- Begin using effective listening, non-verbal, explanatory, questioning, and writing skills to elicit and provide information to and about breast cancer patients. This occurs during patient interactions and in discussion with attendings, nurses, therapists, and administrative personnel.
- Work effectively with others as a member of the health care team, eg, attendance and participation at radiation therapy and multidisciplinary team meetings.

Professionalism

- Demonstrate respect, compassion, integrity, and responsiveness to the needs of the breast cancer patient.
- Begin to be able to obtain informed consent from breast cancer patients, including those who may be entering protocols.
- Begin to demonstrate commitment to ethical principles pertaining to permission/withholding of clinical care to breast cancer patients, especially those treated for palliative purposes.
- Begin, under the guidance of the attending, to gain experience in billing issues.
- Demonstrate sensitivity/responsiveness to the breast cancer patients’ background, culture, and age.

Systems-based Practice

- Begin to understand how his/her patient care and other professional practices affect other health care providers (eg, nurses and therapists).
- Begin to practice health care that is cost-effective, and begin to learn how to allocate resources, while not compromising quality of care.
Begin to help patients deal with health system complexities, eg, scheduling issues relating to radiation therapy.
2nd Rotation (PGY4-5)

In addition to gaining proficiency/expertise in the skills associated with each of the competencies outlined in the Goals and Objectives for the PGY2-3 rotation, the PGY4-5 resident is expected to acquire knowledge and gain additional proficiency in the following areas, as they pertain to the breast cancer patient population.

Medical Knowledge
- Know, understand and integrate the pertinent scientific literature and studies related to the role of radiation therapy and associated oncologic disciplines for early stage breast cancer (invasive/non-invasive), locally advanced and inflammatory breast cancer, and postmastectomy radiation therapy, and the results/outcomes of treatment for each of the disease categories and/or stages (evidence-based medicine).
- Proficiency in understanding breast cancer prognostic and predictive factors.
- Understand controversies in the treatment of breast cancer patients, including:
  - Sentinel lymph node surgery vs. axillary lymph node dissection;
  - Role/rationale of tumor bed boost;
  - Rationale of radiation to lymph node regions, including internal mammary nodes;
  - Sequencing of radiation treatment and chemotherapy;
  - Local/regional recurrence after breast conservation and after mastectomy: risk factors for patients receiving radiation;
  - Breast conservation for locally advanced and inflammatory breast cancer;
  - Salvage of isolated locoregional recurrence after mastectomy.
- Understand the use of hormonal therapy, systemic chemotherapy, radioprotectors, gene therapy and other new modalities as they are applicable to breast cancer.
- Understand unusual breast neoplasms, including their presentation and management, including:
  - Lobular carcinoma in-situ;
  - Bilateral carcinoma;
  - Cystosarcoma phyllodes;
  - Axillary adenocarcinoma without detectable breast cancer primary;
  - Inflammatory breast cancer;
  - Breast cancer in males.

Patient Care
- Be able to undertake all aspects of patient care related to breast cancer patients, including initial assessment, formulation and implementation of treatment plan, discussion with patients and family, and with the referring physician, treatment prescription and planning and integration with other treatment modalities. This includes early stage, advanced stage, recurrent and metastatic patients.
- Maturation of written consultation is expected, with emphasis on delineation of plan of management and, when appropriate, reference to pertinent literature to substantiate recommendation.
- Understand critical organ dose parameters, including DVH analysis, effect of chemotherapy and other factors, and fully integrate this information into patients radiation therapy treatment plan.
- Gain proficiency in managing side effects during and after therapy and in counseling patients and their families on issues related to breast cancer, and its treatment and side effects/complications of treatment.
- Gain proficiency in performing techniques and prescriptions (including alternative treatment arrangements), formulate treatment plans and dosimetry according to accepted guidelines for each of the disease sites, according to stage of disease and the clinical situation.

**Practice-based Learning & Improvement**

- Be able to analyze practice experience and perform practice-based improvement activities (ie, suggestions for improving the service and rotation).
- Be able to obtain information from the larger population from which the breast cancer patients are drawn.

**Interpersonal & Communication Skills**

- Fully sustain a therapeutic and ethically sound relationship with breast cancer patients.
- Use effective listening, non-verbal, explanatory, questioning and writing skills to elicit and provide information to and about breast cancer patients. This includes more active participation/discussion in multidisciplinary conferences.
- Work effectively with other health care providers as a member and leader of the health care team. The PGY4-5 resident is expected to 'lead' the weekly patient-under-treatment rounds.

**Professionalism**

- Responsiveness to societal needs that supercedes self-interest.
- Commitment to excellence and ongoing professional development.

**Systems-based Practice**

- Know how his/her health care practices affect health care providers and the larger society, and how elements of the system affect his/her own practice.
- Partner with health care managers and providers to assess, coordinate and improve health care, and know how these activities affect system performance. This includes partnering with administrative personnel or nurses to coordinate a patient’s ongoing multidisciplinary care.
Central Nervous System Rotation – GOALS AND OBJECTIVES

All PGY Levels

Residents will evaluate patients with brain neoplasia, benign and malignant, as well as gain competence in the assessment of treatment of metastatic lesions to the CNS. Patients are seen in a multidisciplinary context, with surgeons, medical oncologists and other support personnel. The rotation provides the resident with opportunities to enhance his/her multidisciplinary knowledge, management abilities and specific skills for patients with these conditions.

While on CNS Service, residents are expected to attend the weekly multidisciplinary Brain Tumor Case Conferences. These conferences are also attended by Radiology, Surgery, and Medical Oncology faculty, as well as basic researchers, neurologists, residents and fellows in these specialties.

In addition, the resident gains training experience and eventual proficiency in the management of CNS patients during consultation of patients outside the multidisciplinary clinic, weekly patient-under-treatment visits, and follow-up clinics. The resident is expected to see each patient under treatment on a weekly basis and a majority of the follow-up patients, under the supervision of the attending. The resident is expected to gain training experience and eventual proficiency in the simulation and treatment planning of patients with brain tumors using external beam techniques, including 3-D conformal therapy (3-D CRT) and intensity-modulated radiation therapy (IMRT), body radiosurgery and cranial stereotactic radiosurgery, in addition to experience in brachytherapy techniques as applicable to this population of patients.

While the resident will not likely gain direct experience in every site and/or stage of disease, it is expected that enough experience will have been gained during the rotation for the resident to be able to apply the knowledge and experience to the unique situation when it presents itself.

Service-specific Topics
- Treatment of meningioma
- Treatment of low grade astrocytoma
- Treatment of glioblastoma
- Treatment of arteriovenous malformation
- Treatment of acoustic neuromas
- Treatment of ocular tumors
- Treatment of brain metastases

General Goals and Objectives
1) Understand the natural history of common and uncommon CNS tumors.
2) Acquire competence in the evaluation (history taking and physical examinations) of patients with CNS tumors.
3) Acquire competence in the interpretation of CNS imaging modalities including CT, MRI and PET.
4) Understand the principals of management of common and uncommon CNS tumors.
5) Be able to create independently standard plans for patient treatment including the use of image fusion.
6) Understand the role of radiosurgery and fractionated stereotactic radiotherapy in the management of CNS tumors.
7) Independently create treatment plans for the radiosurgical management of treatment patients.
8) Timely documentation.
1st Rotation (PGY2-3)

For each of the disease sites/categories listed below, the resident is expected to acquire the appropriate knowledge/skills, as outlined:

Medical Knowledge

☐ Describe the anatomic features and relevant regional anatomic structures
☐ Describe the pathologic characteristics, prognostic factors and grading system as appropriate to each of the disease categories, especially astrocytomas and oligodendroglial tumors.
☐ Know tolerance doses, both fractionated and single fraction for critical brain structures, and organs of interest for body radiosurgery (liver, kidney, lung, spinal cord, intestines, cardiac, etc).
☐ Understand the radiation effects and response on organ of interest and surrounding normal tissue: acute and chronic radiation effects; complications.
☐ Identify epidemiologic and etiologic risk factors and tumor markers/molecular genetics/structures, potential preventative and screening methods for the specific disease category.
☐ Understand natural history, typical clinical presentations, diagnostic workup and staging, and clinicopathologic manifestations.
☐ Understand principles of multidisciplinary management and treatment, and role(s) of radiation therapy (including brachytherapy, altered fractionation 3-D CRT and IMRT, radiosurgery, if appropriate) for each of the disease categories, for each stage of disease, and according to the clinical situation:
  o Astrocytoma:
    □ Low grade glioma – role of RT/SRS;
    □ High grade glioma – role of RT/SRS;
  o Oligodendrogliaoma:
    □ Low grade/mixed;
    □ Anaplastic;
  o Meningioma:
    □ Radiation therapy role – fractionated vs. stereotactic;
  o Acoustic neura:
    □ Role of SRS;
  o Differential diagnosis of intraparenchymal and meningeal lesions;
  o Ocular tumors;
☐ Know and be able to apply the principles of radiological physics and radiobiology appropriate to the radiation treatment of each of the disease categories, including:
  o Altered fractionation – both hypofractionation and hyperfractionation;
  o Importance of time-dose factors;
  o Repopulation;
  o Principle of chemoradiation sensitization;
☐ Acquire basic knowledge of controversial areas or unusual situations for each of the disease categories, including:
  o Astrocytoma:
Use of hyperfractionation and tumor volume;
- Role of chemotherapy;
- Role of radiation vs. observation in low grade glioma;
  - Metastatic:
- Role of stereotactic radiosurgery for brain metastasis

**Patient Care**
- Be able to gather and organize essential important information about a patient with the specific disease entity, including taking an accurate history of present illness, past medical/surgical history, allergies, social/family history, particularly as they pertain to the current illness.
- Complete a full physical examination and be able to evaluate all hematological, biochemical, and radiologic studies (eg, CT scans, MR scans, PET scans) used to assess the patient with the specific disease entity.
- Be able to determine whether radiation is appropriate, based on diagnostic information and medical/scientific information, using clinical judgment.
- Be able to complete chart appropriately, including timely completion of staging sheets, consultation notes, treatment notes, and summaries.
- Be able to differentiate tumor from edema, identify meningiomas vs. acoustic neuromas, and distinguish high-grade from low-grade tumor.
- Develop and implement patient management plans for patients with:
  - Astrocytomas;
  - Meningioma;
  - AVM;
  - Metastatic brain tumors;
- Learn to perform radiation therapy (including brachytherapy, as applicable) techniques and prescriptions, formulate and evaluate treatment plans and dosimetry according to accepted guidelines for each of the disease categories/sites according to stage of disease and the clinical situation. This includes determination of volumes, treatment portals, and doses for both the initial phase and boost treatments, in addition to beginning knowledge of possible alternative treatment-field arrangements:
  - Identification of tumor/edema on MRI/CT scan, and use of MRI/MRS to determine tumor volumes for radiation therapy;
  - Distinguish tumor from surgical bed and from edema;
  - Know how to choose and evaluate additional studies like spectroscopy and PET to help evaluate patients’ MRIs and CTs;
  - Identify meningiomas, acoustic neuromas, and metastasis, and distinguish high from low-grade tumors;
  - Identify critical structures (eg, the optic nerve, the optic chiasm, the pituitary, the brain stem, corpus callosum, the trigeminal nerve, etc) and know their tolerances as a function of fraction size;
- Identify which patients should and should not be treated with intracranial and extracranial radiosurgery
Identify various tolerance organs and develop modifications to the radiosurgical plan to safely incorporate those tolerances;

- Use these same skills to design dose intensity modulated treatments.

- Gain experience in the use of the Novalis 3-D CRT and IMRT in the treatment of brain metastasis, and determine which patients are appropriate for the various radiosurgery protocols.

- Learn basic critical organ tolerance dose parameters and begin to integrate this information into the patient’s radiation therapy treatment plan.

- Be able to identify and learn to manage acute, subacute and chronic side-effects of patients under treatment and in follow-up, and to counsel/advise patients of appropriate pre-evaluation, treatment and follow-up measures for each of the disease categories.

- Be able to demonstrate caring behaviors and communicate effectively with patients with brain tumors and metastatic lesions, and with their families, and work effectively with other health care providers, including nurses, therapists and social workers.

- Be able to:
  - Demonstrate caring behaviors;
  - Counsel and communicate effectively with the CNS patient population and their families and with other health care providers;

- Be able to present consent forms for standard therapy and the appropriately present consent forms for experimental clinical studies, including proper presentation of Phase I, II, III studies, ensuring oncology patients understand the sacrifices and mutual responsibilities of doctors and patients, as well as the rights.

**Practice-based Learning & Improvement**

**Interpersonal & Communication Skills**

**Professionalism**

**Systems-based Practice**

The PGY 2-3 resident is expected to begin acquiring experience in those aspects of practice based learning & improvement, interpersonal & communication skills, professionalism, and systems-based practice, as may be appropriate for patients with these cancers.

**Practice-based Learning & Improvement**

- Begin to locate, appraise and assimilate evidence from scientific studies related to brain tumor patients or patients with metastatic cancer, ie, become familiar with scientific evidence as may be presented in a standard textbook.

- Begin to apply knowledge of study design and statistical methods in order to appraise clinical studies and other information on diagnostic and therapeutic effectiveness.

- Use information technology to manage information, access on-line medical information and support own education.

- Assist/facilitate the learning of students and other health care providers, including nurses, therapists, and other junior residents.

**Interpersonal & Communication Skills**
Begin developing and sustaining a therapeutic ethically sound relationship with patients with brain tumors or metastatic lesions.

Begin using effective listening, non-verbal, explanatory, questioning, and writing skills to elicit and provide information to and about patients with brain tumors or metastatic lesions.

Work effectively with others as a member of, or leader of a health care team.

Professionalism

Demonstrate respect, compassion, integrity, and responsiveness to the needs of the patient with brain tumors or metastatic lesions.

Begin to be able to obtain informed consent from patients with brain tumors or metastatic lesions, including those entering protocols.

Begin to demonstrate commitment to ethical principles pertaining to permission/withholding of clinical care to patients with brain tumors or metastatic lesions.

Begin to gain experience in billing issues.

Demonstrate sensitivity/responsiveness to the patients’ background, culture, and age.

Systems-based Practice

Begin to understand how his/her patient care and other professional practices affect other health care providers (eg, nurses and therapists).

Begin to practice health care that is cost-effective, and begin to learn how to allocate resources, while not compromising quality of care.

Begin to help patients deal with health system complexities, eg, scheduling issues.
2nd Rotation (PGY4-5)

In addition to developing proficiency in the skills associated with each of the competencies outlined in the Goals and Objectives for the PGY2-3 rotation, the PGY4-5 resident is expected to acquire knowledge and gain proficiency in the following areas associated with each of the competencies.

Medical Knowledge

☐ Know and thoroughly understand the pertinent literature and scientific studies related to the role of radiation therapy and associated oncologic disciplines and the results/outcome of treatment for each of the disease categories and sites by stage.

☐ Proficiency in understanding the prognostic factors for patients with brain tumors.

☐ Understand the utility and application of other modalities of treatment:
  o Gamma-knife:
    ☐ Understand the technical differences between the x-knife approach and Novalis;
    ☐ Have a specific understanding of the differences in dose distribution and prescription.
  o Protons:
    ☐ Understand how the Bragg Peak influences the dosimetry and how the dosimetry from proton beams differs from that of x-rays and how the biological effect is modified for a given physical radiation dose;
    ☐ List diseases for which proton beams have proven advantageous over x-rays.
  o Neutrons:
    ☐ List diseases for which neutron beams have proven advantageous over x-rays.

☐ Understand unusual CNS tumors, including their presentation and management, including the role of radiation therapy:
  o Hemangioblastoma/hemangiopericytoma;
  o Spinal cord tumors;
  o Von-Hippel Lindau and neurofibromatosis.

☐ Thoroughly understand controversial areas in the treatment of CNS tumors.

☐ Understand the use of systemic chemotherapy, gene therapy and other new and developing modalities as they are applicable to CNS tumors. This includes radiation sensitizers and hyperfractionation/ altered fractionation trials.

☐ Understand the use of systemic therapies and other new modalities, as applicable.

Patient Care

☐ Be able to undertake all aspects of patient care related to patients with brain tumors including initial assessment, formulation and implementation of treatment plans, discussion with family members and referring physicians, treatment prescription and interpretation with other treatment modalities.

☐ Maturation of written consultations is expected, with emphasis on delineation of plan of management and, when appropriate, reference to pertinent literature to substantiate recommendations.
Understand critical organ dose parameters, including DVH analysis, affect of chemotherapy and other factors, and fully integrate this information into patients’ radiation therapy treatment plans.

Gain proficiency in managing side-effects during and after therapy and in counseling patients and their families on issues related to CNS tumors, and their treatment and side effects/complications of treatment.

Gain proficiency in performing techniques and prescriptions (including alternative treatment arrangements), formulate treatment plans and dosimetry according to accepted guidelines for each of the disease sites, according to stage of disease and the clinical situation.

Practice-based Learning & Improvement

- Be able to analyze practice experience and perform practice-based improvement activities (ie, suggestions for improving the service and rotation).
- Be able to obtain information from the larger population from which the brain tumor patients or patients with metastatic cancer are drawn.

Interpersonal & Communication Skills

- Fully sustain a therapeutic and ethically sound relationship with CNS patients.
- Use effective listening, non-verbal, explanatory, questioning and writing skills to elicit and provide information to and about brain tumor patients or patients with metastatic cancer.
- Work effectively with other health care providers as a member and leader of the health care team. The PGY4-5 resident is expected to lead the weekly patient-under-treatment rounds.

Professionalism

- Responsiveness to societal needs supercedes self-interest.
- Commitment to excellence and ongoing professional development.

Systems-based Practice

- Know how his/her health care practices affect health care providers and the larger society, and how elements of the system affect his/her own practice.
- Partner with health care managers and providers to assess, coordinate and improve health care, and know how these activities affect system performance.
- Be able to demonstrate caring behaviors and communicate effectively with patients with brain tumors and metastatic lesions, and with their families, and work effectively with other health care providers, including nurses, therapists and social workers.
Residents will evaluate adult patients with gastro-intestinal neoplasms, including esophageal, gastric/pancreatic, hepatobiliary, colorectal and anal cancers. These patients are seen primarily in a multidisciplinary context, together with surgical oncologists, medical oncologists, gastroenterologists, pathologists, and other support personnel. The rotation therefore provides opportunities for enhancing the resident’s multidisciplinary knowledge and management abilities for patients with these conditions.

In addition, the resident gains training experience and eventual proficiency in the management of patients with gastro-intestinal malignancies during consultation of patients outside the multidisciplinary clinic, weekly patient-under-treatment visits, and follow-up clinics. The resident is expected to see each patient under treatment on a weekly basis and a majority of the follow-up patients, under the supervision of the attending. The resident is expected to gain training experience and eventual proficiency in the simulation and treatment planning of patients with gastro-intestinal malignancies using external beam techniques, including 3-D conformal therapy (3-D CRT) and intensity-modulated radiation therapy (IMRT), in addition to experience in brachytherapy techniques as applicable to this population of patients, within the context of the multi-modality approach.

While the resident will not likely gain direct experience in every site and/or stage of disease, it is expected that enough experience will have been gained during the rotation for the resident to be able to apply the knowledge and experience to the unique situation when it presents itself.

Service-specific Topics
- Adjuvant chemoradiation therapy for gastric cancer
- Chemoradiation therapy in the management of pancreatic cancer
- Chemoradiation therapy for anal cancer
- Adjuvant therapy of rectal cancer
- Radiation therapy for esophageal cancer
- Radiation therapy for liver metastasis
- Radiation therapy in the management of cholangiocarcinoma

General Goals and Objectives
1) Know the epidemiology and patterns of spread and staging for GI malignancies: rectal, anal, esophagus, stomach, pancreas, biliary tract, colon.
2) Rectal: candidates for pre vs. postoperative treatment, radiation doses and fields and literature to support this. Know chemotherapy doses also. Know criteria for sphincter preservation, i.e., anatomy of rectum. Which patients can undergo sphincter preservation. Indication and subset of patients that are candidates for local excision.
3) Esophagus- know definitive combined modality treatment, fields, doses. Know preoperative and postoperative chemoradiation strategies, dose techniques, chemo agents. Phase II and III studies studies.

4) Pancreas-operable vs. inoperable pt, pre-op vs. post op. Fields that reflect the difference in location of the tumor, LN involvement, margins, areas of risk. Gemcitibine dose and field size. Controversies surrounding postoperative chemoradiation and defense of treatment.

5) Stomach-role of postoperative XRT and role for palliation. How treatment differs with change in histology e.g., Lymphoma. Patterns of failure, field design by tumor location in the stomach. Active chemo agents, dose, phase II protocols, Phase III results.

6) Colon-is there a role for adjuvant and neoadjuvant XRT?

7) Know the anatomy of the different sites and be able to utilize IMRT in the treatment planning for these cases. Know normal tissue tolerance and have an idea of dose restraints for structures such as small bowel, kidney, and liver.
1st Rotation (PGY2-3)

For each of the disease categories and sites listed below, the resident is expected to acquire the appropriate medical knowledge, as outlined:

- Esophagus
- Stomach
- Pancreas
- Hepatobiliary tract
- Colon
- Rectum
- Anal canal
- Intravascular brachytherapy for the prevention of restenosis
- Heterotopic bone radiation

**Medical Knowledge**

- Describe the anatomic features and relevant regional anatomic structures (draining lymphatics).
- Understand the radiation effects and response on organ of interest and surrounding normal tissue: acute and chronic radiation effects.
- Identify epidemiologic and etiologic risk factors, tumor markers/molecular genetics, potential preventative and screening methods.
- Understand natural history, clinical presentation, diagnostic workup and staging, and clinicopathologic manifestations.
- Understand the principles of multidisciplinary treatment and management and role(s) of radiation therapy for each of the disease sites and categories, including:
  - Esophageal cancer:
    - Definitive or palliative treatment for distal and proximal esophageal cancer, including surgery, radiation therapy alone, pre-operative and post-operative radiation therapy and chemoradiation and definitive chemoradiation therapy;
  - Pre-operative/post-operative radiation therapy for stomach cancer;
  - Pancreatic cancer:
    - Post-operative radiation therapy/chemotherapy for pancreatic cancer;
    - Chemoradiation for unresectable pancreatic cancer;
  - Rectal cancer:
    - Adjuvant radiation therapy for rectal cancer;
    - Pre-operative/post-operative radiation therapy;
    - Chemoradiation for anal canal cancer.
- Understand the principles of treatment of primary site lymph node region for each of the disease categories and stage of disease.
- Know and be able to apply principles of radiological physics and radiobiology appropriate to radiation therapy for each of the disease categories, including:
  - Principles of chemoradiation sensitization.
- Acquire basic knowledge of controversial areas or unusual situations in each of the disease categories, including:
  - Adjuvant therapy of colon cancer;
  - Pros and cons of pre-operative and post-operative radiation for rectal cancer;
Chemoradiation for anal canal cancer.

**Patient Care**
- Be able to gather and organize essential important information about patients with gastrointestinal malignancies, including taking an accurate history of present illness, past medical/surgical history, allergies, social/family history, particularly as they pertain to the current illness.
- Complete a full physical examination and be able to evaluate all hematological, biochemical, and radiologic studies used to assess patients with gastro-intestinal malignancies.
- Be able to determine whether radiation is appropriate, based on diagnostic information and medical/scientific information, using clinical judgment.
- Be able to complete chart appropriately, including timely completion of staging sheets, consultation notes, treatment notes, and summaries.
- Develop and implement patient management plans for patients with gastro-intestinal malignancies who will receive definitive radiation +/- chemotherapy or in the pre-operative or post-operative setting:
  - Esophagus;
  - Stomach;
  - Pancreas;
  - Rectal;
  - Anal canal;
  - Metastatic and primary liver tumors.
- Learn to perform radiation therapy techniques and formulate/evaluate treatment plans, prescription and dosimetry for each of the disease categories/sites according to stage of disease and clinical situation:
  - Esophageal:
    - Including dose and volume consideration and field managements, depending on location (cervical esophagus, thoracic/distal esophagus);
    - Simulation technique for each;
  - Stomach:
    - Treatment volumes and doses in pre-operative and post-operative situations;
  - Pancreas:
    - Treatment volumes and doses and field managements;
  - Colorectal:
    - Treatment volumes and doses dependent on stage (extent) of disease;
  - Anal canal:
    - Treatment volumes/doses and field managements, time-dose factors;
  - Liver:
    - Treatment volumes/doses and field managements, time-dose factors, focusing on SRT.
- Learn basic critical organ dose parameters and begin to integrate this information into the patient’s radiation therapy treatment plan.
Be able to identify and manage side-effects of patients under treatment and in follow-up and to counsel/supervise patients on appropriate preventative, treatment and follow-up measures for each of the disease categories, including:
  o Skin reaction/dermatitis/mucositis;
  o Esophagitis/dysphagia;
  o Nausea/vomiting;
  o Diarrhoea;
  o Fatigue;
  o Cytopenia.

Be able to demonstrate caring behaviors and counsel and communicate effectively with this patient population and their families and work effectively with other health care providers.

Practice-based Learning & Improvement
Interpersonal & Communication Skills
Professionalism
Systems-based Practice
The PGY 2-3 resident is expected to begin acquiring experience in those aspects of practice based learning & improvement, interpersonal & communication skills, professionalism, and systems-based practice, as may be appropriate for patients with these cancers:

Practice-based Learning & Improvement
  □ Begin to locate, appraise and assimilate evidence from scientific studies related to patients with gastro-intestinal malignancies, ie, become familiar with scientific evidence as may be presented in a standard textbook.
  □ Begin to apply knowledge of study design and statistical methods in order to appraise clinical studies and other information on diagnostic and therapeutic effectiveness.
  □ Use information technology to manage information, access on-line medical information and support own education.
  □ Assist/facilitate the learning of students and other health care providers, including nurses, therapists, and other junior residents.

Interpersonal & Communication Skills
  □ Begin developing and sustaining a therapeutic ethically sound relationship with patients with gastro-intestinal malignancies.
  □ Begin using effective listening, non-verbal, explanatory, questioning, and writing skills to elicit and provide information to and about patients with gastro-intestinal malignancies.
  □ Work effectively with others as a member of, or leader of a health care team.

Professionalism
  □ Demonstrate respect, compassion, integrity, and responsiveness to the needs of patients with gastro-intestinal malignancies.
DIC Begin to be able to obtain informed consent from patients with gastro-intestinal malignancies, including those entering protocols.

DIC Begin to demonstrate commitment to ethical principles pertaining to permission/withholding of clinical care to patients with gastro-intestinal malignancies.

DIC Begin to gain experience in billing issues.

DIC Demonstrate sensitivity/responsiveness to these patients’ background, culture, and age.

**Systems-based Practice**

DIC Begin to understand how his/her patient care and other professional practices affect other health care providers (eg, therapists).

DIC Begin to practice health care that is cost-effective, and begin to learn how to alleviate resources, while not compromising quality of care.

DIC Begin to help patients deal with health system complexities.
In addition to developing proficiency in the skills associated with each of the competencies outlined in the Goals and Objectives for the PGY2-3 rotation, the PGY4-5 resident is expected to acquire knowledge and gain proficiency in the following areas associated with each of the competencies:

Medical Knowledge
- Know and understand the pertinent supportive literature and studies related to the role of radiation therapy and associated oncologic disciplines and the results/outcome of treatment for each of the disease categories/sites by stage.
- Proficiency in understanding the prognostic factors for patients with gastrointestinal malignancies.
- Thoroughly understand controversial areas in the treatment of gastrointestinal malignancies, including:
  - Single modality vs. multimodality therapy for esophageal cancer;
  - Stomach cancer altered fractionation/conformal radiosensitizer agents;
  - Pancreatic cancer:
    - Pre-operative chemoradiation therapy;
    - Radiosensitizer agents;
    - 3-D CRT;
  - Pre-operative vs. post-operative radiation treatment and chemotherapy for resectable rectal cancer;
  - Pre-operative radiation/chemotherapy for sphincter preservation;
  - Recurrent rectal cancer.
- Understand unusual gastrointestinal malignancies, including their presentation, including history, etiologic factors, stage and management, including role(s) of radiation therapy:
  - Small intestinal cancer;
  - Hepatobiliary malignancies:
    - Gall bladder cancer;
    - Bile duct cancer;
    - Hepatocellular carcinoma;
    - Metastatic liver tumors.
- Understand the use of systemic chemotherapy/gene therapy, radiation sensitizers and other new/developing modalities as they are applicable to gastrointestinal malignancies, including opportunities for chemoprevention and for clinical and translational research.

Patient Care
- Be able to undertake all aspects of patient care related to patients with gastrointestinal malignancies, including initial assessment, formulation and implementation of treatment plans, discussion with family members and referring physicians, treatment prescription and interpretation with other treatment modalities.
- Maturation of written consultations is expected, with emphasis on delineation of plan of management and, when appropriate, reference to pertinent literature to substantiate recommendations.
Understand critical organ dose parameters, including DVH analysis, effect of chemotherapy and other factors, and fully integrate this information into patients’ radiation therapy treatment plans.

Gain proficiency in managing side-effects during and after therapy and in counseling patients and their families on issues related to gastrointestinal cancers, and their treatment and side effects/complications of treatment.

Gain proficiency in performing techniques and prescriptions (including alternative treatment arrangements), formulate treatment plans and dosimetry according to accepted guidelines for each of the disease sites, according to stage of disease and the clinical situation.

Practice-based Learning & Improvement
- Be able to analyze practice experience and perform practice-based improvement activities (ie, suggestions for improving the service and rotation).
- Be able to obtain information from the larger population from which patients with gastrointestinal malignancies are drawn.

Interpersonal & Communication Skills
- Fully sustain a therapeutic and ethically sound relationship with patients with gastrointestinal malignancies.
- Use effective listening, non-verbal, explanatory, questioning and writing skills to elicit and provide information to and about patients with gastrointestinal malignancies.
- Work effectively with other health care providers as a member of the health care team.

Professionalism
- Responsiveness to societal needs supercedes self-interest.
- Commitment to excellence and ongoing professional development.

Systems-based Practice
- Know how his/her health care practices affect health care providers and the larger society, and how elements of the system affect his/her own practice.
- Partner with health care managers and providers to assess, coordinate and improve health care, and know how these activities affect system performance.
Residents will evaluate adult patients with genito-urinary neoplasms, including prostate, bladder, testicular, renal/ureteral and urethra/penile cancers. These patients are seen primarily in a multidisciplinary context, together with urologic/surgical oncologists, medical oncologists and other support personnel.

The rotation therefore provides opportunities for enhancing the resident’s multidisciplinary knowledge and management abilities for patients with these conditions. The focus is on patients with prostate cancer, but experience is also gained in the other malignancies, primarily testis and bladder cancer, and renal neoplasms.

In addition, the resident gains training experience and eventual proficiency in the management of genito-urinary patients during consultation of patients outside the multidisciplinary clinic, weekly patient-under-treatment visits, and follow-up clinics. The resident is expected to see each patient under treatment on a weekly basis and a majority of the follow-up patients, under the supervision of the attending. The resident is expected to gain training experience and eventual proficiency in the simulation and treatment planning of patients with genito-urinary malignancies using external beam techniques, including 3-D conformal therapy (3-D CRT) and intensity-modulated radiation therapy (IMRT), in addition to technical abilities and understanding of treatment planning in prostate brachytherapy.

While the resident will not likely gain direct experience in every site and/or stage of disease, it is expected that enough experience will have been gained during the rotation for the resident to be able to apply the knowledge and experience to the unique situation when it presents itself.

**Service-specific Topics**
- Low risk prostate cancer
- Intermediate risk prostate cancer
- High risk prostate cancer
- Seminoma: early stage
- Bladder cancer: bladder preservation
- Adjuvant or salvage post-operative radiation
- Brachytherapy
- Conformal radiation and IMRT for prostate cancer
- Hormonal therapy and radiation for prostate cancer

**General Goals and Objectives**
1. Know anatomy, epidemiology and staging of prostate and bladder cancer.
2. Prostate-know the various treatment options for each stage prostate cancer-surgery, definitive external beam, seed implant, hormonal therapy, observation, cryosurgery and the efficacy and side effects associated with each.
3) With regards to external beam, know which patients should be offered small vs. large pelvic fields +/- hormones. Know supporting RTOG data, Partin tables, Roach formula, etc.

4) Role for postoperative pelvic irradiation.

5) With advanced prostate cancer–palliative measures-XRT, androgen deprivation. Know how each drug works.

6) Bladder-know the regimen for bladder conservation and supporting data.

7) Renal cell–is there a role for adjuvant radiation? Are solitary renal metastases handled any differently than other bone mets?

8) Learn to properly provide evidence-based care for prostate cancer patients based on their presenting prognostic factors and clinical situation.
1st Rotation (PGY2-3)

For each of the disease sites/categories listed below, the resident is expected to acquire the appropriate knowledge/skills, as described:
- Prostate cancer
- Bladder cancer
- Testicular cancer
- Kidney (renal cell carcinoma)
- Urethra, penis

**Medical Knowledge**
- Describe the anatomic features and relevant regional anatomic structures (draining lymphatics).
- Understand the radiation effects and response on organ of interest and surrounding normal tissue: acute and chronic radiation effects; complications.
- Identify epidemiologic and etiologic risk factors, tumor markers/molecular genetics, including prevention and screening methods.
- Understand natural history, clinical presentation, and detection, histology/pathology, diagnostic work-up and staging.
- Understand the principles of multidisciplinary treatment and management and role(s) of radiation therapy for each of the disease sites/categories, including:
  - Early stage/low risk prostate cancer: role of brachytherapy, external beam therapy, including 3-D CRT and IMRT;
  - Intermediate risk and high risk (locally-advanced) prostate cancer: role of external beam therapy, including 3-D CRT and IMRT, and/or brachytherapy; adjuvant use of hormonal therapy;
  - Post-operative treatment of prostate cancer with radiation: adjuvant vs. salvage radiation +/- hormonal therapy;
  - Metastatic prostate cancer: role of radiation and/or hormonal therapy;
  - Bladder cancer: definitive radiation; pre-operative and post-operative radiation, role of definitive chemoradiation for invasive carcinoma;
  - Testicular cancer: seminoma;
- Understand the principles of treatment of primary site and lymph node regions for each of the disease sites and stage of disease.
- Know and be able to apply principles of radiological physics and radiobiology as appropriate to radiation therapy for each of the disease categories:
  - Importance of time-dose factors for bladder cancer;
  - Principles of radiation sensitization with hormonal therapy (prostate cancer) and chemotherapy (bladder cancer).
- Acquire basic knowledge of areas of controversy in each of the disease categories:
  - Prostate cancer:
    - Role of treatment of lymph node region for early stage prostate cancer; locally-advanced, post-operative prostate cancer;
    - Observation for early stage prostate cancer;
    - Hormonal therapy vs. observation vs. salvage for biochemical failure
following radiation therapy or brachytherapy;

- Bladder cancer:
  - Chemoradiation for invasive bladder carcinoma vs. cystectomy;

- Testis:
  - Role of surveillance in Stage I carcinoma;
  - Controversies in the determination of treatment volume and dose (para-aortic only vs. hockey-stick);
  - Issue regarding sterility and second malignant tumor that may be associated with the disease and with radiation treatment.

**Patient Care**

- Be able to gather and organize essential important information about a genitourinary cancer patient, including taking an accurate history of present illness, past medical/surgical history, allergies, social/family history, particularly as they pertain to the current illness.
- Complete a full physical examination and be able to evaluate all hematological, biochemical, and radiologic studies used to assess the genitourinary cancer patient.
- Be able to determine whether radiation is appropriate, based on diagnostic information and medical/scientific information, using clinical judgment.
- Be able to complete chart appropriately, including timely completion of staging sheets, consultation notes, treatment notes, and summaries.
- Develop and implement patient management plans for:
  - Prostate cancer patients with early stage prostate cancer, locally advanced prostate cancer, adjuvant/salvage radiation therapy, and metastatic prostate cancer, including determination of intent of treatment (definitive vs. palliative), use of combined hormononal therapy and radiation treatment.
  - Invasive bladder cancer patients, including use/role of bladder presentation therapy and intent of treatment (definitive vs. palliative).
  - Testicular cancer patients with early stage seminoma (Stage I and Stage II).
- Learn to perform radiation therapy techniques (including brachytherapy, as applicable), perform simulations, formulate prescriptions and evaluate treatment plans for each of the disease categories, according to stage of disease and clinical situation. This includes determination of volume treatment portals/doses for both the initial phase of treatment and 'boost' phase (in addition to knowledge of alternative treatment techniques):
  - Prostate cancer:
    - Determination of volume to be treated, including lymph node regions, if necessary, and dose to be administered for newly diagnosed prostate cancer, and in the post-operative setting, including 3-D conformal radiation therapy and intensity modulated radiation therapy (as applicable);
    - Interstitial irradiation/prostate brachytherapy for early stage and intermediate stage prostate cancer (with EBRT);
  - Bladder cancer:
    - Determination of volume to be treated, including lymph node regions and dose to be administered; simulation techniques;
  - Testicular cancer (seminoma):
Determination of volume to be treated and doses to be delivered for Stage I/II seminoma;
- Metastatic genitourinary cancer:
  - Metastatic prostate cancer, including use of radionuclide therapy (Strontium/Samarium);
  - Large field radiation/hemi-body radiation.
- Learn basic critical organ dose parameters and begin to integrate this information into the patients radiation therapy treatment plan.
- Be able to identify and manage side-effects of patients under treatment and in follow-up, and to counsel/supervise patients on appropriate follow-up measures for each of the disease categories:
  - Dermatitis;
  - GI side-effects;
  - GU side-effects, including ED;
  - Fatigue.
- Be able to demonstrate caring behaviors, counsel, communicate effectively with GU cancer patients and their families, and work effectively with other health care providers: including with regard to the unique psychosocial and sexual issues of seminoma patients and prostate cancer patients.

Practice-based Learning & Improvement
Interpersonal & Communication Skills
Professionalism
Systems-based Practice

The PGY 2-3 resident is expected to begin acquiring experience in those aspects of practice based learning & improvement, interpersonal & communication skills, professionalism, and systems-based practice, as may be appropriate for patients with these cancers.

Practice-based Learning & Improvement
- Begin to locate, appraise and assimilate evidence from scientific studies related to genitourinary cancer patients, ie, become familiar with scientific evidence as may be presented in a standard textbook.
- Begin to apply knowledge of study design and statistical methods in order to appraise clinical studies and other information on diagnostic and therapeutic effectiveness. Know study design of major (randomized) studies that support the use of radiation and hormonal therapy for prostate cancer and chemoradiation for bladder cancer. Know also studies regarding treatment of testicular cancer, particularly seminoma.
- Use information technology to manage information, access on-line medical information and support own education.
- Assist/facilitate the learning of students and other health care providers, including nurses, therapists, and other junior residents.

Interpersonal & Communication Skills
Begin developing and sustaining a therapeutic ethically sound relationship with genitourinary cancer patients. This is begun during consultation, continues during simulation, and develops during the course of treatment.

Begin using effective listening, non-verbal, explanatory, questioning, and writing skills to elicit and provide information to and about genitourinary cancer patients.

Work effectively with others as a member of, or leader of a health care team, e.g. attendance and participation at radiation therapy and multidisciplinary team meetings.

**Professionalism**

- Demonstrate respect, compassion, integrity, and responsiveness to the needs of the genitourinary cancer patient.
- Begin to be able to obtain informed consent from genitourinary cancer patients, including those entering protocols.
- Begin to demonstrate commitment to ethical principles pertaining to permission/withholding of clinical care to genitourinary cancer patients, especially those treated with palliative intent.
- Begin, under the guidance of the attending, to gain experience in billing issues.
- Demonstrate sensitivity/responsiveness to the genitourinary cancer patients’ background, culture, and age.

**Systems-based Practice**

- Begin to understand how his/her patient care and other professional practices affect other health care providers (e.g. nurses and therapists).
- Begin to practice health care that is cost-effective, and begin to learn how to allocate resources, while not compromising quality of care.
- Begin to help patients deal with health system complexities, e.g. scheduling issues.
2nd Rotation (PGY4-5)

In addition to developing proficiency in the skills associated with each of the competencies outlined in the Goals and Objectives for the PGY2-3 rotation, the PGY4-5 resident is expected to acquire knowledge and gain additional proficiency in the following areas associated with each of the competencies.

Medical Knowledge
- Know and thoroughly understand the pertinent scientific literature and particularly the randomized studies (e.g., RTOG) related to the role of radiation therapy for the various presentations/stages of prostate cancer, bladder cancer, testicular cancer (seminoma and nonseminoma), and renal cell carcinoma, as applicable.
- Know and understand the role of radiation therapy in renal pelvis/ureter and penile/urethral cancers, and non-seminomatous testicular carcinoma.
- Proficiency in understanding the prognostic factors for prostate cancer, bladder cancer, testicular cancer, and renal cell carcinoma.
- Thoroughly understand controversial areas in the treatment of genitourinary malignancies:
  - Treatment of lymph nodes region in early stage prostate cancer, advanced stage prostate cancer, and post-operative prostate cancer;
  - Controversies in the use of hormonal therapy in locally-advanced and metastatic prostate cancer;
  - Use of systemic therapy in metastatic prostate cancer and high risk prostate cancer;
  - Controversies in the role of radiation for salvage vs. adjuvant post-prostatectomy setting;
  - Salvage brachytherapy/prostatectomy/cryotherapy after radiation therapy;
  - Particle beam therapy for prostate cancer;
  - IMRT/3-D CRT for prostate cancer;
  - Pros and cons of bladder preservation for bladder cancer;
  - Controversies in the management of pure seminoma:
    - Elective radiation vs. surveillance in Stage I seminoma;
    - Elective irradiation of mediastinal supraclavicular nodes in Stage I/II testicular cancer;
    - Bulky abdominal disease management of non-seminoma: chemotherapy and role of radiation.
- Understand unusual genitourinary neoplasms: renal pelvis, ureter (transitional cell carcinoma), urethral cancer, penile cancer, non-seminomatous testicular carcinoma and other unusual testicular neoplasms.
- Understand the use of systemic chemotherapy, gene therapy, immunotherapy and other new/developing modalities appropriate to genitourinary oncology patients, as well as opportunities for clinical and translational research in this area.

Patient Care
- Be able to undertake all aspects of patient care related to genitourinary cancer patients, including initial assessment, formulation and implementation of treatment
plans, discussion with family members and referring physicians, treatment prescription and interpretation with other treatment modalities.

- Maturation of written consultations is expected, with emphasis on delineation of plan of management and, when appropriate, reference to pertinent literature to substantiate recommendations.
- Understand critical organ dose parameters, including DVH analysis, affect of chemotherapy and other factors, and fully integrate this information into patients' radiation therapy treatment plans.
- Gain proficiency in managing side-effects during and after therapy and in counseling patients and their families on issues related to genitourinary cancers, and their treatment and side effects/complications of treatment.
- Gain proficiency in performing techniques and prescriptions (including alternative treatment arrangements), formulate treatment plans and dosimetry according to accepted guidelines for each of the disease sites, according to stage of disease and the clinical situation.
- In addition to gaining proficiency in the unusual genitourinary sites listed for PGY2-3, experience may also be gained in the following disease sites:
  - Penile urethral carcinoma;
  - Renal pelvis/ureter;
  - Unusual testicular neoplasms.

Practice-based Learning & Improvement
- Be able to analyze practice experience and perform practice-based improvement activities (ie, suggestions for improving the service and rotation).
- Be able to obtain information from the larger population from which the genitourinary cancer patients are drawn.

Interpersonal & Communication Skills
- Fully sustain a therapeutic and ethically sound relationship with genitourinary cancer patients.
- Use effective listening, non-verbal, explanatory, questioning and writing skills to elicit and provide information to and about genitourinary cancer patients.
- Work effectively with other health care providers as a member and leader of the health care team. The PGY4-5 resident is expected to lead the weekly patient-under-treatment rounds.

Professionalism
- Responsiveness to societal needs that supercedes self-interest.
- Commitment to excellence and ongoing professional development.

Systems-based Practice
- Know how his/her health care practices affect health care providers and the larger society, and how elements of the system affect his/her own practice.
- Partner with health care managers and providers to assess, coordinate and improve health care, and know how these activities affect system performance.
Residents will evaluate adult patients with gynecologic malignancies. These patients are seen in a multidisciplinary context with gynecological oncologists, medical oncologists, and other support personnel.

In addition, the resident gains training experience and eventual proficiency in the management of patients with gynecologic malignancies during consultation of patients outside the multidisciplinary setting, weekly patient-under-treatment visits, and follow-up clinics. The resident is expected to see each patient under treatment on a weekly basis and a majority of the follow-up patients, under the supervision of the attending.

The resident is expected to gain training experience and eventual proficiency in the simulation and treatment planning of patients with gynecologic malignancies using external beam techniques, and brachytherapy (including LDR and HDR intracavitary brachytherapy) techniques as appropriate.

While the resident will not likely gain direct experience in every site and/or stage of disease, it is expected that enough experience will have been gained during the rotation for the resident to be able to apply the knowledge and experience to the unique situation when it presents itself.

### Service-specific Topics
- Treatment of cervical cancer
- Treatment of endometrial cancer
- Treatment of ovarian cancer
- Treatment of vulval cancer
- Treatment of vaginal cancer

### General Goals and Objectives
1. Know the epidemiology and patterns of spread and staging for cervical, vaginal, vulvar, endometrial, ovarian and fallopian tube cancers.
2. Cervix-know the different treatment options (surgery, HDR, LDR, external, chemo/XRT) for all stages of cervical cancer. Know the XRT doses and fields and how it differs according to stage. Know the RTOG/GOG data regarding combined modality tx, extended field XRT etc.
3. Brachytherapy-understand the physics and be able to write prescription and perform T&O, syed implant, HDR. Know tolerances of structures in the abdomen and pelvis-small bowel, rectum, bladder, vaginal wall, upper vagina.
4. Endometrial-prognostic factors and how that influences treatment. Know which patients require HDR to vaginal apex alone vs. external beam and HDR. Know whole abdominal technique.
5. Vulvar-understand which patients require limited pelvic field vs. large pelvic field. Know GOG data regarding which patients require post-op tx based on the number of
nodes involved. GOG data on omitting the primary site when delivering post-op tx and how depth of inguinal nodes are defined.

6) Vaginal—understand when surface applicator vs. syed implant is necessary. Tx fields and doses.

7) Ovarian—which cases may require whole abdomen XRT.
1st Rotation (PGY2-3)

Medical Knowledge

☒ Describe anatomy as appropriate for patients with gynecologic malignancies, and relevant regional anatomic structures (draining lymphatics).
☒ Understand radiation effects on organ of interest and surrounding normal organs/tissue: acute/chronic radiation effects; complications.
☒ Identify epidemiologic and etiologic risk factors, tumor markers/molecular genetics for gynecologic cancer.
☒ Understand natural history, clinical presentation and diagnostic work-up, staging and clinicopathologic manifestation of gynecologic malignancies.
☒ Understand the principles of multidisciplinary treatment and management for each site and stage:
  o Cervical cancer
  o Endometrial cancer
  o Ovarian cancer
  o Vulval cancer
  o Vaginal cancer
☒ Know and be able to apply the principles of radiological physics and radiobiology appropriate for radiation therapy to each of these sites:
  o Time dose parameters, including treatment duration for cervical cancer;
  o Specific medical knowledge:
    ☐ Cervix:
      o Time-dose parameters (treatment duration);
      o Use of concomitant chemoradiation;
      o Use of neoadjuvant chemotherapy;
      o Role of post-operative radiation therapy;
    ☐ Endometrial:
      o Indications for pre-operative/post-operative XRT (pelvis and extended field) and brachytherapy;
      o Radiation therapy alone for endometrial cancer;
    ☐ Vulva:
      o Definitive chemoradiation, including inguinal radiation;
      o Indications for post-operative radiation therapy;
    ☐ Vaginal:
      o Use of external beam radiation and brachytherapy;
    ☐ Ovarian:
      o Indications for whole abdominal/pelvic radiation post-operatively;
      o Radiocolloid therapy;

Patient Care

☒ Be able to gather and organize essential important information about patients with gynecologic malignancies, including taking an accurate history of present illness, past medical/surgical history, allergies, social/family history, particularly as they pertain to the current illness.
Complete a full physical examination and be able to evaluate all hematological, biochemical, and radiologic studies used to assess the patient with gynecologic malignancies.

Be able to determine whether radiation is appropriate, based on diagnostic information and medical/scientific information, using clinical judgment.

Be able to complete chart appropriately, including timely completion of staging sheets, consultation notes, treatment notes, and summaries.

Develop and implement patient management plans for gynecologic-oncology patients including determination of context of treatment (palliative/definitive) and integration of radiation with other modalities of treatment, including surgery and/or systemic or chemotherapy for each of the sites/stages of disease.

Learn to perform radiation therapy technologies (including 3-D CRT, IMRT) in addition to evaluation, treatment planning and dosimetry for irradiation of:

- Cervix:
  - Treatment volume/dose of EBT: pelvis or para-aortic radiation therapy;
  - Brachytherapy: treatment planning/performance of HDR/LDR;
- Endometrium:
  - Treatment volume/dose of EBT;
  - Brachytherapy: HDR brachytherapy;
- Vagina:
  - Treatment volume/dose;
  - Brachytherapy techniques;
- Vulva:
  - Treatment volume/dose;
- Ovary:
  - Treatment volume;

Learn basic critical organ dose parameters and begin to integrate this information into the patients radiation therapy treatment planning.

Gain experience in the use of 3-D CRT as this becomes integrated into treatment.

Demonstrate caring behaviors and communicate effectively with gynecologic cancer patients and their families, and work effectively with other health care providers, including nurses, therapists and social workers.

Be able to manage side-effects of patients under treatment and in follow-up, and counsel patients on appropriate follow-up measures (eg, regular examinations).

**Practice-based Learning & Improvement**
**Interpersonal & Communication Skills**
**Professionalism**
**Systems-based Practice**
The PGY 2-3 resident is expected to begin acquiring experience in those aspects of practice-based learning & improvement, interpersonal & communication skills, professionalism, and systems-based practice, as may be appropriate for patients with these cancers.
Practice-based Learning & Improvement

- Begin to locate, appraise and assimilate evidence from scientific studies related to patients with gynecologic malignancies, i.e., become familiar with scientific evidence as may be presented in a standard textbook.
- Begin to apply knowledge of study design and statistical methods in order to appraise clinical studies and other information on diagnostic and therapeutic effectiveness.
- Use information technology to manage information, access on-line medical information and support own education.
- Assist/facilitate the learning of students and other health care providers, including nurses, therapists, and other junior residents.

Interpersonal & Communication Skills

- Begin developing and sustaining a therapeutic ethically sound relationship with patients with gynecologic malignancies.
- Begin using effective listening, non-verbal, explanatory, questioning, and writing skills to elicit and provide information to and about patients with gynecologic malignancies.
- Work effectively with others as a member of, or leader of a health care team.

Professionalism

- Demonstrate respect, compassion, integrity, and responsiveness to the needs of the patient with gynecologic malignancies.
- Begin to be able to obtain informed consent from patients with gynecologic malignancies, including those entering protocols.
- Begin to demonstrate commitment to ethical principles pertaining to permission/withholding of clinical care to patients with gynecologic malignancies.
- Begin to gain experience in billing issues.
- Demonstrate sensitivity/responsiveness to the patients' background, culture, and age.

Systems-based Practice

- Begin to understand how his/her patient care and other professional practices affect other health care providers (e.g., therapists).
- Begin to practice health care that is cost-effective, and begin to learn how to allocate resources, while not compromising quality of care.
- Begin to help patients deal with health system complexities.
In addition to gaining proficiency/expertise in the skills associated with each of the competencies outlined above in the goals and objectives of the PGY2-3 rotation, the PGY4-5 resident is expected to acquire knowledge and gain additional proficiency in the following areas, as they pertain to the breast cancer patient.

**Medical Knowledge**

- Know and understand the pertinent scientific literature and studies related to the role of radiation therapy and associated oncologic disciplines for patients with gynecologic malignancies.
- Proficiency in understanding prognostic factors for patients with gynecologic malignancies.
- Understand controversies in the treatment of patients with gynecologic malignancies, including:
  - Post-operative radiation therapy after radical hysterectomy;
  - Treatment of incidental carcinoma of cervix after hysterectomy;
  - Use of chemotherapy for cervical cancer;
  - Recurrent cervical cancer;
  - Carcinoma of the cervical stump;
  - Adjuvant radiation therapy +/- brachytherapy for various stages of endometrial cancer;
  - Radiation for vaginal recurrence of endometrial cancer;
  - Indication of radiation therapy for ovarian cancer;
- Understand the use of systemic therapy, gene therapy, and other new modalities as applicable to patients with gynecologic malignancies.
- Understand unusual neoplasms, including their presentation and management, including:
  - Vaginal melanoma/lymph node adenocarcinoma;
  - Small cell carcinoma – cervix;
  - Uterine sarcoma;
  - Carcinoma of cervix during pregnancy;
  - Dysgerminoma;
  - Granulosa cell tumor.

**Patient Care**

- Be able to undertake all aspects of patient care related to patients with gynecologic malignancies, including initial assessment, formulation and implementation of treatment plan, discussion with patients and family, and with the referring physician, treatment prescription and integration with other treatment modalities.
- Maturation of written consultation is expected, with emphasis on delineation of plan of management and, when appropriate, reference to pertinent literature to substantiate recommendation.
Understand critical organ dose parameters, including DVH analysis, effect of chemotherapy and other factors, and fully integrate this information into patients radiation therapy treatment plan.

Gain proficiency in managing side-effects during and after therapy and in counseling patients and their families on issues related to gynecologic Malignancies and their treatment and side effects/complications of treatment.

Gain proficiency in performing techniques and prescriptions (including alternative treatment arrangements), formulate treatment plans and dosimetry according to accepted guidelines for each of the disease sites, according to stage of disease and the clinical situation.

Practice-based Learning & Improvement

- Be able to analyze practice experience and perform practice-based improvement activities (ie, suggestions for improving the service and rotation).
- Be able to obtain information from the larger population from which the patients with gynecologic malignancies are drawn.

Interpersonal & Communication Skills

- Fully sustain a therapeutic and ethically sound relationship with patients with gynecologic malignancies.
- Use effective listening, non-verbal, explanatory, questioning and writing skills to elicit and provide information to and about patients with gynecologic malignancies.
- Work effectively with other health care providers as a member of the health care team.

Professionalism

- Responsiveness to societal needs supercedes self-interest.
- Commitment to excellence and ongoing professional development.

Systems-based Practice

- Know how his/her health care practices affect health care providers and the larger society, and how elements of the system affect his/her own practice.
- Partner with health care managers and providers to assess, coordinate and improve health care, and know how these activities affect system performance.
Head and Neck Cancer Rotation – GOALS AND OBJECTIVES

All PGY Levels

Residents will evaluate adult patients with head and neck malignancies. Patients are usually reviewed in a multidisciplinary tumor board which includes head and neck surgeons, oral surgeons, base of skull surgeons, medical oncologists experienced in head and neck care, pathologists, diagnostic radiologists, nuclear medicine physicians, speech pathologists, nurses, and dieticians. The rotation therefore provides opportunities for enhancing the resident’s multidisciplinary knowledge and management abilities for patients with these conditions.

In addition, the resident gains training experience and eventual proficiency in the management of head and neck patients during consultation of patients outside the multidisciplinary clinic, weekly patient-under-treatment visits, and follow-up clinics. The resident is expected to see each patient under treatment on a weekly basis and a majority of the follow-up patients, under the supervision of the attending. The resident is expected to gain training experience and eventual proficiency in the simulation and treatment planning of patients with head and neck malignancies using external beam techniques, including 3-D conformal therapy (3-D CRT) and intensity-modulated radiation therapy (IMRT), in addition to experience in brachytherapy techniques as applicable to this population of patients.

While the resident will not likely gain direct experience in every site and/or stage of disease, it is expected that enough experience will have been gained during the rotations for the resident to be able to apply the knowledge and experience to the unique situation when it presents itself.

Service-specific Topics for Resident Presentation

- Cancer of hypopharynx
- Cancer of larynx
- Cancer of oropharynx
- Cancer of oral cavity
- Cancer of nasopharynx
- Cancer of salivary gland and paranasal sinuses
- Cancer of the skin
- Cancer of unknown origin
- Recurrent head and neck cancers

General Goals and Objectives

1) Evaluate patients with malignancies of the head and neck region.
2) Formulate treatment alternatives for these patients.
3) Become proficient in mirror laryngoscopy and the techniques of fiberoptic endoscopy.
4) Simulate and prescribe radiation therapy plans.
5) Follow these patients during treatment course.
6) Evaluate patients returning for post treatment follow-up visits.
7) Review published treatment results.
8) Learn how to contour normal structures in the head and neck, to include nodal drainage.
9) Learn to fuse PET/CT images with CT/simulation images to properly define target volumes.
10) Learn to analyze dose-volume histograms and to translate these data into critical appraisals of IMRT plans.
1st Rotation (PGY2-3)

For each of the disease sites/categories listed below, the resident is expected to acquire the appropriate knowledge/skills, to identify and deal with tumors of the following organs:

- Nasopharynx
- Nasal cavity, paranasal sinuses:
  - Nasal vestibule, nasal cavity
  - Ethmoid, maxillary, sphenoid sinuses
- Salivary glands:
  - Parotid gland
  - Submandibular gland
- Oral cavity:
  - Lip and buccal mucosa
  - Oral tongue
  - Gingiva of mouth
- Tonsillar fossa, faucial arch
- Oropharynx, including base of tongue soft palate
- Hypopharynx:
  - Pyriform sinuses
  - Pharyngeal wall
  - Post-cricoid
- Larynx:
  - Supraglottic
  - Glottic
  - Subglottic
- Thyroid cancer:
  - Differentiated (papillary/follical)
  - Medullary
  - Anaplastic
- Skin cancer:
  - Basal cell carcinoma
  - Squamous cell carcinoma
  - Melanoma

Medical Knowledge

- Describe the anatomic features and relevant regional anatomic structures (draining lymphatics).
- Understand the radiation effects and response on organ of interest and surrounding normal tissue: acute and chronic radiation effects; complications.
- Identify epidemiologic and etiologic risk factors, tumor markers/molecular genetics, potential preventative and screening methods.
- Understand natural history, typical clinical presentations, diagnostic workup and staging, and clinicopathologic manifestations.
Understand principles of multidisciplinary management and treatment, and role(s) of radiation therapy (including brachytherapy, altered fractionation 3-D CRT and IMRT, if appropriate) for the following sites, for each stage of disease:

- Nasopharynx:
  - Role of chemotherapy and radiation; altered vs. standard fractionation;
- Nasal cavity/paranasal sinuses:
  - Role of surgery and radiation, including altered fractionation; role of brachytherapy;
- Salivary glands:
  - Role of surgery and indications for treatment with post-operative radiation;
- Oral cavity:
  - Indications for treatment with radiation and application of brachytherapy techniques;
- Tonsillar fossa and faucial arch, oropharynx, including base of tongue:
  - Pre-operative/post-operative and definitive radiation therapy (including hyperfractionation) and use of chemotherapy;
- Hypopharynx:
  - Use of surgery and/or radiation therapy for each sub-site by stage;
- Larynx:
  - Use of definitive radiation therapy including altered fractionation and post-operative radiation for each sub-site and stage;
  - Chemoradiotherapy for laryngeal preservation;
- Skin cancers:
  - Appropriate role of definitive radiation therapy vs. surgery for different disease locations.

Understand the principles of treatment of primary site and lymph node regions for each of the disease sites and stage of disease; know indications for treatment for each site and stage of disease.

Know and be able to apply principles of radiological physics and radiobiology appropriate to radiation therapy for each of the disease categories:

- Importance of time-dose factors;
- Repopulation;
- Principle of chemoradiation sensitization;
- Principles of hyperfractionation/altered fractionation;
- Principles of field alignment; use of electron fields.

Acquire basic knowledge of controversial areas or unusual situations in each of the disease categories, including:

- Re-treatment of recurrent nasopharyngeal carcinoma;
- Esthesioneuroblastoma;
- Pleomorphic adenoma;
- Management of unknown primary;
- Management of the neck: clinically negative or positive; definitive or combined with surgery.
- Other: know risk of nodal disease for each disease site and stage.
Patient Care

- Be able to gather and organize essential important information about a head & neck cancer patient, including taking an accurate history of present illness, past medical/surgical history, allergies, social/family history, particularly as they pertain to the current illness.
- Complete a full physical examination and be able to evaluate all hematological, biochemical, and radiologic studies (e.g., CXR, CT scans, PET scans) used to assess the head & neck cancer patients.
- Be able to determine whether radiation is appropriate, based on diagnostic information and medical/scientific information, using clinical judgment.
- Be able to complete chart appropriately, including timely completion of staging sheets, consultation notes, treatment notes, and summaries.
- Develop and implement patient management plans for Head and neck cancer patients who will receive pre-operative or post-operative radiation therapy +/- chemotherapy, including determination of intent of treatment (definitive/palliative);
- Learn to perform radiation therapy (including brachytherapy, as applicable) techniques and prescriptions, formulate and evaluate treatment plans and dosimetry according to accepted guidelines for each of the disease categories/sites according to stage of disease and the clinical situation. This includes determination of volumes, treatment portals, and doses for both the initial phase and boost treatments, in addition to beginning knowledge of possible alternative treatment-field arrangements:
  - Nasopharynx:
    - Volumes/portals/doses of irradiation and boost; conformal radiation therapy;
  - Nasal cavity/sinuses:
    - Radiation therapy, including 3-D radiation therapy, techniques, including determination of treatment role;
  - Salivary gland:
    - Determination of appropriate treatment volume;
    - Radiation therapy techniques, including IMRT
  - Oral cavity:
    - Radiation therapy techniques, including determination of appropriate treatment volume;
  - Tonsillar fossa/facial arch:
    - Radiation techniques, including determination of appropriate treatment volume, use of intensity-modulated radiation therapy and altered fractionation;
  - Base of tongue/oropharynx, including soft palate:
    - Radiation therapy techniques, including determination of appropriate treatment volume;
  - Hypopharynx:
    - Radiation therapy techniques, including determination of appropriate treatment volume;
  - Larynx:
Radiation therapy techniques, including determination of treatment volumes, including altered fractionation and importance of fraction size in glottic cancer; clinical determination of field sizes;
- Other, as appropriate:
  - Metastatic disease to bone, brain, etc.
- Learn basic critical organ tolerance dose parameters and begin to integrate this information into the patient’s radiation therapy treatment plan.
- Be able to identify and learn to manage acute, subacute and chronic side-effects of patients under treatment and in follow-up, and to counsel/advise patients of appropriate preevaluation, treatment and follow-up measures for each of the disease categories, including:
  - Fatigue;
  - Cytopenia;
  - Skin: reaction/dermatitis;
  - Esophagitis/xerosternia/nutritional problems;
  - Pneumonitis/fibrosis;
  - Screening for second malignancies;
  - Other necrosis/dental problems.
- Be able to:
  - Demonstrate caring behaviors;
  - Counsel and communicate effectively with the head & neck cancer patient population and their families and with other health care providers, including nutritional and dental professionals;
  - Acknowledge and act upon the recognition of the opportunity to assist patients, family members and society in dealing with smoking, and provide appropriate resources to achieve smoking cessation in patients and family members.

Practice-based Learning & Improvement
Interpersonal & Communication Skills
Professionalism
Systems-based Practice
The PGY 2-3 resident is expected to begin acquiring experience in those skills associated with practice-based learning & improvement, interpersonal & communication skills, professionalism, and systems-based practice, as may be appropriate for patients with these cancers.

Practice-based Learning & Improvement
- Begin to locate, appraise and assimilate evidence from scientific studies related to head & neck cancer patients, ie, become familiar with scientific evidence as may be presented in a standard textbook.
- Begin to apply knowledge of study design and statistical methods in order to appraise clinical studies and other information on diagnostic and therapeutic effectiveness: know study design of major randomized studies and non-randomized studies that support the use of radiation, including those employing altered fractionation and chemoradiation.
- Use information technology to manage information, access on-line medical information and support own education.
Assist/facilitate the learning of students and other health care providers, including nurses, therapists, and other junior residents.

**Interpersonal & Communication Skills**
- Begin developing and sustaining a therapeutic and ethically sound relationship with head & neck cancer patients. This is begun during consultation, continues during simulation, and develops during the course of treatment.
- Begin using effective listening, non-verbal, explanatory, questioning, and writing skills to elicit and provide information to and about head & neck cancer patients. This occurs during patient interactions and in discussion with attendings, nurses, therapists, and administrative personnel.
- Work effectively with others as a member of, or leader of a health care team, eg, attendance and participation at radiation therapy and multidisciplinary team meetings.

**Professionalism**
- Demonstrate respect, compassion, integrity, and responsiveness to the needs of the head & neck cancer patient.
- Begin to be able to obtain informed consent from head & neck cancer patients, including those entering protocols.
- Begin to demonstrate commitment to ethical principles pertaining to permission/withholding of clinical care to head & neck cancer patients, especially those treated for palliative purposes.
- Begin, under the guidance of the attending, to gain experience in billing issues.
- Demonstrate sensitivity/responsiveness to the head and neck cancer patients' background, culture, and age.

**Systems-based Practice**
- Begin to understand how his/her patient care and other professional practices affect other health care providers (eg, nurses and therapists).
- Begin to practice health care that is cost-effective, and begin to learn how to allocate resources, while not compromising quality of care.
- Begin to help patients deal with health system complexities, eg, scheduling issues relating to radiation, chemotherapy, dental appointments, etc.
In addition to developing proficiency in the skills associated with each of the competencies outlined in the Goals and Objectives for the PGY2-3 rotation, the PGY4-5 resident is expected to acquire knowledge and gain proficiency in the following areas associated with each of the competencies.

**Medical Knowledge**
- Know and thoroughly understand the pertinent supportive literature and studies related to the role of radiation therapy and associated oncologic disciplines and the results/outcome of treatment for each of the disease categories and sites by stage.
- Proficiency in understanding the prognostic factors for head and neck cancer malignancies.
- Thoroughly understand controversial areas in the treatment of head and neck cancer malignancies:
  - Use of neutrons or accelerated fractionation for salivary gland cancer;
  - Retreatment of recurrent nasopharyngeal carcinoma.
- Understand unusual head and neck cancers malignancies, including their presentation and management, and the role of radiation therapy:
  - Thyroid cancer: differentiated (papillary/follicular; medullary/Hurthle cell; anaplastic);
  - Pleomorphic adenoma; adenoid cystic carcinoma;
  - Merkel cell carcinoma;
  - Glomus tumors/chemodectomas;
  - Angiofibroma;
  - Esthertioneuroblastoma.
- Understand the use of systemic chemotherapy, gene therapy and other new and developing modalities as they are applicable to head and neck cancers malignancies, including opportunities for chemoprevention and for clinical and translational research in this area. This includes radiation sensitizers and hyperfractionation/ altered fractionation trials and head and neck cancers.

**Patient Care**
- Be able to undertake all aspects of patient care related to head and neck cancer and cancer patients, including initial assessment, formulation and implementation of treatment plans, discussion with family members and referring physicians, treatment prescription and interpretation with other treatment modalities.
- Maturation of written consultations is expected, with emphasis on delineation of plan of management and, when appropriate, reference to pertinent literature to substantiate recommendations.
- Understand critical organ dose parameters, including DVH analysis, effect of chemotherapy and other factors, and fully integrate this information into patients’ radiation therapy treatment plans.
- Gain proficiency in managing side-effects during and after therapy and in counseling patients and their families on issues related to head and neck cancers malignancies, and its treatment and side effects/complications of treatment.
Gain proficiency in performing techniques and prescriptions (including alternative treatment arrangements), formulate treatment plans and dosimetry according to accepted guidelines for each of the disease sites, according to stage of disease and the clinical situation.

**Practice-based Learning & Improvement**
- Be able to analyze practice experience and perform practice-based improvement activities (ie, suggestions for improving the service and rotation).
- Be able to obtain information from the larger population from which the head and neck cancer patients are drawn.

**Interpersonal & Communication Skills**
- Fully sustain a therapeutic and ethically sound relationship with head and neck cancer patients.
- Use effective listening, non-verbal, explanatory, questioning and writing skills to elicit and provide information to and about head and neck cancer patients. This includes more active participation/discussion in multidisciplinary conferences.
- Work effectively with other health care providers as a member and leader of the health care team.

**Professionalism**
- Responsiveness to societal needs that supercedes self-interest.
- Commitment to excellence and ongoing professional development.

**Systems-based Practice**
- Know how his/her health care practices affect health care providers and the larger society, and how elements of the system affect his/her own practice.
- Partner with health care managers and providers to assess, coordinate and improve health care, and know how these activities affect system performance. This includes partnering with administrative personnel or nurses to coordinate a patient’s ongoing multidisciplinary care.
Residents will evaluate adult patients with lung/thoracic malignancies. The rotation provides opportunities for enhancing the resident’s multidisciplinary knowledge and management abilities for patients with these conditions.

In addition, the resident gains training experience and eventual proficiency in the management of thoracic oncology patients during consultation of patients, weekly patient-under-treatment visits, and follow-up clinics. The resident is expected to see each patient under treatment on a weekly basis and a majority of the follow-up patients, under the supervision of the attending. The resident is expected to gain training experience and eventual proficiency in the simulation and treatment planning of patients with thoracic malignancies using external beam techniques, including 3-D conformal therapy (3-D CRT) and intensity-modulated radiation therapy (IMRT), in addition to experience in brachytherapy techniques as applicable to this population of patients.

While the resident will not likely gain direct experience in every site and/or stage of disease, it is expected that enough experience will have been gained during the rotations for the resident to be able to apply the knowledge and experience to the unique situation when it presents itself.

Service-specific Topics for Resident Presentation
- Locally advanced non-small cell lung cancer
- Role of post-operative radiation for non-small cell lung cancer
- Limited stage small cell lung cancer
- Inoperable Stage I and II non-small cell lung cancer

General Goals and Objectives
1) Discuss the incidence and epidemiology of lung cancer.
2) Discuss the different histopathologic types of lung cancer and the individual patterns of spread.
3) Determine appropriate tests (both radiologic and laboratory) for the work-up and staging of lung cancer.
4) Determine which lung cancer patients are amenable to surgical resection and enumerate which findings are a contraindication to surgery.
5) Determine the role of definitive radiotherapy, chemoradiation, postoperative radiotherapy and preoperative radiotherapy in the management of lung carcinoma.
6) Discuss the value of prophylactic cranial irradiation in small cell lung cancer.
7) Discuss the tolerance doses of various normal structures in the thorax such as the normal lung, spinal cord, heart (pericardium, myocardium) and esophagus and determine how the radiotherapy fields may change in relation to these tolerance doses.
8) Simulate a patient with lung cancer and determine appropriate volume of tissue which needs to be irradiated.
9) Demonstrate an understanding of other tumors in the thorax such as thymoma, thymic carcinomas and mesothelioma.

10) Demonstrate an understanding of the role of radiation therapy in the palliation of lung cancer such as spinal cord compression, brain metastases, bone metastases, hemoptysis, atelectasis.

11) Determine how surgical pathology results influence radiotherapy fields (volume of treatment) and doses employed.

12) Learn to use 4D gating technology in the treatment of lung cancer patients.

13) Know the indications for lung radiosurgery. Be able to simulate and plan a lung radiosurgery case. Know the relevant literature.

14) Know the indications for lung HDR. Be able to simulate and plan a lung HDR case. Understand how HDR techniques may change when the technique is combined with external beam therapy or photodynamic therapy.
1st Rotation (PGY2-3)

For each of the disease sites/categories listed below, the resident is expected to acquire the appropriate knowledge/skills, as outlined:

- Non-small cell lung cancer
- Small cell carcinoma

Medical Knowledge

- Describe the anatomic features and relevant regional anatomic structures (draining lymphatics).
- Understand the radiation effects and response on organ of interest and surrounding normal tissue: acute and chronic radiation effects; complications.
- Identify epidemiologic and etiologic risk factors, tumor markers/molecular genetics, potential preventative and screening methods.
- Understand natural history, typical clinical presentations, diagnostic workup (including role of bronchoscopy and mediastinoscopy) and staging, and clinicopathologic manifestations.
- Understand principles of multidisciplinary management and treatment, and role(s) of radiation therapy (including brachytherapy, altered fractionation 3-D CRT and IMRT, if appropriate) for the following sites, for each stage of disease:
  - Non-small cell lung cancer:
    - Resectable tumor
      - Role of pre-operative (chemo-) radiation
      - Role of post-operation radiation
      - Role of post-operation chemotherapy or chemoradiation;
    - Unresectable tumors
      - Definitive and palliative radiation and chemoradiation options, including altered fractionation, hypofractionation and split course;
      - Surgery: know types of surgery appropriate for lung cancer;
  - Small cell lung cancer:
    - Use of chemoradiation for limited stage disease, sequencing of irradiation and chemotherapy (sequential vs. concurrent);
    - Elective cranial radiation (pros and cons);
- Understand the principles of treatment of primary site and lymph node regions for each of the disease sites and stage of disease; know indications for treatment for each site and stage of disease.
- Know and be able to apply principles of radiological physics and radiobiology appropriate to radiation therapy for each of the disease categories:
  - Importance of time-dose factors;
  - Repopulation;
  - Principle of chemoradiation sensitization;
  - Principles of hyperfractionation/altered fractionation;
  - Principles of field alignment; use of electron fields.
- Acquire basic knowledge of controversial areas or unusual situations in each of the disease categories, including:
Superior sulcus lung carcinoma;
Superior vena cava syndrome;
Other: know risk of nodal disease for each disease site and stage.

Patient Care
- Be able to gather and organize essential important information about a thoracic cancer patient, including taking an accurate history of present illness, past medical/surgical history, allergies, social/family history, particularly as they pertain to the current illness.
- Complete a full physical examination and be able to evaluate all hematological, biochemical, and radiologic studies (eg, CXR, CT scans, PET scans) used to assess the thoracic patients.
- Be able to determine whether radiation is appropriate, based on diagnostic information and medical/scientific information, using clinical judgment.
- Be able to complete chart appropriately, including timely completion of staging sheets, consultation notes, treatment notes, and summaries.
- Develop and implement patient management plans for:
  - Non-small cell lung cancer patients receiving definitive or palliative radiation or chemoradiotherapy or (chemo) radiation in combination with surgery either preoperatively or post-operatively;
  - Small cell lung cancer patients receiving definitive radiation and/or palliative chemotherapy.
- Learn to perform radiation therapy (including brachytherapy, as applicable) techniques and prescriptions, formulate and evaluate treatment plans and dosimetry according to accepted guidelines for each of the disease categories/sites according to stage of disease and the clinical situation. This includes determination of volumes, treatment portals, and doses for both the initial phase and boost treatments, in addition to beginning knowledge of possible alternative treatment-field arrangements:
  - Conventional radiation therapy techniques: determination of treatment volumeportals and learn managements for primary treatment and boost;
  - 3-D conformal radiation therapy: determination of volumes, portals and beam arrangement, including use of Novalis-focused beam radiation;
  - Brachytherapy for endobronchial tumors;
- Learn basic critical organ tolerance dose parameters and begin to integrate this information into the patient’s radiation therapy treatment plan. Particular attention should be paid to lung, heart, spinal cord and esophagus tolerances.
- Be able to identify and learn to manage acute, subacute and chronic side-effects of patients under treatment and in follow-up, and to counsel/advise patients of appropriate preevaluation, treatment and follow-up measures for each of the disease categories, including:
  - Fatigue;
  - Cytopenia;
  - Skin: reaction/dermatitis;
  - Esophagitis/xerosternia/nutritional problems;
  - Pneumonitis/fibrosis;
Screening for second malignancies;
Be able to:
- Demonstrate caring behaviors;
- Counsel and communicate effectively with the thoracic cancer patient population and their families and with other health care providers, including nutritional and dental professionals;
- Acknowledge and act upon the recognition of the opportunity to assist patients, family members and society in dealing with smoking, and provide appropriate resources to achieve smoking cessation in patients and family members.

Practice-based Learning & Improvement
Interpersonal & Communication Skills
Professionalism
Systems-based Practice
The PGY 2-3 resident is expected to begin acquiring experience in those skills associated with practice-based learning & improvement, interpersonal & communication skills, professionalism, and systems-based practice, as may be appropriate for patients with these cancers.

Practice-based Learning & Improvement
- Begin to locate, appraise and assimilate evidence from scientific studies related to thoracic cancer patients, ie, become familiar with scientific evidence as may be presented in a standard textbook.
- Begin to apply knowledge of study design and statistical methods in order to appraise clinical studies and other information on diagnostic and therapeutic effectiveness: know study design of major randomized studies and non-randomized studies that support the use of radiation, including those employing altered fractionation and chemoradiation.
- Use information technology to manage information, access on-line medical information and support own education.
- Assist/facilitate the learning of students and other health care providers, including nurses, therapists, and other junior residents.

Interpersonal & Communication Skills
- Begin developing and sustaining a therapeutic and ethically sound relationship with thoracic cancer patients. This is begun during consultation, continues during simulation, and develops during the course of treatment.
- Begin using effective listening, non-verbal, explanatory, questioning, and writing skills to elicit and provide information to and about thoracic cancer patients. This occurs during patient interactions and in discussion with attendings, nurses, therapists, and administrative personnel.
- Work effectively with others as a member of, or leader of a health care team, eg, attendance and participation at radiation therapy and multidisciplinary team meetings.

Professionalism
☐ Demonstrate respect, compassion, integrity, and responsiveness to the needs of the thoracic cancer patient.
☐ Begin to be able to obtain informed consent from thoracic cancer patients, including those entering protocols.
☐ Begin to demonstrate commitment to ethical principles pertaining to permission/withholding of clinical care to thoracic cancer patients, especially those treated for palliative purposes.
☐ Begin, under the guidance of the attending, to gain experience in billing issues.
☐ Demonstrate sensitivity/responsiveness to the thoracic/lung cancer patients' background, culture, and age.

**Systems-based Practice**
☐ Begin to understand how his/her patient care and other professional practices affect other health care providers (eg, nurses and therapists).
☐ Begin to practice health care that is cost-effective, and begin to learn how to allocate resources, while not compromising quality of care.
☐ Begin to help patients deal with health system complexities, eg, scheduling issues relating to radiation, chemotherapy, etc.
2nd Rotation (PGY4-5)

In addition to developing proficiency in the skills associated with each of the competencies outlined in the Goals and Objectives for the PGY2-3 rotation, the PGY4-5 resident is expected to acquire knowledge and gain proficiency in the following areas associated with each of the competencies.

Medical Knowledge
☐ Know and thoroughly understand the pertinent supportive literature and studies related to the role of radiation therapy and associated oncologic disciplines and the results/outcome of treatment for each of the disease categories and sites by stage.
☐ Proficiency in understanding the prognostic factors for thoracic malignancies.
☐ Thoroughly understand controversial areas in the treatment of thoracic malignancies:
  o Role of surgery in superior sulcus carcinoma;
  o Role(s) of surgery and chemoradiation in Stage III A/B lung cancer;
  o Sequence of chemotherapy and radiation, altered fractionation and appropriate treatment volume for small cell lung carcinoma;
☐ Understand unusual thoracic malignancies, including their presentation and management, and the role of radiation therapy:
  o Tracheal malignancies;
  o Mesothelioma;
  o Thymoma;
  o Adnexal carcinomas;
☐ Understand the use of systemic chemotherapy, gene therapy and other new and developing modalities as they are applicable to thoracic malignancies, including opportunities for chemoprevention and for clinical and translational research in this area. This includes radiation sensitizers and hyperfractionation/alternated fractionation trials in non-small cell and small cell lung cancer.

Patient Care
☐ Be able to undertake all aspects of patient care related to thoracic/lung cancer patients, including initial assessment, formulation and implementation of treatment plans, discussion with family members and referring physicians, treatment prescription and interpretation with other treatment modalities.
☐ Maturation of written consultations is expected, with emphasis on delineation of plan of management and, when appropriate, reference to pertinent literature to substantiate recommendations.
☐ Understand critical organ dose parameters, including DVH analysis, effect of chemotherapy and other factors, and fully integrate this information into patients’ radiation therapy treatment plans.
☐ Gain proficiency in managing side-effects during and after therapy and in counseling patients and their families on issues related to thoracic malignancies, and its treatment and side effects/complications of treatment.
☐ Gain proficiency in performing techniques and prescriptions (including alternative treatment arrangements), formulate treatment plans and dosimetry according to
accepted guidelines for each of the disease sites, according to stage of disease and the clinical situation.

**Practice-based Learning & Improvement**
- Be able to analyze practice experience and perform practice-based improvement activities (ie, suggestions for improving the service and rotation).
- Be able to obtain information from the larger population from which the thoracic/lung cancer patients are drawn.

**Interpersonal & Communication Skills**
- Fully sustain a therapeutic and ethically sound relationship with thoracic/lung cancer patients.
- Use effective listening, non-verbal, explanatory, questioning and writing skills to elicit and provide information to and about thoracic/lung cancer patients. This includes more active participation/discussion in multidisciplinary conferences.
- Work effectively with other health care providers as a member and leader of the health care team.

**Professionalism**
- Responsiveness to societal needs that supercedes self-interest.
- Commitment to excellence and ongoing professional development.

**Systems-based Practice**
- Know how his/her health care practices affect health care providers and the larger society, and how elements of the system affect his/her own practice.
- Partner with health care managers and providers to assess, coordinate and improve health care, and know how these activities affect system performance. This includes partnering with administrative personnel or nurses to coordinate a patient’s ongoing multidisciplinary care.
Lymphoma Rotation – GOALS AND OBJECTIVES

All PGY Levels

Residents will evaluate adult patients with lymphoid malignancies. These patients are discussed and evaluated in a multidisciplinary setting in the multidisciplinary lymphoma clinic and conference. The rotation provides the resident the opportunity to work closely with medical oncologists, in a multidisciplinary fashion.

In addition, the resident gains training, experience, and eventual proficiency in the management of lymphoma patients during consultations of patients in the radiation oncology department, weekly patient under treatment, and follow-up clinics. The resident is expected to see each patient under treatment on a weekly basis and a majority of the follow-up patients, under the direction of the attending.

The resident is expected to gain training experience and eventual proficiency in the treatment planning of patients with lymphoid malignancies using external beam technique and 3D-CRT and IMRT as appropriate.

While the resident will not likely gain direct experience in every site and/or stage of disease, it is expected that enough experience will have been gained during the rotation for the resident to be able to apply the knowledge and experience to the unique situation when it presents itself.

Service-specific Topics for Resident Presentation

- Hodgkin’s Disease
- Non-Hodgkin’s lymphoma
- Leukemia
- Multiple myeloma
- Plasmacytoma

General Goals and Objectives

1) Know the epidemiology and etiology of Hodgkin’s and Non-Hodgkin’s lymphoma.
2) Know the different classification systems for each.
3) Know how the lymphoid regions are defined.
4) How different subtypes of both lymphomas – how does that affect the natural history and treatment choices.
5) Know when treatment involves chemotherapy vs. chemotherapy and radiation. Know appropriate studies supporting such. Know chemotherapeutic agents involved.
6) Know how to draw classic mantle, para-aortic and pelvic fields. Know involved fields and when to use.
7) Understand treatment of various extranodal sites – orbit, stomach, CNS, etc.
8) Understand treatment of cutaneous lymphomas with special attention to techniques: TBI and total skin.
9) Know long term side effects of radiation and chemotherapy treatments.
10) Know the role of radiotherapy in the setting of autologus and allogenic bone marrow transplants for relapsed lymphoid malignancies, and be able to design total body irradiation (TBI) treatment plans.

11) Know the role of radiotherapy in the palliative treatment of lymphoid malignancies, with emphasis on field design, dose/fractionation, and timing of radiotherapy for specific subtypes of disease.
1st Rotation (PGY 2-3)

For each of the different sites/categories listed below, the resident is expected to acquire the appropriate knowledge and skills outlined below.

- Pediatric
  - Leukemia
- Adult lymphoma/leukemia
  - Hodgkin’s Disease
  - Non-Hodgkin’s lymphoma including extranodal sites
  - Leukemia
  - Multiple myeloma/plasmacytoma

Medical Knowledge

- Describe the anatomic features and relevant regional anatomic structures (draining lymphatics).
- Understand radiation effects on organs of interest and surrounding normal tissue.
- Know appropriate workup for the various lymphoid malignancies, with emphasis on appropriate staging and identification of epidemiologic/etiologic risk factors, tumor markers/molecular genetics, and prognostic factors.
- Understand principles of multidisciplinary management and treatment and, specifically, the role of radiation therapy for each of the disease sites and according to disease stage:
  - Pediatric Tumors:
    - Lymphoma: use of radiation for non-Hodgkin’s lymphoma and Hodgkin’s Disease;
  - Adult Lymphoma/Leukemia:
    - Hodgkin’s Disease: appropriate use of irradiation +/- chemotherapy by stage of disease;
    - Non-Hodgkin’s Lymphoma: use of radiation by stage/extent of disease +/- chemotherapy;
    - Multiple myeloma/leukemia: role of radiation therapy for bone marrow transplant or SC transplant;
  - Adult CNS:
    - CNS lymphomas.
- Understand the principles of treatment of the lymph node region for each of the disease categories by stage of disease.
- Know and be able to apply principles of radiological physics and radiobiology appropriate to radiation therapy for each of the disease categories.
- Acquire basic knowledge of controversial areas or unusual situations in each of the disease categories, including those regarding:
  - Hodgkin’s Disease/Non-Hodgkin’s Disease: doses and treatment fields according to each stage of disease;
  - CNS lymphoma.
Patient Care
- Be able to gather and organize essential important information about a patient with lymphoreticular malignancies, including taking an accurate history of present illness, past medical/surgical history, allergies, social/family history, particularly as they pertain to the current illness.
- Complete a full physical examination and be able to evaluate all hematological, biochemical, and radiologic studies used to assess the patient.
- Be able to determine whether radiation is appropriate, based on diagnostic information and medical/scientific information, using clinical judgment.
- Be able to complete chart appropriately, including timely completion of staging sheets, consultation notes, treatment notes, and summaries.
- Develop and implement patient management plans for each of the different categories listed, according to stage of disease and the clinical clinical situation.
- Learn to perform radiation therapy techniques and evaluate treatment plans and dosimetry for Hodgkin’s Disease/Non-Hodgkin’s Lymphoma: determine volume and doses for typical presentation of patients with Hodgkin’s disease, including mantle field, para-aortic field, inverted-Y fields; learn principles of field
- Learn basic critical organ dose parameters including dose guidelines, and begin to integrate this information into the patient’s radiation therapy treatment plan.
- Gain experience in the use of 3D treatment planning and IMRT as these modalities become integrated into the therapy of lymphoid tumors.
- Be able to demonstrate caring behavior, communicate effectively with this population of patients and their families, and work effectively with other health care providers, including nurses, therapists, and social workers.
- Be able to identify and manage the side-effects of patients under treatment and seen in follow-up, including counseling of lymphoma patients and survivors of appropriate follow-up measures (eg, cardiac screening, mammograms, etc).

Practice-based Learning & Improvement
Interpersonal & Communication Skills
Professionalism
Systems-based Practice
The PGY 2-3 resident is expected to begin acquiring experience in those aspects of practice-based learning & improvement, interpersonal & communication skills, professionalism, and systems-based practice, as may be appropriate for patients with these cancers:

Practice-based Learning & Improvement
- Begin to locate, appraise and assimilate evidence from scientific studies related to patients with lymphoid malignancies, ie, become familiar with scientific evidence as may be presented in a standard textbook.
- Begin to apply knowledge of study design and statistical methods in order to appraise clinical studies and other information on diagnostic and therapeutic effectiveness.
- Use information technology to manage information, access on-line medical information and support own education.
Assist/facilitate the learning of students and other health care providers, including nurses, therapists, and other junior residents.

Interpersonal & Communication Skills
- Begin developing and sustaining a therapeutic ethically sound relationship with patients with lymphoid malignancies.
- Begin using effective listening, non-verbal, explanatory, questioning, and writing skills to elicit and provide information to and about patients with lymphoid malignancies.
- Work effectively with others as a member of, or leader of a health care team.

Professionalism
- Demonstrate respect, compassion, integrity, and responsiveness to the needs of patients with lymphoid malignancies.
- Begin to be able to obtain informed consent from patients with lymphoid malignancies, including those entering protocols.
- Begin to demonstrate commitment to ethical principles pertaining to permission/withholding of clinical care to patients with lymphoid malignancies.
- Begin to gain experience in billing issues.
- Demonstrate sensitivity/responsiveness to the patients’ background, culture, and age.

Systems-based Practice
- Begin to understand how his/her patient care and other professional practices affect other health care providers (eg, therapists).
- Begin to practice health care that is cost-effective, and begin to learn how to alleviate resources, while not compromising quality of care.
- Begin to help patients deal with health system complexities.
2nd Rotation (PGY4-5)

In addition to gaining proficiency/expertise in the skills associated with each of the competencies outlined above in the goals and objectives of the PGY2-3 rotation, the PGY4-5 resident is expected to acquire knowledge and gain additional proficiency in the following areas, as they pertain to patients with lymphoid malignancies:

**Medical Knowledge**
- Know and understand the pertinent scientific literature and studies related to the role of radiation therapy for this population of malignancies. Know the principles of randomized and non-randomized trials that support radiation therapy.
- Proficiency in understanding controversies in the treatment of this population malignancies, including:
  - Hodgkin’s Disease:
    - Treatment of bulky mediastinal disease;
    - Treatment of Hodgkin’s Disease during pregnancy or associated with HIV;
  - Non-Hodgkin’s Lymphoma:
    - Treatment appropriate for extranodal lymphoma.
- Understand the use of systemic therapy, gene therapy and other new modalities as they are applicable to this group of patients, and the integration of these modalities with radiation therapy.
- Understand unusual neoplasms, including their presentation and management:
- Know the appropriate post-treatment evaluation of the patient, including assessment of response and the role of post-treatment imaging in decision-making

**Patient Care**
- Be able to undertake all aspects of patient care related to patients with lymphoid malignancies, including initial assessment, formulation and implementation of treatment plans, discussion with family members and referring physicians, treatment prescription and interpretation with other treatment modalities.
- Maturation of written consultations is expected, with emphasis on delineation of plan of management and, when appropriate, reference to pertinent literature to substantiate recommendations.
- Understand critical organ dose parameters, including DVH analysis, affect of chemotherapy and other factors, and fully integrate this information into patients’ radiation therapy treatment plans.
- Gain proficiency in managing side-effects during and after therapy and in counseling patients and their families on issues related to these cancers, and their treatment and side effects/complications of treatment.
- Gain proficiency in performing techniques and prescriptions (including alternative treatment arrangements), formulate treatment plans and dosimetry according to accepted guidelines for each of the disease sites, according to stage of disease and the clinical situation.

**Practice-based Learning & Improvement**
Be able to analyze practice experience and perform practice-based improvement activities (ie, suggestions for improving the service and rotation).
Be able to obtain information from the larger population from which these patients are drawn.

**Interpersonal & Communication Skills**
- Fully sustain a therapeutic and ethically sound relationship with patients with lymphoid malignancies.
- Use effective listening, non-verbal, explanatory, questioning and writing skills to elicit and provide information to and about patients with lymphoid malignancies.
- Work effectively with other health care providers as a member of the health care team.

**Professionalism**
- Responsiveness to societal needs supercedes self-interest.
- Commitment to excellence and ongoing professional development.

**Systems-based Practice**
- Know how his/her health care practices affect health care providers and the larger society, and how elements of the system affect his/her own practice.
- Partner with health care managers and providers to assess, coordinate and improve health care, and know how these activities affect system performance.
Residents will evaluate pediatric patients with malignancies. These patients are discussed and evaluated in a multidisciplinary setting in the multidisciplinary pediatric oncology conference. The rotation provides the resident the opportunity to work closely with pediatric surgical oncologists, orthopedic oncology, and pediatric medical oncologists, in a multidisciplinary fashion.

In addition, the resident gains training, experience, and eventual proficiency in the management of these groups of pediatric patients during consultations of patients in the radiation oncology department, weekly patient under treatment, and follow-up clinics. The resident is expected to see each patient under treatment on a weekly basis and a majority of the follow-up patients, under the direction of the attending. The resident is expected to gain training experience and eventual proficiency in the treatment planning of patients with pediatric malignancies using external beam technique and 3D-CRT and IMRT as appropriate.

While the resident will not likely gain direct experience in every site and/or stage of disease, it is expected that enough experience will have been gained during the rotation for the resident to be able to apply the knowledge and experience to the unique situation when it presents itself.

Service-specific Topics for Resident Presentation
- Wilm’s Tumor
- Neuroblastoma
- Rhabdomyosarcoma/soft tissue sarcoma
- Pediatric CNS tumors

General Goals and Objectives
1) Discuss incidence and epidemiology of childhood tumors.
2) Perform a history and physical examination appropriate in the management of a child.
3) Determine the various roles of surgery, chemotherapy and radiotherapy in the management of the following diseases: acute lymphoblastic leukemia, acute myeloid leukemia, chronic myelogenous leukemia, medulloblastoma, ependymoma, low grade astrocytoma including optic pathway tumors, high grade astrocytoma, brainstem glioma, craniopharyngioma, germ cell tumors, Wilms’ tumor, neuroblastoma, rhabdomyosarcoma, osteosarcoma, Ewing’s sarcoma, non-rhabdomyosarcoma soft tissue sarcoma, hepatoblastoma, retinoblastoma, childhood nasopharyngeal cancer and histiocytosis.
4) Determine the tolerance doses of various organs in the irradiated field and understand how such doses may influence late toxicity of treatment.
5) Be able to set-up a craniospinal field and determine the advantages and disadvantages of different set-up techniques.
6) Learn the appropriate volumes to treat including but not limited to the craniospinal axis and posterior fossa boost for medulloblastoma, whole abdomen for certain subsets of Wilms’ tumor, whole lung irradiation for Stage IV Wilms’ tumor and metastatic sarcomas, cranial field for leukemia, total body irradiation.

7) Demonstrate an understanding of three-dimensional radiotherapy and intensity modulated radiation therapy as it pertains to the treatment of children.

8) Know which tumors do not require radiotherapy after a complete surgical resection.

9) Know the multidisciplinary management of the child with cancer. The resident will go to the Pediatric Tumor Boards and Pediatric Neurooncology Clinic to get “hands on” experience.

10) Determine if a child requires anesthesia and how this may affect radiotherapy treatment.

11) Demonstrate an understanding of late effects related to radiotherapy, chemotherapy and surgery.
1st Rotation (PGY 2-3)

For each of the different sites/categories listed below, the resident is expected to acquire the appropriate knowledge and skills outlined below.

- Retinoblastoma
- Wilm’s Tumor
- Neuroblastoma
- Rhabdomyosarcoma/soft tissue sarcoma
- Leukemia
- Pediatric CNS tumors: PNET, medulloblastoma, ependymoma, craniopharyngioma
- Ewings’ sarcoma and other bone tumor

**Medical Knowledge**

- Describe the anatomic features and relevant regional anatomic structures (draining lymphatics).
- Understand radiation effects on organs of interest and surrounding normal tissue, with particular attention to late effects in the pediatric population.
- Identify epidemiologic and etiologic risk factors, tumor markers/molecular genetics.
- Understand principles of multidisciplinary management and treatment and, specifically, the role of radiation therapy for each of the disease sites and according to disease stage:
  - Childhood CNS tumors:
    - Medulloblastoma (PNET): role of craniospinal irradiation;
    - Ependymoma: role of involved field radiation therapy;
    - Glioma: low grade or high grade intact brain stem;
    - Craniopharyngioma: role of post-operative radiation therapy;
  - Childhood solid tumors:
    - Wilms: radiation therapy treatment by stage;
    - Neuroblastoma;
    - Rhabdomyosarcoma: known usual radiation treatment approach by site and disease extent;
- Understand the principles of treatment of the lymph node region for each of the disease categories by stage of disease.
- Know and be able to apply principles of radiological physics and radiobiology appropriate to radiation therapy for each of the disease categories.
- Acquire basic knowledge of controversial areas or unusual situations in each of the disease categories, including those regarding:
  - Craniospinal vs. local field radiation for pediatric brain tumors;
  - Alternative fractionation schemes for pediatric brain tumors;
  - Principle of management of brain tumors in young children/infants;
  - Radiation fields and doses for neuroblastomas, Wilms, Rhabdomyosarcomas, depending on site of disease, stage and age;
Patient Care

- Be able to gather and organize essential important information about a patient with pediatric malignancies including taking an accurate history of present illness, past medical/surgical history, allergies, social/family history, particularly as they pertain to the current illness.
- Complete a full physical examination and be able to evaluate all hematological, biochemical, and radiologic studies used to assess the patient.
- Be able to determine whether radiation is appropriate, based on diagnostic information and medical/scientific information, using clinical judgment.
- Be able to complete chart appropriately, including timely completion of staging sheets, consultation notes, treatment notes, and summaries.
- Develop and implement patient management plans for each of the different categories listed, according to stage of disease and the clinical clinical situation.
- Learn to perform radiation therapy techniques and evaluate treatment plans and dosimetry for:
  - PNET/medulloblastoma: craniospinal irradiation including volume and dose determination, field gaps and local field (boost) radiation;
  - Other childhood brain tumors: determination of field volumes and fractionation;
  - Childhood solid tumors: determine treatment volumes and doses for a variety of solid tumors;
- Learn basic critical organ dose parameters including pediatric dose guidelines, and begin to integrate this information into the patient’s radiation therapy treatment plan.
- Gain experience in the use of 3D treatment planning and IMRT as these modalities become integrated into the therapy of pediatric malignancies.
- Be able to demonstrate caring behavior, communicate effectively with this population of pediatric patients and their parents and families, and work effectively with other health care providers, including nurses, therapists, and social workers.
- Be able to identify and manage the side-effects of patients under treatment and seen in follow-up, including counseling of pediatric patients and survivors of appropriate follow-up measures (eg, cardiac screening, mammograms, etc).

Practice-based Learning & Improvement

Interpersonal & Communication Skills

Professionalism

Systems-based Practice

The PGY 2-3 resident is expected to begin acquiring experience in those aspects of practice-based learning & improvement, interpersonal & communication skills, professionalism, and systems-based practice, as may be appropriate for patients with these cancers:

Practice-based Learning & Improvement

- Begin to locate, appraise and assimilate evidence from scientific studies related to pediatric malignancy patients, ie, become familiar with scientific evidence as may be presented in a standard textbook.
Begin to apply knowledge of study design and statistical methods in order to appraise clinical studies and other information on diagnostic and therapeutic effectiveness.

Use information technology to manage information, access on-line medical information and support own education.

Assist/facilitate the learning of students and other health care providers, including nurses, therapists, and other junior residents.

**Interpersonal & Communication Skills**

- Begin developing and sustaining a therapeutic ethically sound relationship with pediatric malignancy patients.
- Begin using effective listening, non-verbal, explanatory, questioning, and writing skills to elicit and provide information to and about pediatric malignancy patients.
- Work effectively with others as a member of, or leader of a health care team.

**Professionalism**

- Demonstrate respect, compassion, integrity, and responsiveness to the needs of pediatric malignancy patients.
- Begin to be able to obtain informed consent from pediatric malignancy patients, including those entering protocols.
- Begin to demonstrate commitment to ethical principles pertaining to permission/withholding of clinical care to pediatric malignancy patients.
- Begin to gain experience in billing issues.
- Demonstrate sensitivity/responsiveness to the patients’ background, culture, and age.

**Systems-based Practice**

- Begin to understand how his/her patient care and other professional practices affect other health care providers (eg, therapists).
- Begin to practice health care that is cost-effective, and begin to learn how to alleviate resources, while not compromising quality of care.
- Begin to help patients deal with health system complexities.
2nd Rotation (PGY4-5)

In addition to gaining proficiency/expertise in the skills associated with each of the competencies outlined above in the goals and objectives of the PGY2-3 rotation, the PGY4-5 resident is expected to acquire knowledge and gain additional proficiency in the following areas, as they pertain to pediatric malignancy patients:

Medical Knowledge

- Know and understand the pertinent scientific literature and studies related to the role of radiation therapy for this population of malignancies. Know the principles of randomized and non-randomized trials, especially COG trials that support radiation therapy.
- Proficiency in understanding controversies in the treatment of this population malignancies
- Understand the use of systemic therapy, gene therapy and other new modalities as they are applicable to this group of patients, and the integration of these modalities with radiation therapy.
- Understand unusual neoplasms, including their presentation and management:
  - Bilateral Wilm’s tumor;
  - Recurrent pediatric tumors

Patient Care

- Be able to undertake all aspects of patient care related to pediatric malignancy patients, including initial assessment, formulation and implementation of treatment plans, discussion with family members and referring physicians, treatment prescription and interpretation with other treatment modalities.
- Maturation of written consultations is expected, with emphasis on delineation of plan of management and, when appropriate, reference to pertinent literature to substantiate recommendations.
- Understand critical organ dose parameters, including DVH analysis, affect of chemotherapy and other factors, and fully integrate this information into patients’ radiation therapy treatment plans.
- Gain proficiency in managing side-effects during and after therapy and in counseling patients and their families on issues related to these cancers, and their treatment and side effects/complications of treatment.
- Gain proficiency in performing techniques and prescriptions (including alternative treatment arrangements), formulate treatment plans and dosimetry according to accepted guidelines for each of the disease sites, according to stage of disease and the clinical situation.

Practice-based Learning & Improvement

- Be able to analyze practice experience and perform practice-based improvement activities (i.e., suggestions for improving the service and rotation).
- Be able to obtain information from the larger population from which these patients are drawn.
Interpersonal & Communication Skills

- Fully sustain a therapeutic and ethically sound relationship with pediatric malignancy patients.
- Use effective listening, non-verbal, explanatory, questioning and writing skills to elicit and provide information to and about pediatric malignancy patients.
- Work effectively with other health care providers as a member of the health care team.

Professionalism

- Responsiveness to societal needs supercedes self-interest.
- Commitment to excellence and ongoing professional development.

Systems-based Practice

- Know how his/her health care practices affect health care providers and the larger society, and how elements of the system affect his/her own practice.
- Partner with health care managers and providers to assess, coordinate and improve health care, and know how these activities affect system performance.
Residents will evaluate adult patients with sarcomas and other soft tissue tumors. These patients are discussed and evaluated in a multidisciplinary setting. The rotation provides the resident the opportunity to work closely with orthopedic surgeons, surgical oncologists, and medical oncologists, in a multidisciplinary fashion.

In addition, the resident gains training, experience, and eventual proficiency in the management of these groups patients during consultations of patients in the radiation oncology department, weekly patient under treatment, and follow-up clinics. The resident is expected to see each patient under treatment on a weekly basis and a majority of the follow-up patients, under the direction of the attending. The resident is expected to gain training experience and eventual proficiency in the treatment planning of patients with soft tissue malignancies using external beam technique and 3D-CRT and brachytherapy as appropriate.

While the resident will not likely gain direct experience in every site and/or stage of disease, it is expected that enough experience will have been gained during the rotation for the resident to be able to apply the knowledge and experience to the unique situation when it presents itself.

**General Goals and Objectives**

1) Understand the integration of radiation, surgery and chemotherapy. Understand the role of pre-operative vs. post-operative radiation therapy. Know studies that support each.

2) Know the role of chemotherapy and studies which justify its use. Know most active agents.

3) Know the technical aspects to treat sarcomas – extremity, intraperitoneal, etc.

4) Know the technical aspects of interstitial brachytherapy.
1st Rotation (PGY 2-3)

For each of the different sites/categories listed below, the resident is expected to acquire the appropriate knowledge and skills outlined below.

- Osteosarcoma
- Soft tissue tumor (extremity/retroperitoneal)
- Kaposi's sarcoma
- Benign soft tissues tumors (including desmoids, giant cell tumors, chordomas, etc)

Medical Knowledge

- Describe the anatomic features and relevant regional anatomic structures (draining lymphatics).
- Understand radiation effects on organs of interest and surrounding normal tissue.
- Identify epidemiologic and etiologic risk factors, tumor markers/molecular genetics.
- Understand principles of multidisciplinary management and treatment and, specifically, the role of radiation therapy for each of the disease sites and according to disease stage: Use of radiation therapy for soft tissue sarcoma of extremities and retroperitoneum;
- Understand the principles of treatment of the lymph node region for each of the disease categories by stage of disease.
- Know and be able to apply principles of radiological physics and radiobiology appropriate to radiation therapy for each of the disease categories.
- Acquire basic knowledge of controversial areas or unusual situations in each of the disease categories

Patient Care

- Be able to gather and organize essential important information about a patient with soft tissue malignancies, including taking an accurate history of present illness, past medical/surgical history, allergies, social/family history, particularly as they pertain to the current illness.
- Complete a full physical examination and be able to evaluate all hematological, biochemical, and radiologic studies used to assess the patient.
- Be able to determine whether radiation is appropriate, based on diagnostic information and medical/scientific information, using clinical judgment.
- Be able to complete chart appropriately, including timely completion of staging sheets, consultation notes, treatment notes, and summaries.
- Develop and implement patient management plans for each of the different categories listed, according to stage of disease and the clinical clinical situation.
- Learn to perform radiation therapy techniques and evaluate treatment plans and dosimetry: determine fields/volume and doses in pre-operation vs. post-operative situation.
- Gain experience in the use of 3D treatment planning and IMRT as these modalities become integrated into the therapy of soft tissue tumors.
Be able to demonstrate caring behavior, communicate effectively with this population of patients and their parents and families, and work effectively with other health care providers, including nurses, therapists, and social workers.

Be able to identify and manage the side-effects of patients under treatment and seen in follow-up, including counseling of patients and survivors with appropriate follow-up measures.

Practice-based Learning & Improvement
Interpersonal & Communication Skills
Professionalism
Systems-based Practice

The PGY 2-3 resident is expected to begin acquiring experience in those aspects of practice-based learning & improvement, interpersonal & communication skills, professionalism, and systems-based practice, as may be appropriate for patients with these cancers:

Practice-based Learning & Improvement
- Begin to locate, appraise and assimilate evidence from scientific studies related to patients with soft tissue malignancies, ie, become familiar with scientific evidence as may be presented in a standard textbook.
- Begin to apply knowledge of study design and statistical methods in order to appraise clinical studies and other information on diagnostic and therapeutic effectiveness.
- Use information technology to manage information, access on-line medical information and support own education.
- Assist/facilitate the learning of students and other health care providers, including nurses, therapists, and other junior residents.

Interpersonal & Communication Skills
- Begin developing and sustaining a therapeutic ethically sound relationship with patients with soft tissue malignancies.
- Begin using effective listening, non-verbal, explanatory, questioning, and writing skills to elicit and provide information to and about patients with soft tissue malignancies.
- Work effectively with others as a member of, or leader of a health care team.

Professionalism
- Demonstrate respect, compassion, integrity, and responsiveness to the needs of the patients with soft tissue malignancies.
- Begin to be able to obtain informed consent from patients with soft tissue malignancies, including those entering protocols.
- Begin to demonstrate commitment to ethical principles pertaining to permission/withholding of clinical care to patients with soft tissue malignancies.
- Begin to gain experience in billing issues.
- Demonstrate sensitivity/responsiveness to the patients’ background, culture, and age.

Systems-based Practice
Begin to understand how his/her patient care and other professional practices affect other health care providers (eg, therapists).

Begin to practice health care that is cost-effective, and begin to learn how to alleviate resources, while not compromising quality of care.

Begin to help patients deal with health system complexities.
2nd Rotation (PGY4-5)

In addition to gaining proficiency/expertise in the skills associated with each of the competencies outlined above in the goals and objectives of the PGY2-3 rotation, the PGY4-5 resident is expected to acquire knowledge and gain additional proficiency in the following areas, as they pertain to patients with soft tissue malignancies:

**Medical Knowledge**
- Know and understand the pertinent scientific literature and studies related to the role of radiation therapy for this population of malignancies. Know the principles of randomized and non-randomized trials, especially trials that support radiation therapy.
- Proficiency in understanding controversies in the treatment of this population malignancies

**Patient Care**
- Be able to undertake all aspects of patient care related to patients with soft tissue malignancies, including initial assessment, formulation and implementation of treatment plans, discussion with family members and referring physicians, treatment prescription and interpretation with other treatment modalities.
- Maturation of written consultations is expected, with emphasis on delineation of plan of management and, when appropriate, reference to pertinent literature to substantiate recommendations.
- Understand critical organ dose parameters, including DVH analysis, affect of chemotherapy and other factors, and fully integrate this information into patients' radiation therapy treatment plans.
- Gain proficiency in managing side-effects during and after therapy and in counseling patients and their families on issues related to these cancers, and their treatment and side effects/complications of treatment.
- Gain proficiency in performing techniques and prescriptions (including alternative treatment arrangements), formulate treatment plans and dosimetry according to accepted guidelines for each of the disease sites, according to stage of disease and the clinical situation.

**Practice-based Learning & Improvement**
- Be able to analyze practice experience and perform practice-based improvement activities (ie, suggestions for improving the service and rotation).
- Be able to obtain information from the larger population from which these patients are drawn.

**Interpersonal & Communication Skills**
- Fully sustain a therapeutic and ethically sound relationship with patients with soft tissue malignancies.
- Use effective listening, non-verbal, explanatory, questioning and writing skills to elicit and provide information to and about patients with soft tissue malignancies.
- Work effectively with other health care providers as a member of the health care team.

**Professionalism**
- Responsiveness to societal needs supercedes self-interest.
- Commitment to excellence and ongoing professional development.

**Systems-based Practice**
- Know how his/her health care practices affect health care providers and the larger society, and how elements of the system affect his/her own practice.
- Partner with health care managers and providers to assess, coordinate and improve health care, and know how these activities affect system performance.
Diagnostic Radiology Rotation – GOALS AND OBJECTIVES

During the course of this rotation, the resident will become acquainted with radiographic examinations and procedures, and will be exposed to radiographic appearance of common malignancies for both adult and pediatric patients.

General Goals and Objectives:

☐ Gain an understanding of a variety of common malignancies as they manifest in various diagnostic imaging studies.
☐ Understand the appropriate utilization of imaging modalities in the diagnosis of malignancies, including differential diagnosis of benign versus malignant disease.
☐ Understand how to work with health care professionals from Radiology to provide patient-focused care
☐ Demonstrate an awareness of and responsiveness to the larger context and system of health care and the ability to effectively call on system resources to provide care that is of optimal value.
☐ Understand how your patient care and other professional practices affect health care professionals, and how these elements of the system affect your own practice.
☐ Learn how types of medical practice and delivery systems differ from one another, including methods of controlling health care costs and allocating resources in Radiology.
☐ Know how to partner with health care managers and health care providers to assess, coordinate, and improve health care and know how these activities can affect performance.

The resident is encouraged keep a log of clinical activities during this rotation.

At the completion of this rotation the resident will receive an evaluation from his/her preceptors.

The resident will also have the opportunity to evaluate this rotation as part of the periodic program evaluation.
Medical/Pediatric Oncology Rotation – GOALS AND OBJECTIVES

Residents will work with medical/pediatric oncologists (typically at Emory University) on this elective.

General Goals and Objectives:

- Gain a broad perspective and understanding of the discipline of medical/pediatric oncology in the diagnosis and management of patients with malignant disease.
- Learn about the major cancer sites in which medical oncology has a significant role and learn about their role in other areas that are unique to or specific to medical oncology.
- Understand how to work with health care professionals from other disciplines to provide patient-focused care in the medical oncology setting.
- Demonstrate an awareness of and responsiveness to the larger context and system of health care and the ability to effectively call on system resources to provide care that is of optimal value and appropriate to this patient population.
- Understand how patient care and other professional practices affect health care professionals, and how these elements of the system affect your own practice.
- Learn how the Medical Oncology practice differs from others.
- Know how to partner with health care managers and health care providers to assess, coordinate, and improve health care and know how these activities can affect performance in this discipline.

The resident is encouraged keep a log of clinical activities during this rotation.

At the completion of this rotation the resident will receive an evaluation from his/her preceptors.

The resident will also have the opportunity to evaluate this rotation as part of the periodic program evaluation.
Pathology Rotation – GOALS AND OBJECTIVES

This rotation will provide residents with an understanding of the pathology of malignant disease and the role of the pathologist in diagnosis and treatment.

General Goals and Objectives:

- Learn about the gross, histologic, cytopathologic, and immunocytochemical techniques commonly employed in diagnostic pathology.
- Learn about the histologic pathology of malignant disease, for both adult and pediatric malignancies, as they are manifest in specific anatomic and organ sites, and those which are common to a variety of malignancies.
- Understand how to work with health care professionals from the discipline of Pathology to provide patient-focused care.
- Demonstrate an awareness of and responsiveness to the larger context and system of health care and the ability to effectively call on system resources to provide care that is of optimal value.

The resident is encouraged keep a log of clinical activities during this rotation.

At the completion of this rotation the resident will receive an evaluation from his/her preceptors.

The resident will also have the opportunity to evaluate this rotation as part of the periodic program evaluation.
Medical physics is a profession where practical experience must supplement theory and where textbook knowledge alone is not sufficient. The clinical rotation is designed to familiarize residents with the relevant hospital/clinical environment.

The clinical rotation is designed to expose residents to the daily activities of the clinical physicist as well as possible special procedures involving patients. Each resident will spend one month on a clinical physics rotation. The resident will rotate through one or more of the affiliated facility, including (in an observership capacity) Emory St. Joseph’s Hospital. The resident will be will work with an assigned physicists or dosimetrist at each facility. Residents will have evaluation forms to be signed by the supervising physicist for each rotation.

Residents will become familiar with the operation of various therapy units and dose measuring devices, with the techniques for measurement of different physical parameters which characterize radiation beams used in radiation therapy. During the one month clinical physics rotation, the residents are expected to participate in a minimum 5 of the tasks on the rotation task list.

**Grading Policy**

The Clinical Rotation course is pass/fail.

The Clinical Rotation Evaluation score is based on the Resident Evaluation Form. Evaluation forms will be distributed to the residents at the beginning of the month. It is the resident’s responsibility to give the form to the assigned supervising physicist or dosimetrist at each facility. It is also the resident’s responsibility to obtain the filled out and signed form from the supervising physicist or dosimetrist at the end of the rotation. At the end of the month all evaluation forms will be submitted to the course coordinator.

In addition to the evaluation form for the clinical rotation, signed Clinical Physics Rotation for Medical Residents form (including task list) must be submitted at the end of the month. The task list must be signed by the physicist or dosimetrist that supervised a particular task.

**Physics Tasks**

1. Monthly LINAC Calibration/Mechanical Checks (TG 21,51, and TG40)
2. Weekly Chart Checks, Double Checks, Closeouts (TG40)
3. Computerized Treatment Planning, Conventional
4. Computerized Treatment Planning, IMRT
5. Conventional Breast Simulation
6. High-Dose Rate Brachytherapy Procedures
7. Low-Dose Rate Brachytherapy Procedures
8. Total Body Irradiation (TG-30)
9. Total Skin Electron Irradiation (TG-29)
10. Stereotactic Radiosurgery (AAPM Report 54)
11. IMRTQuality Assurance

At the completion of this rotation the resident will receive an evaluation from his/her preceptors.

The resident will also have the opportunity to evaluate this rotation as part of the periodic program evaluation.
Research Rotation – GOALS AND OBJECTIVES

During their training, residents are permitted to take up to six months of a research rotation. This is typically done in the PGY-4 year and may be done either continuously or in separate blocks as dictated by the needs of the research project(s).

This rotation may take the form of biological laboratory research, clinical research, medical physics research, or the retrospective analysis of data from treated patients. The results of such projects should be suitable for publication in peer-reviewed scholarly journals or presentation at scientific meetings.

Following discussion with the appropriate faculty mentor(s), each resident must submit a research proposal to the Program Director (who will circulate to the Residency Education Committee) for approval. This research proposal is due at least one month before the start of the research rotation. The resident must be in good standing in the residency to be permitted to begin the research rotation.

General Goals and Objectives, irrespective of type of project(s) chosen are:

- Locate, appraise, and assimilate evidence from scientific studies related to the research.
- Apply knowledge of study designs and statistical methods to the appraisal of clinical studies and to formulating the research project design.
- Use information technology to manage information and access on-line medical information in order to support the research project.
- Develop the ability to organize and coherently present research results in written and oral formats.

Performance during this elective will be monitored by the specific faculty preceptors and by resident updates during the monthly department-wide research meetings.
8. Goals and Objectives – Curriculum – Didactic Component

Attending Didactics
Biology Course
Biostatistics Course
Chair Rounds
Chart Rounds
Elective-specific conferences
GMEC meeting
In-service Question Review
Journal Club
Medical Ethics
Morbidity and Mortality Conference
Multidisciplinary Conferences/Tumor Boards
Physics Course
Program Director Meeting
Radiology noon-time lectures
Resident Clinical Didactic
Resident Research Day
Stress Management & Fatigue Awareness
Visiting/Guest Lectures
Visiting Professorships
Winship Cancer Institute (WCI) / Medical Oncology Grand Rounds
Other didactics

Competencies that are taught during the Didactic component are listed below in the individual description of each didactic.

Residents are evaluated on their performance in the Didactic component using the following mechanisms: In-Training Examinations, Didactic Evaluations, Departmental Examinations (Biology and Physics), Formal Oral Examination.

Residents have the opportunity to evaluate the Didactic component of the curriculum through their annual review of the program as well as in some cases the individual didactic (as described below in the individual descriptions).
Attending Didactics

These are one-hour conferences held every other week on Wednesday, typically 8:30 AM – 9:30 AM.

These are attending-led didactics which are either lecture format or roundtable/Socratic discussion format, at the discretion of the attending physician. All clinical faculty in the program, including the Program Director and Chairman, are scheduled in turn to conduct this didactic in his/her area of clinical expertise.

The goal is to discuss a topic or disease site in detail, to facilitate residents' understanding of the natural history, diagnosis, workup, and/or treatment (including management of toxicity) of a particular disease site or organ system.

Residents have the opportunity to anonymously evaluate each Attending Didactic as part of their annual global evaluation of the program.

These evaluations are kept in the attending physician’s personnel file for review by the department chairman during annual performance evaluation review.

Competencies taught: Medical knowledge, Patient Care.
Biology Course

The goal of the Biology Course is to provide the residents with the fundamental understanding of the basic biology of cancer, with particular emphasis on radiobiology. One goal of the course is to prepare the residents for both the In-Training examination in Biology as well as ultimately their ABR Written examination in Biology.

The Biology Course is scheduled once weekly during the entire academic year, typically on Friday 10:00 AM – 11:00 AM. Instructors are faculty in our Division of Cancer Biology and Department of Radiation Oncology.

The Biology course is optional for PGY-5 residents who have passed the ABR Written examination in Biology – it is the expectation that if the resident does not attend the course that they resume their Rotation-specific activities during this time.

Quizzes and examinations administered during this course are given by the coordinator for the course (currently Dr. Kow) to the program director for review during the program director’s individual quarterly meetings with the residents.

Residents evaluate the biology course during their annual review of the program.

Competencies taught: Medical knowledge.
Biostatistics Course

In conjunction with Winship Biostatistics we have designed a journal club spanning biostatistics. This is a 6-hour course held every year.

The overall objective of the course is to familiarize the residents with the basic biostatistical techniques to interpret clinical and scientific literature, to perform on their research rotation, and to perform on the statistics sections of the inservice examination and the ABR Written examination in Clinical Radiation Oncology.

Competencies taught: Medical Knowledge.
Chair Rounds

The Department Chair, Dr. Walter Curran, meets once monthly with the residents, typically for one hour on Tuesday 7:00 AM – 8:00 AM.

The goal of this conference is to provide instruction in a Socratic manner on a range of clinical topics and cases. This conference also provides the opportunity for residents to discuss general aspects of the training program directly with the department chairman.

Following is the current/recent schedule for the monthly Chair Rounds:

Competencies taught: Medical Knowledge, Patient Care.
Chart Rounds

Chart Rounds are a major departmental case presentation and quality assurance conference. Radiation oncology residents and attendings from all 4 facilities (Emory, Crawford-long, Grady, and Atlanta VA) attend, as well as appropriate representatives from radiation therapy and medical physics.

Chart rounds are held weekly on Monday 7:15-8:30 AM and Friday 7:15–8:30 AM. Residents present the newly started patients at this conference, including brief clinical history and radiation treatment plan. There is a group discussion/critique on the treatment plan design as well as the treatment verification films.

Because this is a critically important conference and one of the major teaching conferences, attending sign-in sheets are provided and collected to provide documentation of attendance.

All residents, including residents who are on electives and research/lab rotation are also required to attend.

Competencies taught: Medical Knowledge, Patient Care, Practice-Based Learning & Improvement, Interpersonal and Communication Skills, Professionalism, and System-based Practice.
Elective-specific conferences

These are conferences held when the resident is on an Elective (Medical Oncology, Pediatric Oncology, Radiology, Pathology, or other) Rotation.

The schedule during this rotation varies depending on the particular elective type chosen and time of year.

Competencies taught: Medical Knowledge, Patient Care, System-based Practice, and Professionalism.
GMEC meeting

This is a once-monthly meeting held by the Graduate Medical Education Committee (GMEC) on Wednesday at 12:15 PM – 1:15 PM. Only the department-designated Radiation Oncology GME resident representative is expected to be present. A 50% attendance rate over the year is acceptable.

The major goal is for the resident to learn the general structure of the GME committee, the resources that this committee provides, and to represent the radiation oncology residency program (and the housestaff at large).

The resident is expected to disseminate the relevant items discussed at these committee meetings to the radiation oncology residency program.

Competencies taught: Professionalism and Systems-based Practice.
In-service Question Review

In-service Question Review is a flexibly scheduled didactic, and typically is on Friday 9:30 AM – 10:00 AM, as permitted by the length of the Resident Clinical Didactic before and the Biology course afterwards.

This is protected time for the residents to review clinical, physics, and biology questions from prior in-training examinations so they can prepare for the next round of the exam and ultimately their ABR written examinations in these areas.

Competencies taught are – Medical Knowledge and Professionalism.
Journal Club

Journal Club is a once-monthly conference that typically is on the second Monday of the month at 5:00 PM – 6:00 PM. Dinner is provided by the department.

The chief resident discusses with the other residents and with the faculty to select 3-4 key journal articles. One article each is assigned to each of 3 residents who read these articles in detail and present them, typically using a short power point presentation, to the entire residency program and to attending physicians who can attend.

The goal is to provide the residents the opportunity to be up-to-date on the current literature, to critically review this literature, and to be able to communicate the key aspects of these articles to the group.

Competencies taught: Medical Knowledge, Professionalism, Practice-based Learning and Improvement, and Systems-based Practice.
Medical Ethics

As our radiation oncology residency program at Emory is combined with Internal Medicine (the PGY-1 year is required to be done in Emory’s Department of Internal Medicine), the residents during their PGY-1 year are formally educated on Medical Ethics.

This orientation serves as a resource for residents for the remainder of their residency, including the PGY-2 through PGY-5 years.

Residents can optionally attend Grady Medical Ethics Grand Rounds which occur monthly (typically the first Thursday of every month at 12:00 – 1:00 PM) at Grady Hospital’s.

Competencies taught: Professionalism.
Morbidity and Mortality Conference

Morbidity and Mortality Conference is a once-monthly conference that is typically on Monday 7:30 AM – 8:30 AM.

Patients experienced expected or unexpected side effects, treatment delays/interruptions, or other unusual occurrences during the course of their treatment course are identified and discussed, including plans for preventing/avoiding complications in the future.

Residents familiar with these patients are expected to participate in the discussion of their morbidity/mortality.

Competencies taught: Medical Knowledge, Patient Care, and Practice-based Learning and Improvement.
Multidisciplinary Conferences/Tumor Boards

The service-specific Multidisciplinary Conferences are a key component of both the Rotation Component and Didactic component of the residency program.

Specifically, the participation in multidisciplinary conference serves to meet the program requirements of rotations through medical oncology, diagnostic radiology, surgical oncology, and pathology.

Residents are required to attend a minimum of four multidisciplinary conferences/tumor boards per month during their clinical radiation oncology rotations.

Residents are expected to chart their attendance at these conferences and also to chart the composition of specialties in attendance at each conference.

This is a key didactic component in which the resident has the opportunity to learn other aspects of clinical oncology, to interface with representatives from other specialties, to interface with other support staff present at these tumor boards, and to understand where their practice of radiation oncology fits within the broader scope of oncologic patient care.

Competencies taught are: Medical Knowledge, Patient Care, Practice-based Learning and Improvement, Interpersonal and Communication Skills, and Systems-based Practice.
Physics Course

The major goal of the Physics Course is to provide the residents with the fundamental understanding of the basic clinical radiation physics. One additional goal of the course is to prepare the residents for both the inservice examination in Physics as well as ultimately their ABR Written examination in Physics.

The Physics Course is scheduled once weekly during the entire academic year, typically on Friday 11:00 AM – 12:00 PM. Instructors are faculty and staff in our Division of Medical Physics in the Department of Radiation Oncology.

The Physics course is optional for PGY-5 residents who have passed the ABR Written examination in Physics – it is the expectation that if the resident does not attend the course that they resume their Rotation-specific activities during this time.

Overview
Course is divided into eight modules with two exams. Textbook followed is Khan’s “The Physics of Radiation Therapy.”

Exam
After each module there will be a take home quiz with Raphex-like questions. There will be four exam with recorded test scores. The scores will be given to the residency director.

Competencies taught: Medical Knowledge.
Program Director Meeting

The Program Director, Dr. Ashesh B. Jani, meets with the residents on a quarterly basis, and consists of a group meeting portion and an individual meeting portion.

The group meeting portion is to update the residents on any announcements pertaining to the program, to disseminate new information from the ACGME website/emails, GMEC meetings, & attending meetings, particularly as they relate to the Rotation and Didactic components of the Curriculum. One additional purpose of these meetings is to gather general feedback which the program director can take back anonymously to the faculty, as one mechanism to continually improve the program.

The individual meeting portion serves to provide 1-on-1 time with the program director and resident to review rotation evaluations, didactic performance, case logs, conference logs, mock oral examination results, biology and physics intra-departmental quiz & examination results, inservice examination results, Raphex and Rabex examination results, and progress on research projects.

As part of the regular quarterly individual meetings with the program director, all major aspects of the residents performance over that quarter are discussed along all six competencies. All available assessment results are reviewed to identify strengths, deficiencies, and limits in knowledge.

As one component of this meeting, on a semi-annual basis the residents state, discuss, and document their learning goals and objectives that are arrived at through self-reflection. The residents can thus use the above assessments combination with their own self-assessment in each clinical area to develop a plan (e.g., supplement their reading in a particular area, meet one-on-one with the faculty expert in a particular area, etc) to reach their self-identified goals.
Radiology noon-time lectures

Radiology noon-time lectures are part of a unique arrangement between the Department of Radiology and the Department of Radiation Oncology at Emory.

Specifically, while radiation oncology residents are on the Research/Lab rotation, they are required to attend noontime radiology conferences that are related to the practice of radiation oncology. These lectures typically occur Mon-Fri, 12:00 PM – 1:00 PM.

The residents are expected to chart their attendance at these lectures in the conference logs.

Competencies taught: Medical Knowledge and Systems-based Practice.
Resident Clinical Didactic

Resident Clinical Didactic is a major didactic in which the epidemiology, natural history, staging, diagnostic workup, management options, radiotherapy techniques, outcomes data, and radiation sequelae are discussed in detail. The chapter headings in Gunderson and Tepper’s “Clinical Radiation Oncology” serve as a guide to ensure that all organ systems/disease sites are covered every year. The conference serves as a major resource for residents’ preparation for the clinical portion of their in-training examination as well as ultimately both the written and oral portions of their ABR Radiation Oncology certification examination.

One resident each week is expected to prepare and deliver a 45-60 minute PowerPoint presentation to the group of residents. Notably, the attending(s) with expertise in that particular disease site are expected to be present and moderate the discussion. To maximize attending attendance/availability, this conference is typically dovetailed with the weekly Chart rounds. Currently held once weekly on Friday at 8:30 AM – 10:00 AM.

Competencies taught: Medical Knowledge, Patient Care, Professionalism, and Interpersonal & Communication Skills.
Resident Research Day

PGY-3 through PGY-5 year residents are required to select a research project annually for presentation at the annual Resident Research Day. This is a department-wide conference, open to all faculty and staff at all 4 facilities, and is held once annually, typically on Tuesday afternoon.

This conference is coordinated by the program director, and a visiting professor is invited to help moderate the research presentations (this visiting professor also delivers a 1-hour or so talk on his/her area of specialty).

Residents are expected to deliver a ~10 minute presentation with ~5 minutes for questions. This is similar to the manner in which presentations are set up at national meetings.

There is a faculty vote on each residents’ performance during Resident research day, with awards being given to the first, second, and third-place winners.

Competencies taught are: Medical Knowledge, Communication Skills, Practice-based Learning and Improvement, and Systems-based Practice.
Stress Management & Fatigue Awareness

Annually the residents receive a lecture on Stress Management, Fatigue Awareness, and Duty Hours from the Pulmonology/Critical Care Department.

As radiation oncology is an outpatient specialty with no in-house call and limited clinical activity on weekends, our specialty in general (and our Radiation Oncology training program in specific) typically do not have any issues related to duty hours violations. Nonetheless, the residents are required to fill out quarterly surveys on their work hours which the program director reviews – if there are any duty hours issues related to the ACGME Radiation Oncology-specific guidelines, the necessary changes would be made.
Visiting/Guest Lectures

Our department of Radiation Oncology recognizes the critical role of interdisciplinary didactics plays in resident education. Hence, we routinely have visiting/guest lectures from other departments at Emory.

These are primarily clinical lectures from other faculty in surgery, medical/pediatric oncology, radiology, or pathology. Occasionally these sessions are physics or radiation biology oriented; also, occasionally, the visiting lecturer is a faculty candidate. These one-hour lectures are typically held on Wednesday 8:30 AM- 9:30 AM (on weeks when Attending didactics are not being held).

Competencies taught: Medical Knowledge, Patient Care, and Systems-based Practice.
Visiting Professorships

Visiting Professorships are complementary to the Visiting/Guest Lectures in that the latter are mainly for Emory faculty outside the radiation oncology department, and Visiting Professorships are usually Radiation Oncology faculty from outside institutions.

Ideas for invitations for visiting professors are solicited by residents and faculty and typically there is one visiting professor per quarter. They usually deliver lecture (often at WCI/medical oncology grand rounds) and spend approximately 3-4 hours in the radiation oncology department with residents reviewing cases and discussing the particular disease site(s) of the visiting professor’s expertise in detail.

Competencies taught are: Medical Knowledge, Patient Care, and Systems-based Practice.
Winship Cancer Institute (WCI) / Medical Oncology Grand Rounds

Winship Cancer Institute (WCI) / Medical Oncology Grand Rounds is a superb opportunity for residents to learn about recent advances in oncology. These grand rounds are held weekly on Wednesday at 7:30 AM – 8:30 AM and residents are expected to attend every week. If a particular topic is too removed from radiation oncology practice, the resident can forego this particular session with the expectation that they will return to their service rotation-specific activities during that time.

The topics span a wide range of topics in medical oncology. Also, occasionally there are surgery or radiation oncology speakers. Notably [see May 6 session below], senior (PGY-5 residents) are scheduled to speak once at these grand rounds. The topic/presentation preparation is guided by a radiation oncology faculty mentor.

Competencies taught are: Medical Knowledge, Patient Care, Systems-based Practice, and Interpersonal & Communication Skills.
Other Didactics

Chief Resident Leadership and Management Conference

This is an Emory-wide 3-day seminar for the chief resident which is designed to introduce essential management, teaching, and people skills needed by Chief residents in all specialties.

Detailed information about this conference is at:

http://www.fpm.emory.edu/chiefresident/

This was held on May 14-16, 2008 and was attended by Mark McDonald.

Competencies taught: Professionalism, Systems-based Practice.

Presentation Coach

This course, which was attended by all radiation oncology residents and faculty, was conducted by Emory’s Goizueta Business School and was designed to improve the quality of oral presentations. The course consisted of 3 sessions:

Step One – Benchmark presentations and individual coaching, week of 01/12/2009.

Management Communication faculty observe presentations and provide individual feedback highlighting both strengths and areas for improvement. This initial presentation serves as a benchmark of current abilities.

Step Two – Didactic Seminar, Thurs, 01/22/2009, 6:30 – 8:30 pm

This highly interactive training seminar focuses on helping identify strategies for improving presentation skills. Focus is on the following areas:
Presentation Skills – Content, Organization, and Delivery
PowerPoint – Content, Structure, Design, and Delivery

Step Three – Demonstrations of improved presentation skills-Thurs, 01/29/2009, 5:00 – 8:00 pm

Continue to work with your preparation of presentations. Provided is detailed coaching and development to perfect presentation, content, and delivery.

Competencies taught: Interpersonal & Communication Skills.
Practice Entry Seminars

These are seminars delivered by guest speakers on an ad hoc basis. Topics in the past have included Malpractice Insurance and Disability Insurance.

Competencies taught: Professionalism, Systems-based Practice.
9. Duty Hours / Call

As radiation oncology is an outpatient specialty with no in-house call and limited clinical activity on weekends, our specialty in general (and our Radiation Oncology training program in specific) typically does not have any issues related to duty hours violations. Nonetheless, the residents are required to fill out quarterly surveys on their work hours which the program director reviews – if there are any duty hours issues related to the ACGME Radiation Oncology-specific guidelines, the necessary changes would be implemented.

Also, as our radiation oncology residency program at Emory is combined with Internal Medicine (the PGY-1 year is required to be done in Emory’s Department of Internal Medicine), the residents during their PGY-1 year are formally educated on Stress Management & Fatigue Awareness. This orientation serves as a resource for residents for the remainder of their residency, including the PGY-2 through PGY-5 years.

Residents take at-home call for one week at a time and are paired with an attending physician during this week. Because our residency program is large (12 residents) there is only one week of at-home call approximately every 3 months. All residents are included on the call schedule, which is prepared by the chief resident and program coordinator and approved by the Program Director. Residents are responsible for arranging coverage if conflicts arise. Emergency consults must be evaluated.

Emergency consults must be evaluated by the on-call resident immediately following the request for consultation. The on-call attending staff should also evaluate the patient. The on-call resident is responsible for treating all emergency patients, as well as others who have already been started on treatment but require treatment on the weekends or on holidays. The on-call resident should dictate a history and physical on the emergency consult and inform the appropriate attending physician who will be ultimately managing the patient.

Our department adheres to ACGME-established policies on Duty Hours and Call (see below).

ACGME-established policies on Duty Hours and Call

Duty Hours

Duty hours are defined as all clinical and academic activities related to the program; i.e., patient care (both inpatient and outpatient), administrative duties relative to patient care, the provision for transfer of patient care, time spent in-house during call activities, and scheduled activities, such as conferences. Duty hours do not include reading and preparation time spent away from the duty site.
1. Duty hours must be limited to 80 hours per week, averaged over a four-week period, inclusive of all in-house call activities.
2. Residents must be provided with one day in seven free from all educational and clinical responsibilities, averaged over a four-week period, inclusive of call.
3. Adequate time for rest and personal activities must be provided. This should consist of a 10-hour time period provided between all daily duty periods and after in-house call.

On-call Activities
1. In-house call must occur no more frequently than every third night, averaged over a four-week period.
2. Continuous on-site duty, including in-house call, must not exceed 24 consecutive hours. Residents may remain on duty for up to six additional hours to participate in didactic activities, transfer care of patients, conduct outpatient clinics, and maintain continuity of medical and surgical care.
3. No new patients may be accepted after 24 hours of continuous duty.
   a) A new patient is defined as any patient for whom the resident has not previously provided care.
4. At-home call (or pager call)
   a) The frequency of at-home call is not subject to the every-third-night, or 24+6 limitation. However at-home call must not be so frequent as to preclude rest and reasonable personal time for each resident.
   b) Residents taking at-home call must be provided with one day in seven completely free from all educational and clinical responsibilities, averaged over a four-week period.
   c) When residents are called into the hospital from home, the hours residents spend in-house are counted toward the 80-hour limit.

ACGME-Approved Specialty Specific Duty Hour Language (updated 01/01/2009)

SPECIALTY
Radiation Oncology

Common Requirements Section VI.E.2: (six hour post call period)
Continuous on-site duty, including in-house call, must not exceed 24 consecutive hours. Residents may remain on duty for up to six additional hours to participate in didactic activities, transfer care of patients, conduct outpatient clinics, and maintain continuity of medical and surgical care.

Common requirements Section VI.E.3: (Definition of new patient)
No new patients may be accepted after 24 hours of continuous duty.
   a) A new patient is defined as any patient for whom the resident has not previously provided care.

Other Changes (Common Program Requirements in Bold)
None.
10. Policies

Following department-specific items are included:

- Lines of Responsibility (including Supervision)
- Duty Hours
- Moonlighting
- Resident Recruitment and Appointment
- Promotion
- Grievance, Due Process, and Appeal
- Disciplinary Actions
- Leave/Vacation Policies
- Others: Benefits, Application Process

Our department additionally adheres to Emory GME and ABR Policies.
Supervision and Lines of Responsibility Policy
Department of Radiation Oncology

1. Resident Responsibilities for Patient Care (including progressive responsibilities for patient management):

During all clinical rotations, clinical activities should be prioritized by impact of education activity.

First Year in Radiation Oncology (PGY-2)

A. Evaluation of Patients:

1. Learn and master the staging for each cancer site using the American Joint Committee on Cancer Staging System (AJCC) and to correlate the staging with each patient’s treatment and prognosis.
2. Learn to obtain a pertinent history, perform a system oriented physical exam, review pertinent radiographs, pathology and tumor markers to make clinical decisions in the management of patients.
3. Learn to manage radiation oncology emergencies, such as spinal cord compression and superior vena cava syndrome.
4. Spend six months at initial institution, then subsequent three-month intervals with one or two radiation oncology attendings. The resident is expected to gather pertinent histories, perform physical exams, and review appropriate x-rays and lab studies to present this information to the radiation oncology attending in an organized manner. Since each attending has an area of expertise, i.e. gastrointestinal or breast radiation, etc. and also treats patients with other tumors, the resident is expected to master the workup of patients that have specific diagnoses within the expertise of the attending and to have a good working knowledge of the workup of other cancer patients.

B. Treatment of Patients:

1. Develop an awareness of all treatment options available for patients referred to radiation oncology (radiation oncology, surgical and medical oncology).
2. Develop an awareness of how the various oncologic disciplines are integrated in the treatment of each malignancy.
3. Develop competence in treatment set ups and treatment planning of low to intermediate levels of complexity.
4. Master the radiation dose tolerance of each organ so that the prescribed dose to the tumor will not exceed the tolerance of surrounding critical structures.
5. Develop skills in setting up appropriate radiation fields (portals) for specific stages of disease and prescribe appropriate radiation doses. The resident is expected to master the treatment set up and dose prescriptions of the patients with diagnoses within the expertise of his attending, and to have a good working knowledge of the same for other patients.

6. Develop some understanding of the psychological effects that a diagnosis of cancer has on some patients and to develop a supportive resident-patient relationship.

All patient evaluations and treatment plans are supervised and signed off by the attending physician.

Second Year in Radiation Oncology (PGY-3)

A. Evaluation of Patients:

1. Residents are expected to have refined their history, physical exam and interpretation of pertinent radiographic and pathologic information to make more accurate decisions in patient management.

2. Exhibit more independence in the management of radiation oncology emergencies but the attending physician must approve the resident’s treatment set-ups prior to delivering treatment.

3. During this year, the residents spend a three-month block with two attendings in pediatric and neuro-oncology. This resident is required to master the work-up and oncologic pathophysiology of both pediatric and brain tumors. During the other three-month rotations, the resident is expected to master the oncologic work-up of the patients evaluated with a diagnosis in the expertise of his/her attending as well as all the other patients evaluated.

4. The residents rotate for one month with the medical oncology service either on the consult service or medical ward. During this rotation they function as medical oncology residents, taking call if assigned.

B. Treatment of Patients:

1. Begin to integrate the different treatment options available for oncologic patients that provide the highest potential for cure and control of tumors.

2. Expand competence in treatment set-up and treatment planning as to be able to set-up intermediate to high level of complexity radiation treatment fields.

3. Expand skills in setting up appropriate radiation treatment fields (portals) for specific stages of disease of patients and to understand the variation in set-up between Emory and other academic institutions. The resident is
expected to master the treatment set-up and radiation dose employed for all patients seen with his/her attending.

All patient evaluations and treatment plans are supervised and signed off by the attending physician.

Third Year in Radiation Oncology (PGY-4)

During this year each resident is assigned to cancer biology for six months working on a Radiation Biology or Molecular Biology project. The division of Cancer Biology is the first option. Residents interested in physics-related research may choose to work in the Medical Physics Division for six months of research. Any resident choosing this will need to justify his or her choice to the Residency Committee.

A. Evaluation of Patients:

1. Resident should be able to refine their patient presentations with a concise encapsulation of the patient’s history, physical examination, radiographic studies and treatment plan.
2. The residents also rotate to The Emory Clinic for three months in Pediatric and CNS tumors.

B. Treatment of Patients:

1. The resident should master the most difficult treatment planning options and patient management.
2. They should master treatment of all tumor sites with regard to treatment options of each stage of disease, substantiated by pertinent literature.

All patient evaluations and treatment plans are supervised and signed off by the attending physician.

Fourth Year in Radiation Oncology (PGY-5)

A. Evaluation of Patients:

1. Resident should be able to refine their patient presentations with a concise encapsulation of the patient’s history, physical examination, radiographic studies and treatment plan.
2. More focus will be placed on development of treatment plan than prior years.
B. Treatment of Patients:

1. The resident should master the most difficult treatment planning options and patient management.
2. They should master treatment of all tumor sites with regard to treatment options of each stage of disease, substantiated by pertinent literature.

All patient evaluations and treatment plans are supervised and signed off by the attending physician.

2. Responsibilities for Faculty Supervision

Supervision of all residents is provided by qualified faculty at all times that a resident is on service or on call. Supervision is based on a resident's demonstrated ability and the level of training, as well as the objectives for the rotation. Supervision is designed to foster progressive responsibility.

Faculty are continuously present and actively engaged with every resident in every ambulatory setting. All of the residents' patient encounters (consultations, follow-ups, simulations, and weekly treatment checks) are supervised by the service faculty:

Consultations are presented to the service attending after the resident gathers the initial history/physical exam information and develops an initial assessment/plan. The attending faculty physician gathers additional information together with the resident and conveys the final treatment plan. The resident dictates a consultation note and the attending approves and gives the resident appropriate feedback on the dictation as warranted. Follow-ups and weekly status checks are conducted in generally a similar manner - initial resident visit with subsequent attending discussion/finalization.

Simulations involve the resident obtaining informed consent and isocenter placement during the planning CT scan, with faculty guidance as needed. Contouring of tumor volumes and normal structures and field design is initially done by the resident, with final review of the plan performed in conjunction with the attending physician.

Attending responsibilities on each of the clinical rotations include:

- reviewing the goals and objectives that are specific to the rotation and to the year of training (and upon which evaluations will be based)
- conduct discussions with the resident on service regarding disease management
- provide interim feedback on resident’s performance, including areas requiring improvement and quality of dictations.
- conduct end-of-rotation review and evaluation of resident’s performance.

For matters related to patient care, the resident lines of responsibility are as follows (in order):
1. Service Attending for that patient
2. Medical Director at the service hospital
3. Department Chairman

The Chief Resident and/or Program Director can be consulted for guidance at any point in the process.
Duty Hours Policy
Department of Radiation Oncology

The Radiation Oncology Department follows the Duty Hours Policy as set forth by the GME office and found at:

https://www.med.emory.edu/gme/housestaff/housestaff_policies/section6.html

It is the policy of the Graduate Medical Education Committee to follow guidelines established by the ACGME regarding duty hours for residents in accredited training programs. Duty hours are defined as all clinical and academic activities related to the program; i.e., patient care (both inpatient and outpatient), administrative duties relative to patient care, the provision for transfer of patient care, time spent in-house during call activities, and scheduled activities, such as conferences. Duty hours do not include reading and preparation time spent away from the duty site.

General Guidelines

1. Residents are responsible for accurately reporting their duty hours, including all time spent in Internal and External Moonlighting, per program requirements.

2. Program Directors are responsible for monitoring and enforcing compliance with duty hour guidelines.

3. If specialty/subspecialty-specific program duty hour requirements as defined by an individual RRC for that specialty/subspecialty are more restrictive than the above requirements, then the duty hour requirements of that RRC will be included in the policy of that specialty/subspecialty program and will supersede the institutional requirements.

4. Concerns regarding duty hours may be reported to the Associate or Assistant Dean for GME or through the Confidential Helpline 1-888-594-5874. Concerns may be reported anonymously.

Maximum Hours of Work per Week

5. Duty hours must be limited to 80 hours, averaged over a four-week period per rotation or a four-week period within a rotation excluding vacation or approved leave. Any requests for exceptions to the maximum weekly limit on duty hours must be presented by the Program Director to the GMEC for review and approval. Any exceptions must conform to the Policy and Procedures for Resident Weekly Duty Hour Limit Exceptions.

6. Time spent in Internal and External Moonlighting will be counted toward the eighty-hour maximum weekly hour limit on duty hours as outlined in #5 above.
**Mandatory Time Free of Duty**

7. Residents must be scheduled for a minimum of one day free of duty every week (when averaged over four weeks). “Duty” includes all clinical and academic activities related to the program as described above. At-home call cannot be assigned on these free days.

**Maximum Duty Period Length**

8. Duty hour periods of PGY-1 residents must not exceed 16 hours in duration.

9. PGY-2 residents and above may be scheduled to a maximum of 24 hours of continuous duty in the hospital. Residents may be allowed to remain on site for an additional 4 hours to ensure effective transitions in care; however, they may not be assigned additional clinical responsibilities after 24 hours of continuous in-house duty.

10. ESOM encourages residents to use alertness management strategies, including strategic napping, in the context of patient care responsibilities, especially after 16 hours of continuous duty and between the hours of 10pm and 8am.

11. In unusual circumstances and on their own initiative, PGY-2 residents and above may remain beyond their scheduled period of duty to continue to provide care to a single patient. Under such circumstances - which only include continuity of care for a severely ill or unstable patient, a transpiring event of unusual academic importance or humanistic attention to the needs of a patient or family – the resident must: appropriately hand over the care of all other patients responsible for their continuing care and document the reasons for remaining to care for the patient in question. Such documentation must be submitted to the Program Director in every circumstance. The Program Director is responsible for tracking both individual resident and program-wide episodes of additional duty.

**Minimum Time Off Between Scheduled Duty Periods**

12. PGY-1 residents should have 10 hours and must have 8 hours free of duty between scheduled duty periods.

13. Intermediate level residents as defined by the respective Residency Review Committees should have 10 hours free of duty, must have 8 hours between scheduled duty periods, and must have at least 14 hours free of duty after 24 hours of in-house duty. Individual residency programs must construct their own duty hour policies in compliance with their individual program’s requirements.

14. Residents in the final years of education must be prepared to enter the unsupervised practice of medicine and care for patients over irregular or extended periods. While it is desirable that residents in their final years of education have eight hours free of duty between scheduled duty periods, there may be circumstances when these house officers must stay on duty to care for their patients or return to the hospital with fewer than eight hours free of duty. Individual programs must construct their own duty hour policies in compliance with their individual program’s requirements as to the definition of “final years of education” and the circumstances where house officers may have less than 8 hours free between duty periods. In all instances, such circumstances must be monitored by the Program Director.
**Maximum Frequency of In-House Night Float**

15. Residents must not be scheduled for more than 6 consecutive nights of night float. Individual residency programs must construct their own duty hour policies in compliance with their individual program’s requirements defining maximum consecutive weeks of night float and maximum number of months of night float per year.

**Maximum In-House On-Call Frequency**

16. In-house call will occur no more frequently than every third night, averaged over a four-week period.

**At Home Call**

17. At-home call, or “pager call,” is defined as call taken from outside the assigned site.

18. When residents are called into the hospital from home, they may care for new or established patients and the hours spent in-house, exclusive of travel time, are counted toward the eighty-hour limit. Such episodes will not initiate a new “off-duty period.”

19. At-home call must not be so frequent or taxing as to preclude rest or reasonable personal time for each resident.

20. At-home call may not be scheduled on the resident’s one free day per week (averaged over four weeks).

Any concerns or questions concerning the duty hour guidelines must be directed to the Associate or Assistant Dean for GME.

All programs must have policies for duty hours that at a minimum meet the ACGME’s institutional and program requirements. Programs must monitor in-house and from-home duty hours on an ongoing basis in a way that provides accurate data. The Duty Hour Subcommittee has established reporting requirements. Each monitoring period must be 4 weeks in length, not a moving average or extrapolated from a shorter length of time. With GMEC oversight, the DIO and the Chair of the GMEC Duty Hour Subcommittee will review program data resulting from internal reviews, annual administrative processing sessions, random audits and other times as determined by the DIO, the GMEC or by the Duty Hour Sub-committee of the GMEC. If a program has received approval from the ACGME to extend the 80-hour rule, if the program received a duty hour citation or if an internal review reveals a duty hour issue, then these training programs must send reports to the sub-committee at a minimum of every other month.

Program Directors must monitor call-from-home duty hours in terms of frequency and characteristics to assure that residents and fellows are following basic guidelines established by the ACGME.

Program Directors must provide information to residents, fellows and faculty members regarding effects of loss of sleep and chronic fatigue. Currently, the GMEC recommends using the SAFER program available from the GME office, and the Dinges presentation found at the ACGME website and asking faculty members of Emory University School of Medicine who have expertise in this area.
Transportation Option for Residents Too Fatigued to Return home Safely

For residents/fellows who may be too fatigued to drive home, the GME Office has arranged for residents/fellows' transportation home with a return trip next day through the Checker Cab Company.

Residents can call Checker Cab (404-351-1111) and give their specific pick up location. PLEASE NOTE: 1) The Taxi driver will pick up from any affiliated training site at which residents/fellows are rotating and 2) Checker Cab is authorized to only drop off at a residential address. Resident must indicate they are on the Authorized Caller List and with the GME Account. The GME Office will cover the cost of the transportation (including the tip).

Residents are asked to print name and program name clearly on the voucher provided by the cab driver. The voucher will be used to bill the GME Office. Checker Cab is authorized to provide a return trip the next day to the pickup location. The Program Director or Supervising Attending should be aware if a resident/fellow is too fatigue to drive his/her vehicle and needs transportation.

REPORTING STRUCTURE FOR OFF-SERVICE ROTATIONS

It is the intention of this section of the Duty Hour Policy to establish a process that will address duty hour compliance in a rapid and timely manner when a resident is rotating off service. Problems regarding compliance with duty hour guidelines should be reported to the Chief Resident of the accepting training program. If that Chief Resident does not respond to the report of noncompliance, then the resident should report to the Program Director of the sending program. The Program Directors of the two programs must address the issues that led to the violation of the guidelines. The resident may notify the GME Office at any time. The Associate Dean for GME will report to the Chairs of the two training programs and has the option of reporting to the Dean if the issues are not settled on an immediate basis.

The GME office maintains a direct phone line to receive confidential complaints about all issues including duty hours. This phone number 1-888-594-5874 is private and secure. The Associate Dean and DIO will respond to the recorded messages as appropriate.

6.02 DUTY HOUR EXTENSION

On occasion, individual programs could determine a need to extend the 80-hour work rule to a maximum of 10% above the current limit or a total of 88 hours per week. No other extension of the ACGME guidelines is permitted unless specifically stated by the ACGME. Not all RRC's accept applications to extend the 80-hour guideline.

If the request to extend work hours has been approved by the GMEC, then Program Directors must petition the RRC for permission to extend hours. The letter from the GMEC must be used when communicating to the RRC.

Program Directors must use the following guidelines to petition the GMEC.

Program Directors requesting an extension of duty hours must do so in writing to the Associate Dean for GME.

Blanket exceptions for the entire educational program should be considered the exception, not the rule.
The letter must include the following information.

A description of the resident's work week to delineate specific problem areas,

A clear explanation of why the program cannot maintain the 80-hour limit,

A clarification of the RRC requirements the program will not meet if residents work 80 or fewer hours,

Planned monitoring procedures to assure that residents will not work greater than 88 hours per week,

Information describing how the program will monitor, evaluate and ensure patient safety with extended resident work hours,

A sound educational rationale that should relate to the program's stated goals and objectives for the particular assignments, rotations and levels of training for which the increase is requested,

The program's moonlighting policies and how the program will assure that it is accounting for these hours,

Call schedules for the rotation in question and

Evidence of faculty development activities regarding the effects of residents fatigue and sleep deprivation.

The GMEC Sub-committee on Duty Hours will serve as the ad hoc committee to review requests for extensions of duty hours. The Associate Dean will review the membership of the GMEC Sub-committee to assure that conflicts of interest do not enter the decision process.

The written findings and recommendations of the Sub-committee will be presented at the next regularly scheduled meeting of the GMEC.

Members of the GMEC, based on the letter from the Program Director and the findings and recommendations of the Sub-committee, will develop its report and send this report to the Program Director.

The decision of the GMEC is final.

Program Directors will not implement the extension of duty hours until approved by the ACGME.

Program Directors must monitor resident work hours on a more intense basis if the ACGME has granted an extension.
The Radiation Oncology Department requires that residents comply with the GME guidelines on duty hours.

- Residents must not work more than 80 hours per week averaged over a month,
- Residents must receive at least 10 hours between shifts,
- Residents must not work more than 24 continuous with 6 additional hours for patient transfer or brief didactic sessions,
- Residents must receive at least one day in seven away from clinical duties.

Moonlighting hours and residency hours are not allowed to exceed the above limits. Residents are required to fill out a monthly timesheet which is reviewed by the program director upon completion.

Residents are required to attend an annual in-service on the effects of loss of sleep and chronic fatigue.

**Work Environment**

Residents are protected from performing service obligations that do not fulfill the educational objectives of their program, and are provided with relief from excessive patient care demands. Concerns about the educational program or the work environment are encouraged and addressed without intimidation or retaliation.
Moonlighting Policy
Department of Radiation Oncology

Residents are required to comply with the Moonlighting policy as set forth by the GME office. “Moonlighting” refers to a service performed by a resident in the capacity of an independent physician, completely outside the scope of his/her residency-training program.

Residents are prohibited from moonlighting unless they have the written approval of the program director. The program director’s decision to approve or deny a resident’s request to moonlight will depend on a number of factors including, but not limited to, interference with the resident’s responsibilities in the training program and the individual circumstances of the resident. Approval to moonlight may be rescinded at anytime, and residents are not required to moonlight.

Residents must be in good academic standing to be granted approval to moonlight, and residents must have a valid Georgia Medical License to moonlight.

Residents are required to complete a monthly time sheet that should include both their residency hours and moonlighting hours when applicable. Internal moonlighting counts in the 80 hours/week duty reports.
Resident Recruitment & Appointment Policy
Department of Radiation Oncology

The Department requires that applicants meet one of the following qualifications, in accordance with the GME policy on resident recruitment and appointment, to be eligible for a position in the Radiation Oncology training program.

Resident Recruitment

Applicants are required to meet one of the following qualifications to be eligible for a position in the graduate medical education program at Emory.

Graduates of medical school in the United States and Canada accredited by the Liaison Committee on Medical Education (LCME).

Graduates of colleges of osteopathic medicine in the United States accredited by the American Osteopathic Association (AOA).

Graduates of medical schools outside of the United States and Canada who meet one of the following qualifications:

Have received a currently valid certificate from the Educational Commission for Foreign Medical Graduates verifying final medical diploma, or

Have a full, active and unrestricted license to practice medicine in a U.S. licensing jurisdiction.

Graduates of medical schools outside of the United States who have completed a Fifth Pathway Program provided by an LCME-accredited Medical School.

International medical graduates who are non-U.S. citizens must enter the training program on an ECFMG sponsored J-1 visa.

Non-eligible applicants will not be considered for selection in Emory's graduate medical education program.

In addition, one year of clinical experience within the United States is required.

Resident Appointment

Eligible applicants will be considered for an appointment based on:

1. academic credentials
2. ability
3. overall preparedness
4. communication skills
5. aptitude
6. personal qualities (such as motivation and integrity)
7. other written criteria developed by the Program Director and approved by the Associate Dean for Graduate Medical Education.

In selecting from qualified applicants, Emory may participate in an organized matching program such as the National Resident Matching Program.

In determining resident eligibility and appointment, Emory will not discriminate with regard to a resident's gender, race, religion, color, creed, national origin, disability, sexual orientation or veteran status.

On behalf of Emory as the sponsoring institution, the Office of Graduate Medical Education will be responsible for periodically reviewing whether resident selection activities are consistent with this Policy. The Office of Graduate Medical Education may delegate these review activities to individual Program Directors or their designees.

Questions regarding this Policy and Procedure should be directed to the Office of Graduate Medical Education.
Promotion Policy
Department of Radiation Oncology

Criteria for Promotion to PGY3:

At the completion of each three-month rotation, each first year resident is evaluated with respect to his/her fund of knowledge, technical skills, professionalism, teaching skills and leadership skills. The resident must receive a satisfactory performance in the summary evaluation. At the end of the first year, a composite evaluation is performed by the Program Director taking into account the four quarterly evaluations. The Residency Committee meets in March of each year to discuss each resident’s evaluations for the year. A resident must obtain an overall satisfactory evaluation to proceed to the second year. Contracts for the second year will be offered to residents who meet these criteria.

Criteria for Promotion to PGY4:

Each second year resident is evaluated at the completion of each three-month rotation with an attending. The resident must receive an overall satisfactory level of performance in the summary evaluation. At the end of the second year a composite evaluation is performed by the Program Director with emphasis on improvement in the resident’s performance from year one to two. The Residency Committee meets in March of every year. The resident’s evaluations are discussed. The resident must obtain an overall satisfactory evaluation to proceed to the third year. Contracts for the third year will be offered to those residents who meet the above criteria.

Criteria for Promotion to PGY5:

Each resident is evaluated at the completion of each three-month rotation. The resident must receive an overall satisfactory level of performance in the summary evaluation. At the end of the third year, a composite evaluation is performed by the Program Director and the resident is expected to show an improvement in performance over the previous years. The Residency Committee meets in March each year to discuss each resident’s performance. An overall satisfactory evaluation is necessary to proceed to the fourth year. Fourth year contracts will be offered to residents who met the above criteria.
Grievance, Due Process, and Appeal Policy
Department of Radiation Oncology

The Radiation Oncology Department follows the Grievance Policy as set forth by the GME office and found at:

https://www.med.emory.edu/gme/housestaff/housestaff_policies/section33.html
Disciplinary Actions Policy
Department of Radiation Oncology

The Radiation Oncology Department follows the Disciplinary Actions Policy as set forth by the GME office and found at:

https://www.med.emory.edu/gme/housestaff/housestaff_policies/section7.html

The School of Medicine expects all residents to fulfill their responsibilities and conduct themselves in a competent, professional manner, and to follow the rules, regulations and policies of Emory University and affiliated hospitals, as well as federal and state law. In the event a resident falls short of these expectations, and/or engages in misconduct, violates rules, or fails to satisfactorily perform in the training program, the resident will be counseled and/or disciplined for his/her actions or inactions. This Section outlines some of the common disciplinary actions available to each residency training program. Typically the steps involved in corrective discipline of a resident include one or all of the following: verbal warnings, written warnings, probation, suspension, and termination. However, depending on the circumstances of the resident and his/her misconduct or other inappropriate action, the School of Medicine may choose any of the described disciplinary actions for a single infraction including immediate termination from the training program without first providing the resident lesser disciplinary actions. All discipline received by a resident will be taken into account in determining whether the resident will receive a reappointment offer.

7.01 Administrative Notice:
Administrative Notice is a remedial action by which a resident is temporarily relieved of clinical duties without pay for violation of university, institutional, or departmental policy pertaining to administrative matters. Examples of inappropriate action triggering an administrative notice include, but are not limited to, failure to maintain an active medical license in the GME office, failure to provide evidence of training in basic life support techniques, failure to obtain PPD tests, and failure to provide OGME with a copy of his/her medical school diploma or ECFMG certificate. Administrative Notice is not necessarily considered censure, and the Chair or Program Director will decide whether it will become a part of the resident's permanent academic file.

The department Chair, Program Director, or their designee may impose an Administrative Notice upon a resident for failure to appropriately discharge his/her administrative responsibilities. Administrative Notice may not be invoked for deficiencies in academic performance, patient care, or any other non-program related administrative action or conduct, as those deficiencies should be addressed through verbal warnings, written warnings, probation, suspension, and/or termination. The resident may not appeal his/her receipt of an Administrative Notice.

The resident will be notified promptly of his/her placement on Administrative Notice. Such notice shall, if possible, be hand-delivered (with the resident signing and dating a copy to acknowledge receipt) or sent by certified mail (return receipt requested) to the resident's address of record. The department Chair, Program Director, or their designee will also, if possible,
verbally inform the resident of the action. The Administrative Notice shall clearly delineate the resident's area(s) of deficiency and establish a reasonable period of time no longer than 10 calendar days within which the resident must correct his/her deficiencies. During the period of Administrative Notice, the resident is relieved of all clinical responsibilities without pay. Failure to appropriately address the areas of deficiency in the appropriate time frame as outlined in the letter of notification is considered grounds for additional disciplinary action, up to and including termination from the residency program.

7.02 Verbal Warning
A verbal warning, which may be given to a resident by a departmental Chair, Program Director, or other faculty member, is designed to identify a resident's minor or initial infraction of policies, standards, or expectations. The warning should be firm and fair, with the faculty member assuring that the resident understands the policies, standards, and expectations. A written record of the date and content of the discussion, as well as the underlying situation which precipitated the warning, shall be maintained in the resident's academic file.

7.03 Written Warning (Letter of Reprimand)
A written warning may be issued only by a resident's department Chair or Program Director. A written warning is appropriate when a prior verbal warning has not resulted in the needed improvement or when the initial misconduct violation or performance inadequacy indicates a need for action stronger than a verbal warning. The written warning should note the unacceptable conduct or action that caused the warning, as well as the program's improvement expectations. The written warning must be signed by the resident and a copy given to him/her. A copy must be placed in the resident's academic file.

7.04 Probation
A department Chair or Program Director may place on probation a resident who is unable to meet the academic expectations of the training program (failing to progress at the expected pace), who experiences a serious lapse in complying with the responsibilities of the program, or for other serious misconduct and/or performance problems. A department Chair or Program Director should notify the Associate Dean for Graduate Medical Education or his/her designee before placing a resident on probation.

Probation is usually the second step of a series of disciplinary actions for a resident. Usually a resident will have one or more counseling sessions or receive a verbal or written warning about his/her deficiency prior to being placed on probation. In placing the resident on probation the Chair or Program Director should:

- Review the policies and expectations of the program;
- Identify the area of deficiency;
- Identify the improvement(s) that must be achieved during the probation period;
- Identify the length of the probationary period; and
- Inform the resident what action(s) may be taken if the stated improvements are not met in the established time frame.

A resident will receive this probation notification in writing. Copies of the probation notice will be placed in the residents' academic file and in his/her administrative file located in the Office of
Graduate Medical Education. A probation period occurring during training will be noted in all letters of reference.

**7.05 Suspension**
The Dean of the School of Medicine or his designee, department Chair, and Program Director have the authority to suspend a resident for the most serious violations of policies, rules, laws and misconduct, performance problems, and/or recurring administrative lapses such as violations of medical records requirements. Prior to suspending a resident from the training program, the department Chair or Program Director must notify the Associate Dean for Graduate Medical Education or his/her designee. In addition, the Program Director will inform the OGME, in writing, of the cause for suspension, the length of suspension, whether the time lost while on suspension will be added to the resident's training requirements at the conclusion of his/her program, and any other pertinent information.

When suspending a resident, the Program Director or his/her designee must inform the resident, in writing, of the following:

- Action(s) that precipitated the decision to suspend the resident;
- The length of the suspension;
- The fact that the resident will not be paid while on suspension;
- The fact that the suspension will NOT be counted toward the completion of the training time required to be eligible for board examination(s);
- An indication of what the resident may/may not do while on suspension (for example, no moonlighting);
- The program's expectations for the resident upon his/her return from suspension.

Copies of the suspension notice will be placed in the resident's academic file and in his/her administrative file located in the Office of Graduate Medical Education. Suspensions will be noted in all letters of references.

**7.06 Termination**
If a residency appointment is terminated during the appointment period, the terminated resident may appeal the decision by following the procedures outlined in Section 33, "Hearing and Appellate Review Procedures for Termination of a Resident."
Leave/Vacation Time – Intradepartmental Policies

The department adhere to GME policies regarding leave time: http://med.emory.edu/gme/housestaff/housestaff_policies/section4.html

In addition, the department has the additional specific policies:

For vacation or meeting time, the leave request form must be completed and approved by attending physician or appropriate supervisor during that rotation no later than 1 month prior to the scheduled leave.

Residents are highly encouraged not to take more than 1 week total on a given clinical rotation.

Residents are highly encouraged not to take leave during the first or last week of a clinical rotation.

Requests for greater than 1 week must be discussed with the program director for committee approval prior to the 1 month deadline. Absolute maximum for leave is 2 weeks; note that requests for > 1 week will be given only under extenuating circumstances.

Activities for non-medical reasons that require more than 2 hours of time from the department will require at least a half-day vacation leave request.

Please note that all of the above policies apply to clinical rotations as well as elective, research, and physics/dosimetry rotations.

**Note that residents found not adhering to the above or found in violation of these policies (including, but not limited to, taking leave without submitting a leave request) will be subject to disciplinary action which, depending on the circumstance, can result in WRITTEN WARNING, SUSPENSION, OR TERMINATION.**
Benefits Policy

Each resident receives a $1000 annual allowance to spend on textbooks, journal subscriptions, PDA/smartphone software/usage, electronic devices, and other educational material.

Residents may attend ASTRO during their last year of training with expenses reimbursed by the department. In addition, any resident in any year of training who presents research at ASTRO will be reimbursed for expenses. Other conferences will be considered on a case-by-cases by the education committee.

Residents receive fifteen days of personal leave for vacation and twelve days of sick leave annually. Each resident also receives five days of leave to interview for post-residency employment.

Free covered parking is available at all four radiation therapy facilities. Each resident also receives three long white coats with free laundering service at Emory.

Health insurance, term life insurance, dependent term life insurance, long-term disability insurance, and accidental death and dismemberment coverage are provided to residents at no cost. Dental and vision coverage are available to residents and dependents for minimal cost. Flexible spending accounts may be established to pay medical, dental, and dependent care expenses with pre-tax income. Retirement plans are available, but there are no employer matching contributions. Other optional benefits include direct deposit of paychecks, membership in the Emory Alliance Credit Union, library privileges, and membership in recreation and fitness facilities. Additional benefit information may be found at the Emory University Human Resources page: http://emory.hr.emory.edu/rtpbenplans.nsf/

Application Process Policy

Applicants may apply to the residency program through the Electronic Residency Application Service (ERAS). The information that should accompany the application includes:

- Curriculum vitae
- Personal statement
- Transcripts
- Board examination scores
- Three letters of recommendation

Medical schools generally mail the Dean’s letters on or after November 1st.

Interviews are conducted in January. Interviews are by invitation, with candidates selected for interview based upon their application materials. One half of each interview day is allotted to interviews by the clinical, physics, and radiation biology faculty; applicants tour the program's four radiation therapy facilities for the remainder of the day. Applicants also have lunch with the current residents, which provides the opportunity to learn about the program in more detail and ask additional questions.

Applicants who match with Emory match automatically into a PGY1 year with Emory’s Department of Medicine.
Emory GME Policies

The Department of Radiation Oncology at Emory University conforms to Emory Graduate Medical Education (GME) Housestaff Policies which can be found at:

http://med.emory.edu/gme/housestaff/housestaff_policies/

This website has additional/detailed information about the following policies:

Benefits
Leave Time (see also intradepartmental policies)
Requirements for Appointment
Moonlighting
Disciplinary Actions
Counseling and Support Services
Behavioral Health Statement
Graduate Medical Education Committees
Personnel Files
Workers' Compensation
Infection Control
Equal Opportunity
Liability Insurance and Risk Management Programs
Standards of Conduct
The Health Insurance Portability and Accountability Act [HIPAA]
Conflict of Interest
Teaching Responsibilities
Grievance Procedure
Policy and Procedure on Resident Eligibility & Selection
Residency Appointment Agreement
Equal Opportunity Policies

ABR/FMLA Policies

ABR policy on number of days a resident can be out of training is as follows:

1. 20 days each year up to a maximum of 80 days over the course of their four years of training. This is for vacation, sick time and other non-training related leave.

2. Personal circumstances such as maternity leave, family leave, etc., the program may in conformance with institutional policies allow an additional six weeks during the course of training.

3. Additional time in which a resident is absent from training requires an extension of their training.
ACGME Program Requirements for Graduate Medical Education in Radiation Oncology

ACGME approved: June 10, 2008; effective: January 1, 2009
ACGME approved focused revision: June 17, 2010; effective: July 1, 2011
Revised Common Program Requirements effective: July 1, 2011
ACGME approved focused revision with categorization: September 29, 2013; effective: July 1, 2014
ACGME Program Requirements for Graduate Medical Education in Radiation Oncology

Common Program Requirements are in BOLD

Introduction

Int.A. Residency is an essential dimension of the transformation of the medical student to the independent practitioner along the continuum of medical education. It is physically, emotionally, and intellectually demanding, and requires longitudinally-concentrated effort on the part of the resident.

The specialty education of physicians to practice independently is experiential, and necessarily occurs within the context of the health care delivery system. Developing the skills, knowledge, and attitudes leading to proficiency in all the domains of clinical competency requires the resident physician to assume personal responsibility for the care of individual patients. For the resident, the essential learning activity is interaction with patients under the guidance and supervision of faculty members who give value, context, and meaning to those interactions. As residents gain experience and demonstrate growth in their ability to care for patients, they assume roles that permit them to exercise those skills with greater independence. This concept--graded and progressive responsibility--is one of the core tenets of American graduate medical education. Supervision in the setting of graduate medical education has the goals of assuring the provision of safe and effective care to the individual patient; assuring each resident’s development of the skills, knowledge, and attitudes required to enter the unsupervised practice of medicine; and establishing a foundation for continued professional growth.

Int.B. Definition

Int.B.1. Radiation oncology is that branch of clinical medicine concerned with the causes, prevention, and treatment of cancer and certain non-neoplastic conditions utilizing ionizing radiation. Radiation oncologists are an integral part of the multidisciplinary management of the cancer patient, and must collaborate closely with physicians in related disciplines in the management of the patient.

Int.B.2. The objective of the residency program is to educate and train physicians to be skillful in the practice of radiation oncology, and to be caring and compassionate in the treatment of patients. To accomplish this goal, adequate structure, facilities, faculty, patient resources, and an educational environment must be provided.

Int.C. The educational program in radiation oncology must be 60 months in length.

I. Institutions

I.A. Sponsoring Institution
One sponsoring institution must assume ultimate responsibility for the program, as described in the Institutional Requirements, and this responsibility extends to resident assignments at all participating sites. (Core)

The sponsoring institution and the program must ensure that the program director has sufficient protected time and financial support for his or her educational and administrative responsibilities to the program. (Core)

I.A.1. The program director should devote a minimum of 10 percent of his or her time to administration of the program. (Core)

I.A.2. The sponsoring institution must also sponsor other relevant oncology-related graduate medical education programs accredited by the Accreditation Council for Graduate Medical Education (ACGME), including residencies or fellowships in surgical, medical, and/or pediatric oncology. (Core)

I.A.3. At least 50 percent of the residents’ educational experiences should take place at the primary clinical site. (Core)

I.B. Participating Sites

I.B.1. There must be a program letter of agreement (PLA) between the program and each participating site providing a required assignment. The PLA must be renewed at least every five years. (Detail)

The PLA should:

I.B.1.a) identify the faculty who will assume both educational and supervisory responsibilities for residents; (Detail)

I.B.1.b) specify their responsibilities for teaching, supervision, and formal evaluation of residents, as specified later in this document; (Detail)

I.B.1.c) specify the duration and content of the educational experience; and, (Detail)

I.B.1.d) state the policies and procedures that will govern resident education during the assignment. (Detail)

I.B.2. The program director must submit any additions or deletions of participating sites routinely providing an educational experience, required for all residents, of one month full time equivalent (FTE) or more through the Accreditation Council for Graduate Medical Education (ACGME) Accreditation Data System (ADS). (Core)

I.B.3. Assignment to a participating site must be based on a clear educational rationale, integral to the program curriculum, with clearly-stated activities and objectives, and should provide resources not otherwise available to
I.B.4. When multiple participating sites are used, there must be assurance of the continuity of the educational experience. (Core)

I.B.5. Integrated Sites

I.B.5.a) A site is considered integrated when the program director determines all rotations and assignments of residents, and is responsible for the overall conduct of the educational program and faculty members there. (Core)

I.B.5.b) Clinical faculty members at the integrated site should have faculty appointments from the sponsoring institution or the primary clinical site. (Detail)

I.B.5.c) Integrated sites must provide a means for direct participation in joint conferences, by attendance when institutions are in geographic proximity to the primary clinical site, or by electronic transmission when not. (Detail)

I.B.5.d) Prior approval must be obtained from the Review Committee for an integrated participating site, regardless of the duration of rotations. (Core)

I.B.5.d).(1) Rotations to integrated sites are not limited in duration. (Detail)

I.B.6. Other Participating Sites

Participating sites that do not meet the requirements for integrated sites must meet the following requirements:

I.B.6.a) Participating sites that are not designated as integrated may be used to complement residents’ educational experiences.

I.B.6.b) Participating sites do not require prior Review Committee approval. There must be a Program Letter of Agreement for any site from which cases are entered into resident logs. (See Requirement I.B.1). (Detail)

II. Program Personnel and Resources

II.A. Program Director

II.A.1. There must be a single program director with authority and accountability for the operation of the program. The sponsoring institution’s GMEC must approve a change in program director. (Core)

II.A.1.a) The program director must submit this change to the ACGME via the ADS. (Core)
II.A.1.b) The program director should be a full time faculty member at the primary clinical site.

II.A.2. The program director should continue in his or her position for a length of time adequate to maintain continuity of leadership and program stability.

II.A.2.a) The program director should have a term of at least three years.

II.A.3. Qualifications of the program director must include:

II.A.3.a) requisite specialty expertise and documented educational and administrative experience acceptable to the Review Committee;

II.A.3.b) current certification in the specialty by the American Board of Radiology, or specialty qualifications that are acceptable to the Review Committee; and,

II.A.3.b).(1) The program director must actively participate in Maintenance of Certification in radiation oncology through the American Board of Radiology.

II.A.3.c) current medical licensure and appropriate medical staff appointment.

II.A.4. The program director must administer and maintain an educational environment conducive to educating the residents in each of the ACGME competency areas.

The program director must:

II.A.4.a) oversee and ensure the quality of didactic and clinical education in all sites that participate in the program;

II.A.4.b) approve a local director at each participating site who is accountable for resident education;

II.A.4.c) approve the selection of program faculty as appropriate;

II.A.4.d) evaluate program faculty;

II.A.4.e) approve the continued participation of program faculty based on evaluation;

II.A.4.f) monitor resident supervision at all participating sites;

II.A.4.g) prepare and submit all information required and requested by the ACGME.
II.A.4.g).(1) This includes but is not limited to the program application forms and annual program resident updates to the ADS, and ensure that the information submitted is accurate and complete. (Core)

II.A.4.h) ensure compliance with grievance and due process procedures as set forth in the Institutional Requirements and implemented by the sponsoring institution; (Detail)

II.A.4.i) provide verification of residency education for all residents, including those who leave the program prior to completion; (Detail)

II.A.4.j) implement policies and procedures consistent with the institutional and program requirements for resident duty hours and the working environment, including moonlighting, (Core)

and, to that end, must:

II.A.4.j).(1) distribute these policies and procedures to the residents and faculty; (Detail)

II.A.4.j).(2) monitor resident duty hours, according to sponsoring institutional policies, with a frequency sufficient to ensure compliance with ACGME requirements; (Core)

II.A.4.j).(3) adjust schedules as necessary to mitigate excessive service demands and/or fatigue; and, (Detail)

II.A.4.j).(4) if applicable, monitor the demands of at-home call and adjust schedules as necessary to mitigate excessive service demands and/or fatigue. (Detail)

II.A.4.k) monitor the need for and ensure the provision of back up support systems when patient care responsibilities are unusually difficult or prolonged; (Detail)

II.A.4.l) comply with the sponsoring institution’s written policies and procedures, including those specified in the Institutional Requirements, for selection, evaluation and promotion of residents, disciplinary action, and supervision of residents; (Detail)

II.A.4.m) be familiar with and comply with ACGME and Review Committee policies and procedures as outlined in the ACGME Manual of Policies and Procedures; (Detail)

II.A.4.n) obtain review and approval of the sponsoring institution’s GMEC/DIO before submitting information or requests to the
II.A.4.n).(1) all applications for ACGME accreditation of new programs;  
II.A.4.n).(2) changes in resident complement;  
II.A.4.n).(3) major changes in program structure or length of training;  
II.A.4.n).(4) progress reports requested by the Review Committee;  
II.A.4.n).(5) responses to all proposed adverse actions;  
II.A.4.n).(6) requests for increases or any change to resident duty hours;  
II.A.4.n).(7) voluntary withdrawals of ACGME-accredited programs;  
II.A.4.n).(8) requests for appeal of an adverse action;  
II.A.4.n).(9) appeal presentations to a Board of Appeal or the ACGME; and,  
II.A.4.n).(10) proposals to ACGME for approval of innovative educational approaches.  

II.A.4.o) obtain DIO review and co-signature on all program application forms, as well as any correspondence or document submitted to the ACGME that addresses:  
II.A.4.o).(1) program citations, and/or;  
II.A.4.o).(2) request for changes in the program that would have significant impact, including financial, on the program or institution.  

II.A.4.p) ensure that each resident keeps a detailed, well-organized, and accurate electronic log of those procedures noted in Program Requirement IV.A.6.  
II.A.4.p).(1) The log should include patients simulated, procedures performed, and modalities used.  
II.A.4.q) review the logs with all residents at least semiannually to ensure accuracy and to verify that the case distribution meets the standards specified; and,  
II.A.4.q).(1) The program director must provide documentation of these
discussions for the resident’s record maintained by the program; and,

II.A.4.r) submit the cumulative experience of graduating residents to the Review Committee annually in accordance with the format and the due date specified by the Review Committee.

II.B.

II.B.1. At each participating site, there must be a sufficient number of faculty with documented qualifications to instruct and supervise all residents at that location.

The faculty must:

II.B.1.a) devote sufficient time to the educational program to fulfill their supervisory and teaching responsibilities; and to demonstrate a strong interest in the education of residents; and,

II.B.1.b) administer and maintain an educational environment conducive to educating residents in each of the ACGME competency areas.

II.B.2. The physician faculty must have current certification in the specialty by the American Board of Radiology, or possess qualifications judged acceptable to the Review Committee.

II.B.3. The physician faculty must possess current medical licensure and appropriate medical staff appointment.

II.B.4. The nonphysician faculty must have appropriate qualifications in their field and hold appropriate institutional appointments.

II.B.5. The faculty must establish and maintain an environment of inquiry and scholarship with an active research component.

II.B.5.a) The faculty must regularly participate in organized clinical discussions, rounds, journal clubs, and conferences.

II.B.5.b) Some members of the faculty should also demonstrate scholarship by one or more of the following:

II.B.5.b).(1) peer-reviewed funding;

II.B.5.b).(2) publication of original research or review articles in peer-reviewed journals, or chapters in textbooks;

II.B.5.b).(3) publication or presentation of case reports or clinical series at local, regional, or national professional and scientific society meetings; or,
II.B.5.b). participation in national committees or educational organizations. (Detail)

II.B.5.c) Faculty should encourage and support residents in scholarly activities. (Core)

II.B.5.d) The majority of both physician and PhD faculty should demonstrate scholarship as defined above. (Detail)

II.B.6. The department chair must demonstrate an interest in and support for the training of residents in Radiation Oncology.

II.B.7. The faculty must include a minimum of four FTE radiation oncologists at the primary clinical site who devote the majority of their professional time to the education of residents. (Core)

II.B.8. The faculty must include at least one full-time radiation biologist or cancer biologist (PhD level or equivalent) who devotes the majority of his or her professional time to laboratory-based cancer research and is at the primary clinical site or at an integrated site to provide a scholarly environment of research, and to participate in the teaching of radiation and cancer biology. (Core)

II.B.9. The radiation oncology faculty must include at least one full-time faculty medical physicist (PhD level or equivalent), who is at the primary clinical site or an integrated site to provide a scholarly environment of research, and to participate in the teaching of radiation physics. (Core)

II.B.10. The faculty-to-resident ratio must be at least 0.67 FTE faculty members for every resident in the program. (Detail)

II.C. Other Program Personnel

The institution and the program must jointly ensure the availability of all necessary professional, technical, and clerical personnel for the effective administration of the program. (Core)

II.D. Resources

The institution and the program must jointly ensure the availability of adequate resources for resident education, as defined in the specialty program requirements. (Core)

II.D.1. There must be a minimum of 600 patients receiving external beam radiation therapy per year cumulatively at the primary clinical site and any integrated sites. (Core)

II.D.2. Facilities

II.D.2.a) At the primary clinical site there must be two or more megavoltage
machines, a machine with a broad range of electron beam capabilities, computed tomography (CT)-simulation capability, and three-dimensional conformal computerized treatment planning, including intensity modulated radiation therapy (IMRT). (Core)

II.D.2.b) Adequate conference room and audiovisual facilities must be provided. (Detail)

II.D.3. Other Services

II.D.3.a) Adequate medical services must be available in the specialties of medical oncology, surgical oncology, and pediatric oncology. (Detail)

II.D.3.b) There must be access to current imaging techniques, nuclear medicine, pathology, a clinical laboratory, and a tumor registry. (Core)

II.E. Medical Information Access

Residents must have ready access to specialty-specific and other appropriate reference material in print or electronic format. Electronic medical literature databases with search capabilities should be available. (Detail)

III. Resident Appointments

III.A. Eligibility Criteria

The program director must comply with the criteria for resident eligibility as specified in the Institutional Requirements. (Core)

III.B. Number of Residents

The program's educational resources must be adequate to support the number of residents appointed to the program. (Core)

III.B.1. The program director may not appoint more residents than approved by the Review Committee, unless otherwise stated in the specialty-specific requirements. (Core)

III.B.1.a) Prior approval must be obtained from the Review Committee to increase the number of resident positions. (Core)

III.B.2. Each program must be structured to have a minimum of four residents. (Core)

III.C. Resident Transfers

III.C.1. Before accepting a resident who is transferring from another program, the program director must obtain written or electronic verification of previous educational experiences and a summative
competency-based performance evaluation of the transferring resident. (Detail)

III.C.2. A program director must provide timely verification of residency education and summative performance evaluations for residents who may leave the program prior to completion. (Detail)

III.D. Appointment of Fellows and Other Learners

The presence of other learners (including, but not limited to, residents from other specialties, subspecialty fellows, PhD students, and nurse practitioners) in the program must not interfere with the appointed residents' education. (Core)

III.D.1. The program director must report the presence of other learners to the DIO and GMEC in accordance with sponsoring institution guidelines. (Detail)

IV. Educational Program

IV.A. The curriculum must contain the following educational components:

IV.A.1. Overall educational goals for the program, which the program must make available to residents and faculty; (Core)

IV.A.2. Competency-based goals and objectives for each assignment at each educational level, which the program must distribute to residents and faculty at least annually, in either written or electronic form; (Core)

IV.A.3. Regularly scheduled didactic sessions; (Core)

IV.A.3.a) Didactic sessions should be attended by residents, radiation oncologists, and other staff members; (Detail)

IV.A.3.b) The program must document that residents acquire knowledge and skills through instruction in the following areas: three-dimensional conformal radiation therapy, intensity-modulated radiation therapy, image-guided radiation therapy, stereotactic radiosurgery, stereotactic body radiotherapy, concurrent chemo-radiotherapy, intraoperative radiation therapy, radioimmunotherapy, unsealed sources, total body irradiation therapy as used in stem-cell transplantation, total skin radiation therapy, high- and low-dose rate brachytherapy, and particle therapy. (Core)

IV.A.3.c) The program must provide instruction in medical physics that includes practical demonstrations of radiation safety procedures, calibration of radiation therapy machines, the use of state-of-the-art treatment planning systems, the application of treatment aids, and the safe handling of sealed and unsealed radionuclides. (Core)
IV.A.3.d) The program must provide instruction in radiation and cancer biology that includes the molecular effects of ionizing radiation and radiation effects on normal and neoplastic tissues, as well as the fundamental biology of the causes, prevention, and treatment of cancer. (Core)

IV.A.3.e) The program must ensure that there are intradepartmental clinical oncology conferences that cover the following topics: new patient management, patient safety, and, continuous quality improvement. (Core)

IV.A.4. Delineation of resident responsibilities for patient care, progressive responsibility for patient management, and supervision of residents over the continuum of the program; and, (Core)

IV.A.5. ACGME Competencies

The program must integrate the following ACGME competencies into the curriculum: (Core)

IV.A.5.a) Patient Care and Procedural Skills

IV.A.5.a).(1) Residents must be able to provide patient care that is compassionate, appropriate, and effective for the treatment of health problems and the promotion of health. (Outcome)

IV.A.5.a).(2) residents must be able to competently perform all medical, diagnostic, and surgical procedures considered essential for the area of practice.

Residents:

IV.A.5.a).(2).(a) must demonstrate competence in treating adult patients with conventionally-fractionated external beam radiation therapy; (Outcome)

IV.A.5.a).(2).(b) must demonstrate competence in performing interstitial and intracavitary brachytherapy procedures; (Outcome)

IV.A.5.a).(2).(c) must demonstrate competence in treating pediatric patients, including patients with solid tumors; (Outcome)

IV.A.5.a).(2).(d) must demonstrate competence in the use of unsealed radioactive sources; (Outcome)

IV.A.5.a).(2).(e) must demonstrate competence in follow-up care of irradiated patients, including pediatric patients; and, (Outcome)
IV.A.5.a).(2).(f) must demonstrate competence in treating adult patients with stereotactic radiosurgery and stereotactic body radiation therapy. (Outcome)

IV.A.5.b) Medical Knowledge

Residents must demonstrate knowledge of established and evolving biomedical, clinical, epidemiological and social-behavioral sciences, as well as the application of this knowledge to patient care. Residents: (Outcome)

must demonstrate competence in their knowledge of:

IV.A.5.b).(1) clinical radiation physics; (Outcome)
IV.A.5.b).(2) radiation and cancer biology; (Outcome)
IV.A.5.b).(3) medical statistics; (Outcome)
IV.A.5.b).(4) clinical radiation oncology, including late effects on normal tissue; and, (Outcome)
IV.A.5.b).(5) radiation safety procedures. (Outcome)

IV.A.5.c) Practice-based Learning and Improvement

Residents must demonstrate the ability to investigate and evaluate their care of patients, to appraise and assimilate scientific evidence, and to continuously improve patient care based on constant self-evaluation and life-long learning. (Outcome)

Residents are expected to develop skills and habits to be able to meet the following goals:

IV.A.5.c).(1) identify strengths, deficiencies, and limits in one’s knowledge and expertise; (Outcome)
IV.A.5.c).(2) set learning and improvement goals; (Outcome)
IV.A.5.c).(3) identify and perform appropriate learning activities; (Outcome)
IV.A.5.c).(4) systematically analyze practice using quality improvement methods, and implement changes with the goal of practice improvement; (Outcome)
IV.A.5.c).(5) incorporate formative evaluation feedback into daily practice; (Outcome)
IV.A.5.c).(6) locate, appraise, and assimilate evidence from scientific studies related to their patients’ health problems; (Outcome)

IV.A.5.c).(7) use information technology to optimize learning; and, (Outcome)

IV.A.5.c).(8) participate in the education of patients, families, students, residents and other health professionals. (Outcome)

IV.A.5.d) Interpersonal and Communication Skills

Residents must demonstrate interpersonal and communication skills that result in the effective exchange of information and collaboration with patients, their families, and health professionals. (Outcome)

Residents are expected to:

IV.A.5.d).(1) communicate effectively with patients, families, and the public, as appropriate, across a broad range of socioeconomic and cultural backgrounds; (Outcome)

IV.A.5.d).(2) communicate effectively with physicians, other health professionals, and health related agencies; (Outcome)

IV.A.5.d).(3) work effectively as a member or leader of a health care team or other professional group; (Outcome)

IV.A.5.d).(4) act in a consultative role to other physicians and health professionals; and, (Outcome)

IV.A.5.d).(5) maintain comprehensive, timely, and legible medical records, if applicable. (Outcome)

IV.A.5.e) Professionalism

Residents must demonstrate a commitment to carrying out professional responsibilities and an adherence to ethical principles. (Outcome)

Residents are expected to demonstrate:

IV.A.5.e).(1) compassion, integrity, and respect for others; (Outcome)

IV.A.5.e).(2) responsiveness to patient needs that supersedes self-interest; (Outcome)

IV.A.5.e).(3) respect for patient privacy and autonomy; (Outcome)
IV.A.5.e).(4) accountability to patients, society and the profession; and,

IV.A.5.e).(5) sensitivity and responsiveness to a diverse patient population, including but not limited to diversity in gender, age, culture, race, religion, disabilities, and sexual orientation. (Outcome)

IV.A.5.f) Systems-based Practice

Residents must demonstrate an awareness of and responsiveness to the larger context and system of health care, as well as the ability to call effectively on other resources in the system to provide optimal health care. (Outcome)

Residents are expected to:

IV.A.5.f).(1) work effectively in various health care delivery settings and systems relevant to their clinical specialty; (Outcome)

IV.A.5.f).(2) coordinate patient care within the health care system relevant to their clinical specialty; (Outcome)

IV.A.5.f).(3) incorporate considerations of cost awareness and risk-benefit analysis in patient and/or population-based care as appropriate; (Outcome)

IV.A.5.f).(4) advocate for quality patient care and optimal patient care systems; (Outcome)

IV.A.5.f).(5) work in interprofessional teams to enhance patient safety and improve patient care quality; and, (Outcome)

IV.A.5.f).(6) participate in identifying system errors and implementing potential systems solutions. (Outcome)

IV.A.6. Curriculum Organization and Resident Experiences

IV.A.6.a) The first year of post-graduate clinical education must be spent in internal medicine, family medicine, obstetrics and gynecology, surgery or surgical specialties, pediatrics, or a transitional year program, and must include at least nine months of direct patient care in medical and/or surgical specialties other than radiation oncology. (Core)

IV.A.6.b) No fewer than 36 months must be spent in clinical radiation oncology. (Core)

IV.A.6.b).(1) Holman Pathway residents must complete no fewer than
27 months of clinical radiation oncology. (Detail)

IV.A.6.c) Residents must have experience with lymphomas and leukemias; gastrointestinal, gynecologic, genitourinary, breast, soft tissue and bone, skin, head and neck, lung, pediatric, and central nervous system tumors; and treatment of benign diseases for which radiation is utilized. (Core)

IV.A.6.d) Each resident must treat at least 450 patients with external beam radiation therapy. (Core)

IV.A.6.d).(1) Holman Pathway residents must treat 350 patients. (Detail)

IV.A.6.d).(2) A resident should treat no more than 250 patients with external beam radiation therapy in any one year. (Detail)

IV.A.6.e) Each resident must perform at least five interstitial and 15 intracavitary brachytherapy procedures. (Core)

IV.A.6.f) Each resident must treat at least 12 pediatric patients, including at least nine patients with solid tumors. (Core)

IV.A.6.g) Each resident must demonstrate the requisite skills in successfully treating at least 20 patients with intracranial stereotactic radiosurgery and at least 10 patients with stereotactic body radiation therapy to the liver, lung, spine, or other extracranial sites. (Core)

IV.A.6.h) Each resident must demonstrate the requisite knowledge and skills in the administration of at least six procedures using radioimmunotherapy, other targeted therapeutic radiopharmaceuticals, or unsealed sources. (Core)

IV.A.6.h).(1) Of the six procedures, a minimum of three must include the administration of therapeutic doses of I-131 for cancer treatment, and three must include administration of non-I-131 parenteral cases for cancer treatment. (Core)

IV.A.6.i) The program must educate resident physicians in adult medical oncology, pediatric medical oncology, oncologic pathology, and diagnostic imaging in a way that is applicable to the practice of radiation oncology. (Core)

IV.A.6.i).(1) There are multiple ways to meet this requirement:

IV.A.6.i).(1).(a) Provide a two-month rotation in medical oncology to include adult and pediatric patients, as well as a one-month rotation in both oncologic pathology and diagnostic imaging, or (Core)

IV.A.6.i).(1).(b) Document attendance at regularly-scheduled
multidisciplinary patient disposition conferences (at least four hours per month during the clinical rotations). (Detail)

IV.A.6.i).(2) To satisfy the requirement for education in one of these areas, it must be documented that a board certified physician in the applicable field participated in the conference.

IV.B. Residents’ Scholarly Activities

IV.B.1. The curriculum must advance residents’ knowledge of the basic principles of research, including how research is conducted, evaluated, explained to patients, and applied to patient care. (Core)

IV.B.2. Residents should participate in scholarly activity. (Core)

IV.B.2.a) Residents must complete an investigative project under faculty member supervision. (Core)

IV.B.2.a).(1) Projects should take the form of biological laboratory research, clinical research, translational research, medical physics research, or other research approved by the program director. (Detail)

IV.B.2.a).(2) The results of such projects should be suitable for publication in peer-reviewed scholarly journals or presentation at scientific meetings. (Detail)

IV.B.3. The sponsoring institution and program should allocate adequate educational resources to facilitate resident involvement in scholarly activities. (Detail)

V. Evaluation

V.A. Resident Evaluation

V.A.1. The program director must appoint the Clinical Competency Committee. (Core)

V.A.1.a) At a minimum the Clinical Competency Committee must be composed of three members of the program faculty. (Core)

V.A.1.a).(1) Others eligible for appointment to the committee include faculty from other programs and non-physician members of the health care team. (Detail)

V.A.1.b) There must be a written description of the responsibilities of the Clinical Competency Committee. (Core)

V.A.1.b).(1) The Clinical Competency Committee should:
V.A.1.b).(1).(a) review all resident evaluations semi-annually; (Core)

V.A.1.b).(1).(b) prepare and assure the reporting of Milestones evaluations of each resident semi-annually to ACGME; and, (Core)

V.A.1.b).(1).(c) advise the program director regarding resident progress, including promotion, remediation, and dismissal. (Detail)

V.A.2. Formative Evaluation
V.A.2.a) The faculty must evaluate resident performance in a timely manner during each rotation or similar educational assignment, and document this evaluation at completion of the assignment. (Core)

V.A.2.b) The program must:
V.A.2.b).(1) provide objective assessments of competence in patient care and procedural skills, medical knowledge, practice-based learning and improvement, interpersonal and communication skills, professionalism, and systems-based practice based on the specialty-specific Milestones; (Core)

V.A.2.b).(2) use multiple evaluators (e.g., faculty, peers, patients, self, and other professional staff); (Detail)

V.A.2.b).(3) document progressive resident performance improvement appropriate to educational level; and, (Core)

V.A.2.b).(4) provide each resident with documented semiannual evaluation of performance with feedback. (Core)

V.A.2.c) The evaluations of resident performance must be accessible for review by the resident, in accordance with institutional policy. (Detail)

V.A.3. Summative Evaluation
V.A.3.a) The specialty-specific Milestones must be used as one of the tools to ensure residents are able to practice core professional activities without supervision upon completion of the program. (Core)

V.A.3.b) The program director must provide a summative evaluation for each resident upon completion of the program. (Core)
This evaluation must:

V.A.3.b). (1) become part of the resident’s permanent record maintained by the institution, and must be accessible for review by the resident in accordance with institutional policy.

V.A.3.b). (2) document the resident’s performance during the final period of education; and,

V.A.3.b). (3) verify that the resident has demonstrated sufficient competence to enter practice without direct supervision.

V.B. Faculty Evaluation

V.B.1. At least annually, the program must evaluate faculty performance as it relates to the educational program.

V.B.2. These evaluations should include a review of the faculty’s clinical teaching abilities, commitment to the educational program, clinical knowledge, professionalism, and scholarly activities.

V.B.3. This evaluation must include at least annual written confidential evaluations by the residents.

V.C. Program Evaluation and Improvement

V.C.1. The program director must appoint the Program Evaluation Committee (PEC).

V.C.1.a) The Program Evaluation Committee:

V.C.1.a). (1) must be composed of at least two program faculty members and should include at least one resident;

V.C.1.a). (2) must have a written description of its responsibilities; and,

V.C.1.a). (3) should participate actively in:

V.C.1.a). (3). (a) planning, developing, implementing, and evaluating educational activities of the program;

V.C.1.a). (3). (b) reviewing and making recommendations for revision of competency-based curriculum goals and objectives;
V.C.1.a).(3).(c) addressing areas of non-compliance with ACGME standards; and, (Detail)

V.C.1.a).(3).(d) reviewing the program annually using evaluations of faculty, residents, and others, as specified below. (Detail)

V.C.2. The program, through the PEC, must document formal, systematic evaluation of the curriculum at least annually, and is responsible for rendering a written and Annual Program Evaluation (APE). (Core)

The program must monitor and track each of the following areas:

V.C.2.a) resident performance; (Core)

V.C.2.b) faculty development; (Core)

V.C.2.c) graduate performance, including performance of program graduates on the certification examination; (Core)

V.C.2.c).(1) Sixty percent of the program’s graduates from the preceding five years taking the American Board of Radiation certifying examination for the first time must pass. (Outcome)

V.C.2.d) program quality; and, (Core)

V.C.2.d).(1) Residents and faculty must have the opportunity to evaluate the program confidentially and in writing at least annually, and (Detail)

V.C.2.d).(2) The program must use the results of residents’ and faculty members’ assessments of the program together with other program evaluation results to improve the program. (Detail)

V.C.2.e) progress on the previous year’s action plan(s). (Core)

V.C.3. The PEC must prepare a written plan of action to document initiatives to improve performance in one or more of the areas listed in section V.C.2., as well as delineate how they will be measured and monitored. (Core)

V.C.3.a) The action plan should be reviewed and approved by the teaching faculty and documented in meeting minutes. (Detail)

VI. Resident Duty Hours in the Learning and Working Environment

VI.A. Professionalism, Personal Responsibility, and Patient Safety

VI.A.1. Programs and sponsoring institutions must educate residents and
faculty members concerning the professional responsibilities of physicians to appear for duty appropriately rested and fit to provide the services required by their patients. (Core)

VI.A.2. The program must be committed to and responsible for promoting patient safety and resident well-being in a supportive educational environment. (Core)

VI.A.3. The program director must ensure that residents are integrated and actively participate in interdisciplinary clinical quality improvement and patient safety programs. (Core)

VI.A.4. The learning objectives of the program must:

VI.A.4.a) be accomplished through an appropriate blend of supervised patient care responsibilities, clinical teaching, and didactic educational events; and, (Core)

VI.A.4.b) not be compromised by excessive reliance on residents to fulfill non-physician service obligations. (Core)

VI.A.5. The program director and institution must ensure a culture of professionalism that supports patient safety and personal responsibility. (Core)

VI.A.6. Residents and faculty members must demonstrate an understanding and acceptance of their personal role in the following:

VI.A.6.a) assurance of the safety and welfare of patients entrusted to their care; (Outcome)

VI.A.6.b) provision of patient- and family-centered care; (Outcome)

VI.A.6.c) assurance of their fitness for duty; (Outcome)

VI.A.6.d) management of their time before, during, and after clinical assignments; (Outcome)

VI.A.6.e) recognition of impairment, including illness and fatigue, in themselves and in their peers; (Outcome)

VI.A.6.f) attention to lifelong learning; (Outcome)

VI.A.6.g) the monitoring of their patient care performance improvement indicators; and, (Outcome)

VI.A.6.h) honest and accurate reporting of duty hours, patient outcomes, and clinical experience data. (Outcome)

VI.A.7. All residents and faculty members must demonstrate responsiveness to patient needs that supersedes self-interest. They
must recognize that under certain circumstances, the best interests of the patient may be served by transitioning that patient’s care to another qualified and rested provider. (Outcome)

VI.B. Transitions of Care

VI.B.1. Programs must design clinical assignments to minimize the number of transitions in patient care. (Core)

VI.B.2. Sponsoring institutions and programs must ensure and monitor effective, structured hand-over processes to facilitate both continuity of care and patient safety. (Core)

VI.B.3. Programs must ensure that residents are competent in communicating with team members in the hand-over process. (Outcome)

VI.B.4. The sponsoring institution must ensure the availability of schedules that inform all members of the health care team of attending physicians and residents currently responsible for each patient’s care. (Detail)

VI.C. Alertness Management/Fatigue Mitigation

VI.C.1. The program must:

VI.C.1.a) educate all faculty members and residents to recognize the signs of fatigue and sleep deprivation; (Core)

VI.C.1.b) educate all faculty members and residents in alertness management and fatigue mitigation processes; and, (Core)

VI.C.1.c) adopt fatigue mitigation processes to manage the potential negative effects of fatigue on patient care and learning, such as naps or back-up call schedules. (Detail)

VI.C.2. Each program must have a process to ensure continuity of patient care in the event that a resident may be unable to perform his/her patient care duties. (Core)

VI.C.3. The sponsoring institution must provide adequate sleep facilities and/or safe transportation options for residents who may be too fatigued to safely return home. (Core)

VI.D. Supervision of Residents

VI.D.1. In the clinical learning environment, each patient must have an identifiable, appropriately-credentialed and privileged attending physician (or licensed independent practitioner as approved by each Review Committee) who is ultimately responsible for that patient’s care. (Core)
VI.D.1.a) This information should be available to residents, faculty members, and patients. (Detail)

VI.D.1.b) Residents and faculty members should inform patients of their respective roles in each patient's care. (Detail)

VI.D.2. The program must demonstrate that the appropriate level of supervision is in place for all residents who care for patients. (Core)

Supervision may be exercised through a variety of methods. Some activities require the physical presence of the supervising faculty member. For many aspects of patient care, the supervising physician may be a more advanced resident or fellow. Other portions of care provided by the resident can be adequately supervised by the immediate availability of the supervising faculty member or resident physician, either in the institution, or by means of telephonic and/or electronic modalities. In some circumstances, supervision may include post-hoc review of resident-delivered care with feedback as to the appropriateness of that care. (Detail)

VI.D.3. Levels of Supervision

To ensure oversight of resident supervision and graded authority and responsibility, the program must use the following classification of supervision: (Core)

VI.D.3.a) Direct Supervision – the supervising physician is physically present with the resident and patient. (Core)

VI.D.3.b) Indirect Supervision:

VI.D.3.b).(1) with direct supervision immediately available – the supervising physician is physically within the hospital or other site of patient care, and is immediately available to provide Direct Supervision. (Core)

VI.D.3.b).(2) with direct supervision available – the supervising physician is not physically present within the hospital or other site of patient care, but is immediately available by means of telephonic and/or electronic modalities, and is available to provide Direct Supervision. (Core)

VI.D.3.c) Oversight – the supervising physician is available to provide review of procedures/encounters with feedback provided after care is delivered. (Core)

VI.D.4. The privilege of progressive authority and responsibility, conditional independence, and a supervisory role in patient care delegated to each resident must be assigned by the program director and faculty members. (Core)
VI.D.4.a) The program director must evaluate each resident’s abilities based on specific criteria. When available, evaluation should be guided by specific national standards-based criteria. (Core)

VI.D.4.b) Faculty members functioning as supervising physicians should delegate portions of care to residents, based on the needs of the patient and the skills of the residents. (Detail)

VI.D.4.c) Senior residents or fellows should serve in a supervisory role of junior residents in recognition of their progress toward independence, based on the needs of each patient and the skills of the individual resident or fellow. (Detail)

VI.D.5. Programs must set guidelines for circumstances and events in which residents must communicate with appropriate supervising faculty members, such as the transfer of a patient to an intensive care unit, or end-of-life decisions. (Core)

VI.D.5.a) Each resident must know the limits of his/her scope of authority, and the circumstances under which he/she is permitted to act with conditional independence. (Outcome)

VI.D.5.a)(1) In particular, PGY-1 residents should be supervised either directly or indirectly with direct supervision immediately available. (Core)

VI.D.6. Faculty supervision assignments should be of sufficient duration to assess the knowledge and skills of each resident and delegate to him/her the appropriate level of patient care authority and responsibility. (Detail)

VI.E. Clinical Responsibilities

The clinical responsibilities for each resident must be based on PGY-level, patient safety, resident education, severity and complexity of patient illness/condition and available support services. (Core)

VI.F. Teamwork

Residents must care for patients in an environment that maximizes effective communication. This must include the opportunity to work as a member of effective interprofessional teams that are appropriate to the delivery of care in the specialty. (Core)

VI.F.1. Interprofessional teams within the department should include radiation oncologists, medical physicists, radiation therapists, dosimetrists, nurses, dieticians and social workers. (Detail)

VI.F.2. Interprofessional teams outside of the department should include surgical oncologists, medical oncologists, radiologists, pathologists and primary
VI.G. Resident Duty Hours

VI.G.1. Maximum Hours of Work per Week

Duty hours must be limited to 80 hours per week, averaged over a four-week period, inclusive of all in-house call activities and all moonlighting.

VI.G.1.a) Duty Hour Exceptions

A Review Committee may grant exceptions for up to 10% or a maximum of 88 hours to individual programs based on a sound educational rationale.

The Review Committee for Radiation Oncology will not consider requests for exceptions to the 80-hour limit to the residents' work week.

VI.G.1.a).(1) In preparing a request for an exception the program director must follow the duty hour exception policy from the ACGME Manual on Policies and Procedures.

VI.G.1.a).(2) Prior to submitting the request to the Review Committee, the program director must obtain approval of the institution’s GMEC and DIO.

VI.G.2. Moonlighting

VI.G.2.a) Moonlighting must not interfere with the ability of the resident to achieve the goals and objectives of the educational program.

VI.G.2.b) Time spent by residents in Internal and External Moonlighting (as defined in the ACGME Glossary of Terms) must be counted towards the 80-hour Maximum Weekly Hour Limit.

VI.G.2.c) PGY-1 residents are not permitted to moonlight.

VI.G.3. Mandatory Time Free of Duty

Residents must be scheduled for a minimum of one day free of duty every week (when averaged over four weeks). At-home call cannot be assigned on these free days.

VI.G.4. Maximum Duty Period Length

VI.G.4.a) Duty periods of PGY-1 residents must not exceed 16 hours in
VI.G.4.b) Duty periods of PGY-2 residents and above may be scheduled to a maximum of 24 hours of continuous duty in the hospital.

VI.G.4.b).(1) Programs must encourage residents to use alertness management strategies in the context of patient care responsibilities. Strategic napping, especially after 16 hours of continuous duty and between the hours of 10:00 p.m. and 8:00 a.m., is strongly suggested.

VI.G.4.b).(2) It is essential for patient safety and resident education that effective transitions in care occur. Residents may be allowed to remain on-site in order to accomplish these tasks; however, this period of time must be no longer than an additional four hours.

VI.G.4.b).(3) Residents must not be assigned additional clinical responsibilities after 24 hours of continuous in-house duty.

VI.G.4.b).(4) In unusual circumstances, residents, on their own initiative, may remain beyond their scheduled period of duty to continue to provide care to a single patient. Justifications for such extensions of duty are limited to reasons of required continuity for a severely ill or unstable patient, academic importance of the events transpiring, or humanistic attention to the needs of a patient or family.

VI.G.4.b).(4).(a) Under those circumstances, the resident must:

VI.G.4.b).(4).(a).(i) appropriately hand over the care of all other patients to the team responsible for their continuing care; and,

VI.G.4.b).(4).(a).(ii) document the reasons for remaining to care for the patient in question and submit that documentation in every circumstance to the program director.

VI.G.4.b).(4).(b) The program director must review each submission of additional service, and track both individual resident and program-wide episodes of additional duty.

VI.G.5. Minimum Time Off between Scheduled Duty Periods

VI.G.5.a) PGY-1 residents should have 10 hours, and must have eight
hours, free of duty between scheduled duty periods. (Core)

VI.G.5.b) Intermediate-level residents should have 10 hours free of duty, and must have eight hours between scheduled duty periods. They must have at least 14 hours free of duty after 24 hours of in-house duty. (Core)

R1, R2, and R3 residents are considered to be at the intermediate level.

VI.G.5.c) Residents in the final years of education must be prepared to enter the unsupervised practice of medicine and care for patients over irregular or extended periods. (Outcome)

R4 residents are considered to be in the final years of education.

VI.G.5.c).(1) This preparation must occur within the context of the 80-hour, maximum duty period length, and one-day-off-in-seven standards. While it is desirable that residents in their final years of education have eight hours free of duty between scheduled duty periods, there may be circumstances when these residents must stay on duty to care for their patients or return to the hospital with fewer than eight hours free of duty. (Detail)

VI.G.5.c).(1).(a) Circumstances of return-to-hospital activities with fewer than eight hours away from the hospital by residents in their final years of education must be monitored by the program director. (Detail)

VI.G.6. Maximum Frequency of In-House Night Float

Residents must not be scheduled for more than six consecutive nights of night float. (Core)

VI.G.7. Maximum In-House On-Call Frequency

PGY-2 residents and above must be scheduled for in-house call no more frequently than every-third-night (when averaged over a four-week period). (Core)

VI.G.8. At-Home Call

VI.G.8.a) Time spent in the hospital by residents on at-home call must count towards the 80-hour maximum weekly hour limit. The frequency of at-home call is not subject to the every-third-night limitation, but must satisfy the requirement for one-day-in-seven free of duty, when averaged over four weeks. (Core)
VI.G.8.a)(1) At-home call must not be so frequent or taxing as to preclude rest or reasonable personal time for each resident. (Core)

VI.G.8.b) Residents are permitted to return to the hospital while on at-home call to care for new or established patients. Each episode of this type of care, while it must be included in the 80-hour weekly maximum, will not initiate a new “off-duty period”. (Detail)

***

*Core Requirements:* Statements that define structure, resource, or process elements essential to every graduate medical educational program.

*Detail Requirements:* Statements that describe a specific structure, resource, or process, for achieving compliance with a Core Requirement. Programs in substantial compliance with the Outcome Requirements may utilize alternative or innovative approaches to meet Core Requirements.

*Outcome Requirements:* Statements that specify expected measurable or observable attributes (knowledge, abilities, skills, or attitudes) of residents or fellows at key stages of their graduate medical education.
THE HOLMAN PATHWAY
http://www.theabr.org/ic-holman-ro

Holman Research Pathway

Requirements
Assessment of Research Quality
Application Requirements

The American Board of Radiology recognizes the shortage of physician investigators in radiation oncology. To address this shortage, a research pathway has been designed for individuals to simultaneously train in radiation oncology and in basic science, clinical, or transitional investigation. This pathway is called the "ABR Holman Research Pathway," named for B. Leonard Holman, M.D., who first proposed this initiative.

Below is an overview of the program requirements.
For more detailed information, contact Claudia Rosales at crosales@theabr.org.

The Holman Pathway is designed for the exceptional trainee who has both strong clinical abilities and a background in and commitment to research. Entry implies a commitment to basic science or clinical research. (Trainees who leave the research pathway must complete the standard five years of training, including four years of radiation oncology or diagnostic radiology.)

REQUIREMENTS

PGY-1: CLINICAL PATIENT RESPONSIBILITIES
A minimum of nine months of direct patient care is required in internal medicine, pediatrics, surgery or surgical subspecialties, OB-GYN, neurology, family practice, emergency medicine, or any combination of these (ACGME-approved).

PGY-2, 3, 4, 5: CLINICAL TRAINING IN RADIATION ONCOLOGY or DIAGNOSTIC RADIOLOGY
Twenty-seven months of full-time clinical radiation oncology, which can include three months in PGY-1, is required.
In radiation oncology, Holman Pathway residents are expected to meet the same minimum requirements for special procedures (including interstitial brachytherapy, intracavitary brachytherapy, and unsealed sources) and the same pediatric caseload as traditional residents outlined in the program guidelines of the RRC in radiation oncology. For adult external beam cases, Holman Pathway residents are expected to simulate a minimum of 350 cases over their 27 months of clinical training instead of 450 cases during the 36 months of standard clinical training.

PGY-2, 3, 4, 5: RESEARCH TRAINING/EXPERIENCE (80%)
Twenty-one months (18 in extenuating circumstances) of dedicated research time, with 20 percent of this time devoted to clinical training. A minimum of 18 months of research is required to successfully complete the Holman Pathway. The approved candidate can also take three months of research during his/her PGY-1 year for a total of 24 months.

CLINICAL TRAINING DURING RESEARCH (20%)
Twenty-one months (18 in extenuating circumstances) of dedicated research time, with 20 percent of this time devoted to clinical training. A minimum of 18 months of research is required to successfully complete the Holman Pathway. The approved candidate can also take three months of research during his/her PGY-1 year, for a total of 24 months.

**SUPERVISION**

The program director must oversee the trainee’s clinical performance. Annually, the program director must attest that the trainee in the pathway has maintained satisfactory progress in clinical performance. In addition, the research mentor must submit an annual evaluation of the trainee's research progress.

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**When to apply**

Candidates for the Holman Pathway should apply during PGY-2 (i.e., the first residency year in radiation oncology). Completed applications MUST be submitted electronically by March 15, July 15 and November 15 to crosales@theabr.org.

**Assessment of Research Quality**

**Trainee**

The trainee must show evidence of a commitment to a research career. The following are some criteria that might be used to evaluate a candidate’s commitment:

1. Record of participation in basic or clinical research
2. Record of publications and patents
3. A graduate degree, such as a Ph.D. or M.P.H.
4. Record of presentations at scientific meetings
5. Honors and awards

**Research Mentor**

The research mentor should be a successful investigator with an active research program and peer-reviewed research funding. The mentor must accept responsibility for supervision of the research experience.

**Environment for Research Training**

A research environment suitable for a productive research experience must exist. This should include adequate space, equipment and funding for the research, and a critical mass of productive researchers identifiable by grants, publications in peer-reviewed journals, the quality of those journals, and the researchers' stature in their disciplines.

**Goals**

There should be well-defined goals for all research trainees and a detailed description of a research program for educational experiences, including coursework for research careers, that may lead to graduate degrees. (Individuals with previous graduate degrees might be especially good candidates for the Holman Research Pathway.)

**Application Requirements**

1. Formal proposal from the trainee, describing goals and content of the research program. The research plan should not exceed 5 pages. Use standard size sheets with at least one-half inch margins, single spaced and single-column format, with a font size of 11 points or larger.
2. Supporting letter from the department chair, indicating trainee's ability to achieve clinical competence in the abbreviated time and guaranteeing availability of and support for research time.
3. Signed commitment from the research mentor to guide and supervise the research trainee. (If the research mentor is not the program director, the program director must include a letter supporting the research trainee.)
4. A letter from the applicant's medical school dean.
5. The trainee’s USMLE scores.

Review of application
Each application will be evaluated independently by three to four reviewers. Criteria for assessment include the:
- Credentials of the applicant
- Quality of the research proposal
- Likelihood of completing the proposed project during residency
- Productivity and funding track record of mentor(s)
- Program director's assurance of protected time and assessment of the candidate's clinical skill and ability to complete clinical training in an abbreviated time

The scores are tabulated for final assessment by face-to-face meeting or a teleconference. The final recommendation will be communicated to the applicant approximately eight weeks after the submission deadline.

Download the HOLMAN PATHWAY FORM in .pdf format
The Radiation Oncology Milestone Project

A Joint Initiative of
The Accreditation Council for Graduate Medical Education
and
The American Board of Radiology

December 2013
The Radiation Oncology Milestone Project

The milestones are designed only for use in evaluation of resident physicians in the context of their participation in ACGME-accredited residency or fellowship programs. The milestones provide a framework for assessment of the development of the resident physician in key dimensions of the elements of physician competency in a specialty or subspecialty. They neither represent the entirety of the dimensions of the six domains of physician competency, nor are they designed to be relevant in any other context.
# Radiation Oncology Milestones

**Chair:** W. Robert Lee, MD, MEd, MS

## Working Group
- Robert J. Amdur, MD
- Laura Edgar, EdD, CAE
- Mohamed A. Elshaikh, MD
- David W. Golden, MD
- Katherine L. Griem, MD, FACR
- Mark Langer, MD
- Colleen A. Lawton, MD
- David T. Marshall, MD, MS
- Manisha Palta, MD
- Matthew M. Poppe, MD
- Linda E. Thorsen, MA

## Advisory Group
- Timothy Brigham, MDiv, PhD
- Patricia J. Eifel, MD
- Beth A. Erickson-Wittmann, MD, FACP
- Bruce G. Haffty, MD
- Louis J. Ling, MD
- Michael Steinberg, MD
- Paul E. Wallner, MD
- Anthony Laurence Zietman, MD
Milestone Reporting

This document presents milestones designed for programs to use in semi-annual review of resident performance and reporting to the ACGME. Milestones are knowledge, skills, attitudes, and other attributes for each of the ACGME competencies organized in a developmental framework from less to more advanced. They are descriptors and targets for resident performance as a resident moves from entry into residency through graduation. In the initial years of implementation, the Review Committee will examine milestone performance data for each program’s residents as one element in the Next Accreditation System (NAS) to determine whether residents overall are progressing.

For each period, review and reporting will involve selecting milestone levels that best describe a resident’s current performance and attributes. Milestones are arranged into numbered levels. Tracking from Level 1 to Level 5 is synonymous with moving from novice to expert. These levels do not correspond with post-graduate year of education.

Selection of a level implies that the resident demonstrates the milestones in that level, as well as those in lower levels (see the diagram on page v).

Level 1: The resident demonstrates milestones expected of an incoming resident.

Level 2: The resident is advancing and demonstrates additional milestones, but is not yet performing at a mid-residency level.

Level 3: The resident continues to advance and demonstrate additional milestones, consistently including the majority of milestones targeted for residency.

Level 4: The resident has advanced so that he or she now substantially demonstrates the milestones targeted for residency. This level is designed as the graduation target.

Level 5: The resident has advanced beyond performance targets set for residency and is demonstrating “aspirational” goals which might describe the performance of someone who has been in practice for several years. It is expected that only a few exceptional residents will reach this level.
Additional Notes

Level 4 is designed as the graduation target and does not represent a graduation requirement. Making decisions about readiness for graduation is the purview of the residency program director. Study of milestone performance data will be required before the ACGME and its partners will be able to determine whether milestones in the first four levels appropriately represent the developmental framework, and whether milestone data are of sufficient quality to be used for high-stakes decisions.

Examples are provided with some milestones. Please note that the examples are not the required element or outcome; they are provided as a way to share the intent of the element.

Some milestone descriptions include statements about performing independently. These activities must conform to the ACGME supervision guidelines, as well as institutional and program policies. For example, a resident who performs a procedure independently must, at a minimum, be supervised through oversight.

To aid in scoring the milestones, a listing of assessment tools by Competency is available from the Radiation Oncology Residency Review Committee at: http://www.acgme.org/acgmeweb/tabid/307/ProgramandInstitutionalAccreditation/Hospital-BasedSpecialties/RadiationOncology/RecommendedAssessmentToolsfortheGeneralCompe.aspx. These assessment tools are not required.

Answers to Frequently Asked Questions about the Next Accreditation System and Milestones are posted on the Next Accreditation System section of the ACGME website.
The diagram below presents an example set of milestones for one sub-competency in the same format as the milestone report worksheet. For each reporting period, a resident’s performance on the milestones for each sub-competency will be indicated by:

- selecting the level of milestones that best describes that resident’s performance in relation to the milestones
- for Patient Care and Medical Knowledge milestones, selecting the option that says the resident has “Not yet rotated” or
- for Interpersonal and Communication Skills, Practice-based Learning and Improvement, Professionalism, and Systems-based Practice milestones, selecting the option that says the resident has “Not yet achieved Level 1”

Selecting a response box in the middle of a level implies that milestones in that level and in lower levels have been substantially demonstrated.

Selecting a response box on the line in between levels indicates that milestones in lower levels have been demonstrated as well as some milestones in the higher level(s).
## Lymphoma — Patient Care

<table>
<thead>
<tr>
<th>Level 1</th>
<th>Level 2</th>
<th>Level 3</th>
<th>Level 4</th>
<th>Level 5</th>
</tr>
</thead>
<tbody>
<tr>
<td>• Acquires accurate and relevant history and performs a general physical examination</td>
<td>• Performs a detailed and directed history and physical examination; integrates pathology and imaging reports; accurately stages a patient and designates prognostic factors</td>
<td>• Explains the main treatment options</td>
<td>• Makes a comprehensive treatment recommendation that is appropriate; describes evidence that supports the treatment plan</td>
<td>• Conducts clinical research</td>
</tr>
<tr>
<td>• Identifies relevant anatomy</td>
<td>• Lists organs at risk; understands proper patient positioning and immobilization</td>
<td>• Designs blocks, contours target(s), and contours normal tissue with minimal inaccuracies; states appropriate dose planning objectives for normal tissues and target(s)</td>
<td>• Designs blocks, contours target(s), and contours normal tissues accurately; critically evaluates treatment plan options</td>
<td>• Develops special expertise to treat and manage the most complex cases</td>
</tr>
<tr>
<td>• Recognizes situations with a need for urgent or emergent medical care, including life-threatening conditions</td>
<td>• Recognizes toxicities/symptoms seen in lymphoma patients treated with radiotherapy</td>
<td>• With supervision, manages patients with toxicities/symptoms seen in lymphoma patients treated with radiotherapy</td>
<td>• Independently manages toxicities/symptoms seen in lymphoma patients treated with radiotherapy</td>
<td>• Develops protocols to minimize toxicities/symptoms or has an exceptional understanding of management of toxicities/symptoms</td>
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</thead>
<tbody>
<tr>
<td>• Acquires accurate and relevant history and performs a general physical examination</td>
<td>• Performs a detailed directed history and physical examination; integrates pathology and imaging reports; accurately stages a patient and designates prognostic factors</td>
<td>• Explains the main treatment options</td>
<td>• Makes a comprehensive treatment recommendation that is appropriate; describes evidence that supports a comprehensive treatment plan</td>
<td>• Conducts clinical research</td>
</tr>
<tr>
<td>• Appropriately identifies relevant anatomy</td>
<td>• Identifies treatment options</td>
<td>• Outlines an appropriate comprehensive treatment plan regarding radiotherapy and other treatment modalities</td>
<td>• Contours target(s) and normal tissue with minimal inaccuracies; states appropriate dose planning objectives for normal tissues and target(s)</td>
<td>• Develops special expertise to treat and manage the most complex cases</td>
</tr>
<tr>
<td>• Recognizes situations with a need for urgent or emergent medical care, including life-threatening conditions</td>
<td>• Lists organs at risk; understands proper patient positioning and immobilization</td>
<td>• Contours target(s) and normal tissue accurately; critically evaluates treatment plan options</td>
<td>• Independently manages patients with toxicities/symptoms seen in head and neck cancer patients treated with radiotherapy</td>
<td>• Develops protocols to minimize toxicities/symptoms or has an exceptional understanding of management of toxicities/symptoms</td>
</tr>
<tr>
<td>• Recognizes toxicities/symptoms seen in head and neck cancer patients treated with radiotherapy</td>
<td>• With supervision, manages patients with toxicities/symptoms seen in head and neck cancer patients treated with radiotherapy</td>
<td>• Makes a comprehensive treatment recommendation that is appropriate; describes evidence that supports a comprehensive treatment plan</td>
<td>• Independently manages patients with toxicities/symptoms seen in head and neck cancer patients treated with radiotherapy</td>
<td>• Conducts clinical research</td>
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## Genitourinary (GU) — Patient Care

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<tbody>
<tr>
<td>• Acquires accurate and relevant history and performs a general physical examination</td>
<td>• Performs a detailed and directed history and physical examination; integrates pathology and imaging reports; accurately stages a patient and designates prognostic factors</td>
<td>• Explains the main treatment options</td>
<td>• Makes a comprehensive treatment recommendation that is appropriate; describes evidence that supports the treatment plan</td>
<td>• Conducts clinical research</td>
</tr>
<tr>
<td>• Identifies relevant anatomy</td>
<td>• Lists organs at risk; understands proper patient positioning and immobilization</td>
<td>• Designs blocks, contours target(s), and contours normal tissue with minimal inaccuracies; states appropriate dose planning objectives for normal tissues and target(s)</td>
<td>• Designs blocks, contours target(s), and contours normal tissues accurately; critically evaluates treatment plan options</td>
<td>• Develops special expertise to treat and manage the most complex cases</td>
</tr>
<tr>
<td>• Recognizes situations with a need for urgent or emergent medical care, including life-threatening conditions</td>
<td>• Recognizes toxicities/symptoms seen in GU patients treated with radiotherapy</td>
<td>• With supervision, manages patients with toxicities/symptoms seen in GU patients treated with radiotherapy</td>
<td>• Independently manages toxicities/symptoms seen in GU patients treated with radiotherapy</td>
<td>• Develops protocols to minimize toxicities/symptoms or has an exceptional understanding of management of toxicities/symptoms</td>
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### Palliation — Patient Care

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<tbody>
<tr>
<td>• Acquires an accurate and relevant history and performs a general physical examination</td>
<td>• Performs a detailed directed physical examination; performs accurate pain assessment; integrates pathology and imaging reports; accurately stages a patient and designate prognostic factors</td>
<td>• Explains the main treatment options</td>
<td>• Makes a comprehensive treatment recommendation that is appropriate; describes evidence that supports the treatment plan</td>
<td>• Conducts clinical research</td>
</tr>
<tr>
<td>• Identifies relevant anatomy</td>
<td>• Recognizes toxicities/symptoms seen in the practice of palliative radiation oncology; is aware of options for pain management and end-of-life issues</td>
<td>• With supervision, manages patients with toxicities/symptoms seen in patients treated with palliative radiotherapy, including pain issues</td>
<td>• Independently manages toxicities/symptoms seen in patients treated with palliative radiotherapy</td>
<td>• Demonstrates special expertise to treat and manage the most complex cases</td>
</tr>
<tr>
<td>• Recognizes situations with a need for urgent or emergent medical care, including life-threatening conditions</td>
<td>• Performs a detailed directed physical examination; performs accurate pain assessment; integrates pathology and imaging reports; accurately stages a patient and designate prognostic factors</td>
<td>• Explains the main treatment options</td>
<td>• Makes a comprehensive treatment recommendation that is appropriate; describes evidence that supports the treatment plan</td>
<td>• Develops protocols to minimize toxicities/symptoms or has an exceptional understanding of management of toxicities/symptoms</td>
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## Breast — Patient Care

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</table>
| • Acquires accurate and relevant history and performs a general physical examination | • Performs a detailed directed physical examination; integrates pathology and imaging reports; accurately stages a patient and designate prognostic factors | • Explains the main treatment options | • Makes a comprehensive treatment recommendation that is appropriate; describes evidence that supports the treatment plan | • Conducts clinical research  
• Develops special expertise to treat and manage the most complex cases  
• Develops protocols to minimize toxicities/symptoms or has an exceptional understanding of management of toxicities/symptoms |
| • Identifies relevant anatomy                                           | • List organs at risk; understands proper patient positioning and immobilization | • Contours target(s) and normal tissue with minimal inaccuracies; states appropriate dose planning objectives for normal tissues and target(s) | • Contours normal tissue and target(s) accurately; critically evaluates treatment plan options | |
| • Recognizes situations with a need for urgent or emergent medical care, including life threatening conditions | | | | |

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### Gastrointestinal (GI) — Patient Care

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<tr>
<td>• Acquires accurate and relevant history and performs a general physical examination</td>
<td>• Performs a detailed directed physical examination; integrates pathology and imaging reports; accurately stages a patient and designates prognostic factors</td>
<td>• Explains the main treatment options</td>
<td>• Makes a comprehensive treatment recommendation that is appropriate; describes evidence that supports the treatment plan</td>
<td>• Conducts clinical research</td>
</tr>
<tr>
<td>• Identifies relevant anatomy</td>
<td>• Lists organs at risk; understands proper patient positioning and immobilization</td>
<td>• Contours target(s)/normal tissues and delineates field borders with minimal inaccuracies; states appropriate dose planning objectives for normal tissues and target(s)</td>
<td>• Contours target(s)/normal tissues and delineates field borders accurately; critically evaluates treatment plan options</td>
<td>• Develops special expertise to treat and manage the most complex cases</td>
</tr>
<tr>
<td>• Recognizes situations with a need for urgent or emergent medical care, including life-threatening conditions</td>
<td>• Recognizes toxicities/symptoms seen in GI cancer patients treated with radiotherapy</td>
<td>• With supervision, manages patients with toxicities/symptoms seen in GI cancer patients treated with radiotherapy while</td>
<td>• Independently manages patients with toxicities/symptoms seen in GI cancer patients treated with radiotherapy</td>
<td>• Develops protocols to minimize toxicities/symptoms or has an exceptional understanding of management of toxicities/symptoms</td>
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### Gynecologic (GYN) — Patient Care

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| • Acquires accurate and relevant history and performs a general physical examination  
• Appropriately identifies relevant anatomy  
• Recognizes situations with a need for urgent or emergent medical care, including life-threatening conditions  
• Performing a detailed directed physical examination; integrates pathology and imaging reports; accurately stages a patient and designates prognostic factors  
• Lists organs at risk; understands proper patient positioning and immobilization  
• Recognizes toxicities/symptoms seen in GYN cancer patients treated with radiotherapy | • Performs a detailed directed physical examination; integrates pathology and imaging reports; accurately stages a patient and designates prognostic factors  
• Explains the main treatment options which may include observation or radiation  
• Contours target(s) and normal tissue with minimal inaccuracies; states appropriate dose planning objectives for normal tissues and target(s)  
• With supervision, manages patients with toxicities/symptoms seen in GYN cancer patients treated with radiotherapy | • Explains the main treatment options which may include observation or radiation  
• Contours target(s) and normal tissue with minimal inaccuracies; states appropriate dose planning objectives for normal tissues and target(s)  
• With supervision, manages patients with toxicities/symptoms seen in GYN cancer patients treated with radiotherapy | • Makes a comprehensive treatment recommendation that is appropriate; describes evidence that supports the treatment plan  
• Describes details of radiation therapy; cites evidence-based practice guidelines or institutional standards  
• Contours normal tissue and target(s) accurately; critically evaluates treatment plan options  
• Independently manages patients with toxicities/symptoms seen in GYN cancer patients treated with radiotherapy | • Conducts clinical research  
• Develops special expertise to treat and manage the most complex cases  
• Develops protocols to minimize toxicities/symptoms or has an exceptional understanding of management of toxicities/symptoms  
• Contours normal tissue and target(s) accurately; critically evaluates treatment plan options  
• Independently manages patients with toxicities/symptoms seen in GYN cancer patients treated with radiotherapy |

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### Lung — Patient Care

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<td>• Performs a detailed directed physical examination; integrates pathology and imaging reports; accurately stages a patient and designate prognostic factors</td>
<td>• Explains the main treatment options</td>
<td>• Makes a comprehensive treatment recommendation that is appropriate; describes evidence that supports the treatment plan</td>
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<td>• Identifies relevant anatomy</td>
<td>• Lists organs at risk; understands proper patient positioning and immobilization</td>
<td>• Contours target(s) and normal tissue with minimal inaccuracies; states appropriate dose planning objectives for normal tissues and target(s)</td>
<td>• Contours normal tissue and target(s) accurately; critically evaluates treatment plan options</td>
<td>• Develops special expertise to treat and manage the most complex cases</td>
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<tr>
<td>• Recognizes situations with a need for urgent or emergent medical care, including life-threatening conditions</td>
<td>• Recognizes toxicities/symptoms seen in lung cancer patients treated with radiotherapy</td>
<td>• With supervision, manages patients with toxicities/symptoms seen in lung cancer patients treated with radiotherapy</td>
<td>• Independently manages patients with toxicities/symptoms seen in lung cancer patients treated with radiotherapy</td>
<td>• Develops protocols to minimize toxicities/symptoms or has an exceptional understanding of management of toxicities/symptoms</td>
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<td>• Conducts clinical research</td>
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<td>• Identifies relevant anatomy</td>
<td>• Lists normal tissue at risk; understands proper patient positioning and immobilization</td>
<td>• Contours target(s) and normal tissue with minimal inaccuracies; states appropriate dose planning objectives for normal tissues and target(s)</td>
<td>• Contours normal tissue and target(s) accurately; critically evaluates treatment plan options</td>
<td>• Develops special expertise to treat and manage the most complex cases</td>
</tr>
<tr>
<td>• Recognizes situations with a need for urgent or emergent medical care, including life-threatening conditions</td>
<td>• Recognizes toxicities/symptoms seen in patients with brain tumors treated with radiotherapy</td>
<td>• With supervision, manages toxicities/symptoms seen in patients with brain tumors treated with radiotherapy</td>
<td>• Independently manages patients with toxicities/symptoms seen in patients with brain tumors treated with radiotherapy</td>
<td>• Develops protocols to minimize toxicities/symptoms or has an exceptional understanding of management of toxicities/symptoms</td>
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### Brachytherapy — Patient Care

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</thead>
<tbody>
<tr>
<td>• Observes patients undergoing brachytherapy</td>
<td>• Selects appropriate patients and understands relevant radiation safety protocols and procedures</td>
<td>• Plans and performs brachytherapy with minimal faculty member assistance</td>
<td>• Is able to independently plan and perform brachytherapy appropriately</td>
<td>• Exceptional technical performance of brachytherapy</td>
</tr>
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### Stereotactic Radiosurgery (SRS)/Stereotactic Body Radiotherapy (SBRT) — Patient Care

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<tbody>
<tr>
<td>• Observes patients undergoing SRS/SBRT</td>
<td>• Selects appropriate patients and understands relevant radiation safety protocols and procedures</td>
<td>• Plans and performs SRS/SBRT with minimal faculty member assistance</td>
<td>• Is able to independently plan and perform SRS/SBRT appropriately</td>
<td>• Conducts clinical research</td>
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# Medical Physics — Medical Knowledge

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<tbody>
<tr>
<td>• Recognizes the importance of medical physics in radiation oncology</td>
<td>• Understands basic concepts of medical physics</td>
<td>• Applies concepts of medical physics to clinical situations</td>
<td>• Thoroughly understands medical physics concepts for safe delivery of radiation therapy</td>
<td>• Conducts medical physics research</td>
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# Radiation/Cancer Biology — Medical Knowledge

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</thead>
<tbody>
<tr>
<td>• Recognizes the importance of radiation/cancer biology in radiation oncology</td>
<td>• Understands basic concepts of radiation/cancer biology</td>
<td>• Applies concepts of radiation/cancer biology to clinical situations</td>
<td>• Thoroughly understands radiation/cancer biology concepts for safe delivery of radiation therapy</td>
<td>• Performs radiation/cancer biology research</td>
</tr>
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### Work and coordinate patient care effectively in various health care delivery settings and systems — Systems-based Practice

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<tbody>
<tr>
<td>• Recognizes various health care delivery settings and systems</td>
<td>• Works and coordinates patient care in various health care delivery settings and systems for common clinical situations</td>
<td>• Works and coordinates patient care in various health care delivery settings and systems for most clinical situations</td>
<td>• Works and coordinates patient care in various health care delivery settings and systems for all clinical situations</td>
<td>• Publishes research on coordinating patient care in various health care delivery settings and systems</td>
</tr>
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### Incorporate considerations of cost awareness and risk-benefit analysis in patient- and/or population-based care, as appropriate — Systems-based Practice

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<tbody>
<tr>
<td>• Recognizes the importance of cost awareness and risk-benefit analysis for patient- and/or population-based care</td>
<td>• Incorporates considerations of cost awareness and risk-benefit analysis for patient- and/or population-based care for common clinical situations</td>
<td>• Incorporates considerations of cost awareness and risk-benefit analysis for patient- and/or population-based care for most clinical situations</td>
<td>• Incorporates considerations of cost awareness and risk-benefit analysis for patient- and/or population-based care for all clinical situations</td>
<td>• Publishes research on cost awareness and risk-benefit analysis for patient- and/or population-based care</td>
</tr>
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## Work in interprofessional teams to enhance patient safety and improve patient care quality; advocate for quality patient care and optimal patient care systems; participate in identifying system errors and implementing potential system solutions — Systems-based Practice

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</thead>
<tbody>
<tr>
<td>• Recognizes the importance of working in interprofessional teams to enhance patient safety and improve patient care quality</td>
<td>• Works in interprofessional teams to enhance patient safety and improve patient care quality in common clinical situations</td>
<td>• Works in interprofessional teams to enhance patient safety and improve patient care quality in most clinical situations</td>
<td>• Works in interprofessional teams to enhance patient safety and improve patient care quality in all clinical situations</td>
<td>• Publishes research on quality patient care or patient safety</td>
</tr>
<tr>
<td>• Recognizes the importance of advocating for quality care and optimal patient care systems</td>
<td>• Advocates for quality care and optimal patient care systems in common clinical situations</td>
<td>• Advocates for quality care and optimal patient care systems in most clinical situations</td>
<td>• Advocates for quality care and optimal patient care systems in all clinical situations</td>
<td></td>
</tr>
<tr>
<td>• Recognizes the importance of participating in identifying system errors and implementing potential system solutions</td>
<td>• Participates in identifying system errors and implementing potential system solutions in common clinical situations</td>
<td>• Participates in identifying system errors and implementing potential system solutions in most clinical situations</td>
<td>• Participates in identifying system errors and implementing potential system solutions in all clinical situations</td>
<td></td>
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Identify strengths, deficiencies, and limits in one’s knowledge and expertise; set learning and improvement goals and identify and perform appropriate learning activities utilizing information technology, evidence from scientific studies, and evaluation feedback; systematically analyze practice using quality improvement methods, and implement changes with the goal of practice improvement — Practice-based Learning and Improvement

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<tbody>
<tr>
<td>• Acknowledges gaps in personal knowledge and expertise, and frequently asks for feedback</td>
<td>• Begins to assess performance by evaluating feedback and assessments</td>
<td>• Frequently assesses performance by evaluating feedback and assessments</td>
<td>• Always assesses performance by evaluating feedback and assessments</td>
<td>• Publishes research on practice quality improvement</td>
</tr>
<tr>
<td>• Understands the importance of setting learning and improvement goals</td>
<td>• Begins to develop learning and improvement goals, based on feedback, with some external assistance</td>
<td>• Develops learning and improvement goals based on feedback, with minimal external assistance</td>
<td>• Performs self-directed learning independently</td>
<td></td>
</tr>
<tr>
<td>• Can identify problems in health care delivery and see the quality gap in care</td>
<td>• Uses information technology to locate scientific studies related to patient health problems</td>
<td>• Critically appraises scientific studies related to patient health problems</td>
<td>• Assimilates evidence from scientific studies into practice</td>
<td></td>
</tr>
<tr>
<td>• Understands the essentials of quality improvement</td>
<td></td>
<td>• Is able to define and construct process and outcome measures of quality</td>
<td>• Designs and completes a quality improvement project</td>
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<table>
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<tr>
<th>Participate in the education of patients, families, students, residents, and other health professionals — Practice-based Learning and Improvement</th>
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<tbody>
<tr>
<td><strong>Level 1</strong></td>
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<tr>
<td>• Understands the importance of the education of patients, families, students, residents, and other health professionals</td>
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Compassion, integrity, and respect for others, as well as sensitivity and responsiveness to diverse patient populations, including diversity in gender, age, culture, race, religion, disabilities, and sexual orientation; knowledge about, respect for, and adherence to the ethical principles relevant to the practice of medicine, remembering in particular that responsiveness to patients that supersedes self-interest is an essential aspect of medical practice — Professionalism

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<tr>
<td>● Seeks out, learns from, and models the attitudes and behaviors of physicians who exemplify appropriate professional attitudes, values and behaviors, including caring, honest, genuine interest in patients and families, and tolerance and acceptance of diverse individuals and groups</td>
<td>● Exhibits appropriate attitudes, values, and behaviors in straightforward situations, including caring, honest, genuine interest in patients and families, and tolerance and acceptance of diverse individuals and groups</td>
<td>● Consistently recognizes ethical issues in practice; is able to discuss, analyze, and manage in common clinical situations</td>
<td>● Effectively analyzes and manages ethical issues in most clinical situations</td>
<td>● Consistently and effectively analyzes and manages ethical issues in all clinical situations</td>
</tr>
<tr>
<td>● Is aware of basic bioethical principles; is able to identify ethical issues in clinical situations</td>
<td>● Exhibits appropriate attitudes, values, and behaviors in most situations, including caring, honest, genuine interest in patients and families, and tolerance and acceptance of diverse individuals and groups</td>
<td>● Consistently recognizes ethical issues in practice; is able to discuss, analyze, and manage in common clinical situations</td>
<td>● Effectively analyzes and manages ethical issues in most clinical situations</td>
<td>● Consistently and effectively analyzes and manages ethical issues in all clinical situations</td>
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### Accountability to patients, society, and the profession; personal responsibility to maintain emotional, physical, and mental health — Professionalism

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<tbody>
<tr>
<td>• Recognizes when in need of assistance and is able and willing to ask for help</td>
<td>• Consistently recognizes limits of knowledge in common clinical situations and asks for assistance</td>
<td>• Consistently recognizes limits of knowledge in most clinical situations</td>
<td>• Consistently demonstrates the ability to identify limits of own knowledge in all clinical situations</td>
<td>• Develops a protocol to support the application of physician accountability or personal responsibility</td>
</tr>
<tr>
<td>• Understands the importance of physician accountability to patients, society, and the profession</td>
<td>• Demonstrates physician accountability to patients, society, and profession in common clinical situations</td>
<td>• Demonstrates physician accountability to patients, society, and profession in most clinical situations</td>
<td>• Demonstrates physician accountability to patients, society, and profession in all clinical situations</td>
<td>• Publishes or presents research on physician accountability or personal responsibility</td>
</tr>
<tr>
<td>• Is aware of the basic principles and aspects of the general maintenance of emotional, physical, and mental health, including issues of fatigue</td>
<td>• Identifies and manages common situations in which maintaining personal emotional, physical, and mental health, including issues of fatigue, are challenged</td>
<td>• Identifies and manages most situations in which maintaining personal emotional, physical, and mental health, including issues of fatigue, are challenged</td>
<td>• Identifies and manages all situations in which maintaining personal emotional, physical, and mental health, including issues of fatigue, are challenged</td>
<td>• Identifies and manages all situations in which maintaining personal emotional, physical, and mental health, including issues of fatigue, are challenged</td>
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Effective communication with patients, families, and the public, as appropriate, across a broad range of socioeconomic and cultural backgrounds; effective communication with physicians, other health care professionals, and health-related agencies — Interpersonal and Communication Skills

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<tr>
<td>• Recognizes the importance of effective communication with patients, families, and the public</td>
<td>• Demonstrates effective communication with patients, families, and the public in common situations</td>
<td>• Demonstrates effective communication with the health care team in common situations</td>
<td>• Demonstrates effective communication with patients, families, and the public in most situations</td>
<td>• Demonstrates effective communication with the health care team in most situations</td>
</tr>
<tr>
<td>• Recognizes the importance of effective communication with the health care team</td>
<td>• Demonstrates effective communication with the health care team in common situations</td>
<td>• Demonstrates effective communication with the health care team in most situations</td>
<td>• Demonstrates effective communication with the health care team in all situations</td>
<td>• Publishes or presents research on interpersonal communication</td>
</tr>
</tbody>
</table>

Comments: Not yet achieved Level 1
### Effective member or leader of a health care team or other professional group; maintenance of comprehensive, timely, and legible medical records — Interpersonal and Communication Skills

<table>
<thead>
<tr>
<th>Level 1</th>
<th>Level 2</th>
<th>Level 3</th>
<th>Level 4</th>
<th>Level 5</th>
</tr>
</thead>
<tbody>
<tr>
<td>• Recognizes the importance of working effectively as a member of a health care team</td>
<td>• Demonstrates the ability to effectively work as a member of a health care team, including the consultative role, in common clinical situations</td>
<td>• Demonstrates the ability to effectively work as a member of a health care team, including the consultative role, in most clinical situations</td>
<td>• Demonstrates the ability to effectively work as a member of a health care team, including the consultative role, in all clinical situations</td>
<td>• Publishes or presents research on teamwork or record maintenance</td>
</tr>
<tr>
<td>• Recognizes the importance of maintaining timely and legible records, including EHR</td>
<td>• Maintains accurate, timely, and legible records, including EHR, for some cases</td>
<td>• Maintains accurate, timely and legible records, including EHR, for most cases</td>
<td>• Maintains accurate, timely, and legible records, including EHR, in all cases</td>
<td>• Develops a protocol for teamwork or record maintenance</td>
</tr>
</tbody>
</table>

**Comments:** Not yet achieved Level 1
12. Appendix - Forms

Evaluations of Residents:

*Meeting with Program Director - Checklist*
- Radiation Oncology Global Rating Form
- Direct Observation of Brachytherapy
- Direct Observation of Simulation Treatment Process-Preparation
- Resident Rotation Evaluation by Nursing Staff
- Resident Rotation Evaluation by Radiation Therapists
- Elective Resident Evaluation
- Clinical Physics Rotation for Medical Residents Evaluation
- Resident Oral Examination – Radiation Oncology

Evaluations by Residents:

- Year-End Program Evaluation
- Program-End Evaluation (Evaluation of Program and Rotations)
- Self-reflection/Self-Assessment Form

Attending/Alumni evaluations of program:

- Faculty program evaluation form
- Resident Post-Graduation Survey

Other:

- Rotation Goals and Objectives Attestation Form
- Morbidity and Mortality (CQI/M&M) Report Form
- Monthly Resident Timesheet
- Oral I-131 and Parenteral Administration Log
- Vacation/Meeting Request
- Sign-in sheets:
  - Faculty
- PGY-II Interviewer Assessment Form
- Milestone Feedback Form
Resident: _______________________

The following were discussed:

( ) Global Assessments:

( ) Multi-source Assessments:

( ) Case Logs:

( ) Raphex Scores:

( ) Mock Orals:

( ) Conference Attendance:

( ) Self-Reflection Goals/Objectives:

( ) Milestones

( ) Other

Strengths:

Learning and Improvement Goals:

Date: ________________________________________________________________

Resident signature: _____________________________________________________

Program Director signature: ______________________________________________

Checklist res-prog dir qtly mtg
Radiation Oncology Resident Global Rating Form

Resident: ___________________________  Rotation: ___________________

Faculty: _____________________________  Date: ____________________

Please circle the option that most closely reflects the resident’s performance.

**Unsatisfactory** = Several behaviors performed poorly or missed (ratings 1, 2, or 3)

**Satisfactory** = Most behaviors performed acceptably (ratings 4, 5, or 6); satisfactory performance is described below

**Superior** = All behaviors performed very well (ratings 7, 8, or 9)

<table>
<thead>
<tr>
<th>Patient Care</th>
<th>UNSATISFACTORY</th>
<th>SATISFACTORY</th>
<th>SUPERIOR</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Information gathering</td>
<td>1 2 3</td>
<td>4 5 6</td>
<td>7 8 9</td>
</tr>
<tr>
<td>2. Treatment process</td>
<td>1 2 3</td>
<td>4 5 6</td>
<td>7 8 9</td>
</tr>
<tr>
<td>3. Patient follow-up</td>
<td>1 2 3</td>
<td>4 5 6</td>
<td>7 8 9</td>
</tr>
</tbody>
</table>

**Medical Knowledge**

<table>
<thead>
<tr>
<th>4. Analytic thinking</th>
<th>UNSATISFACTORY</th>
<th>SATISFACTORY</th>
<th>SUPERIOR</th>
</tr>
</thead>
<tbody>
<tr>
<td>5. Application</td>
<td>1 2 3</td>
<td>4 5 6</td>
<td>7 8 9</td>
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</table>

**Practice-based Learning & Improvement**

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<tr>
<th>6. Ongoing learning</th>
<th>UNSATISFACTORY</th>
<th>SATISFACTORY</th>
<th>SUPERIOR</th>
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<tbody>
<tr>
<td>7. Improvement</td>
<td>1 2 3</td>
<td>4 5 6</td>
<td>7 8 9</td>
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</table>

**Systems-based Practice**

<table>
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<tr>
<th>8. Care coordination</th>
<th>UNSATISFACTORY</th>
<th>SATISFACTORY</th>
<th>SUPERIOR</th>
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</thead>
<tbody>
<tr>
<td>9. Cost-conscious care</td>
<td>1 2 3</td>
<td>4 5 6</td>
<td>7 8 9</td>
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</tbody>
</table>

**Professionalism**

<table>
<thead>
<tr>
<th>10. Responsibility</th>
<th>UNSATISFACTORY</th>
<th>SATISFACTORY</th>
<th>SUPERIOR</th>
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</thead>
<tbody>
<tr>
<td>11. Patient needs</td>
<td>1 2 3</td>
<td>4 5 6</td>
<td>7 8 9</td>
</tr>
</tbody>
</table>

Obtains complete & accurate patient histories; performs thorough & appropriate physical exams; obtains enough information to include or exclude likely, significant problems

Able to plan and implement both external beam & brachytherapy treatments

Plans and executes appropriate follow-up plan; coordinates care with other health care providers; responds quickly & appropriately to unexpected follow-up events

Uses effective problem solving; demonstrates sound clinical judgment; applies analytic approach to clinical situations

Applies clinical and supportive scientific data to the management of clinical problems; understands the rationale for various therapies

Is able to locate, appraise, & assimilate evidence from scientific studies related to their patients’ health problems

Changes practice behaviors in response to feedback from others & review of own practice & improvement initiatives

Works effectively with other providers, inside & outside department, to provide complete & integrated care; reconciles contradictory recommendations; understands different healthcare delivery systems & medical practices

Recommends appropriate use of technologies in different clinical situations

Accepts responsibilities willingly; follows through on tasks carefully and thoroughly; is dependable & industrious; responds to requests in a helpful and prompt manner

Considers each patient’s unique needs & characteristics regardless of patient culture or socioeconomic status; puts patients’ needs above own interests
<table>
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<tr>
<th>12. Integrity &amp; ethical behavior</th>
<th>UNSATISFACTORY</th>
<th>SATISFACTORY</th>
<th>SUPERIOR</th>
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<td>7  8  9</td>
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<td></td>
<td>Takes responsibility for actions; admits mistakes; manages conflicts of interest; addresses ethical issues; maintains patient confidentiality</td>
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**Interpersonal & Communication Skills**

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<tr>
<th>13. Patient &amp; family communication</th>
<th>UNSATISFACTORY</th>
<th>SATISFACTORY</th>
<th>SUPERIOR</th>
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<td>1  2  3</td>
<td>4  5  6</td>
<td>7  8  9</td>
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<td></td>
<td>Establishes rapport; is respectful; explains risks, benefits &amp; alternatives of treatment</td>
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<tr>
<th>14. Medical records</th>
<th>UNSATISFACTORY</th>
<th>SATISFACTORY</th>
<th>SUPERIOR</th>
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<td>1  2  3</td>
<td>4  5  6</td>
<td>7  8  9</td>
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<td></td>
<td>Completes timely, thorough, &amp; understandable medical records</td>
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**Overall Comments (please explain any areas of unsatisfactory performance)**

Evaluator Signature ___________________________________________ Resident Signature ___________________________________________

*The resident and I discussed this evaluation and the resident's overall performance in the program, and ways to improve performance as needed.*

Program Director Signature ___________________________ Date ___________________________
Direct Observation of Brachytherapy

Resident: ________________________________  Rotation: ________
Evaluator: ________________________________  Date: ____________

Diagnosis: ___________________________  Type of Procedure: _______________

Please check the option that most closely reflects the resident’s performance.

*Satisfactory = behavior demonstrated acceptably and/or consistently*
*Marginal = behavior demonstrated but needs improvement*
*Unsatisfactory = behavior not demonstrated or needs considerable improvement*
*n/a = not applicable*

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<tr>
<th></th>
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<th>Marginal</th>
<th>Unsatisfactory</th>
<th>n/a</th>
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<tbody>
<tr>
<td>1.</td>
<td>Conducts pre-procedure physical exam</td>
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<td>2.</td>
<td>Prepares patient using sterile procedures</td>
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<td>3.</td>
<td>Makes appropriate measurements for procedure</td>
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<td>4.</td>
<td>Places radioactive sources or afterloading devices</td>
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<td>5.</td>
<td>Checks that radioactive sources or afterloading devices are in place</td>
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<td>6.</td>
<td>Loads radioactive material in devices</td>
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<td>7.</td>
<td>Reviews dosimetry and determines length of application</td>
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<td>8.</td>
<td>Plans for appropriate post-placement hospital management</td>
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Please explain any marginal or unsatisfactory ratings.
Direct Observation of Simulation Treatment Process - Preparation

Resident: ___________________________  Rotation: ______
Evaluator: ___________________________  Date: ______

Diagnosis: ___________________________  Type of Procedure: ____________________

Please check the option that most closely reflects the resident’s performance.

Satisfactory = behavior demonstrated acceptably and/or consistently
Marginal = behavior demonstrated but needs improvement
Unsatisfactory = behavior not demonstrated or needs considerable improvement
n/a = not applicable

<table>
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<tr>
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<th>Satisfactory</th>
<th>Marginal</th>
<th>Unsatisfactory</th>
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Please explain any marginal or unsatisfactory ratings.
Resident Rotation Evaluation by Nursing staff

Rotation Date:________________    Today’s Date:_________________
Nurse:_______________________    Resident:______________________

I. Practice Based Learning and Improvements
1. Resident adequately accesses medical information on line to appropriately manage patients?
   68 Failure 69 70 Satisfactory 71 72 Outstanding N/A

2. Resident uses evaluation of peers, patients, superiors and subordinates to improve practice?
   68 Failure 69 70 Satisfactory 71 72 Outstanding N/A

3. Resident can access medical information on line to support his/her own education?
   68 Failure 69 70 Satisfactory 71 72 Outstanding N/A

II. Interpersonal Skills
1. Communication issues:
   a. Resident speaks understandable English?
      68 Failure 69 70 Satisfactory 71 72 Outstanding N/A
   b. Resident listens well?
      68 Failure 69 70 Satisfactory 71 72 Outstanding N/A
   c. Resident shows respect for patients and their families?
      68 Failure 69 70 Satisfactory 71 72 Outstanding N/A
   d. Resident is able to gain the trust of patients and their families?
      68 Failure 69 70 Satisfactory 71 72 Outstanding N/A
   e. Resident identifies key issues for patients and their families?
      68 Failure 69 70 Satisfactory 71 72 Outstanding N/A
   f. Resident is able to communicate limitations of outcome?
      68 Failure 69 70 Satisfactory 71 72 Outstanding N/A
   g. Resident is able to manage difficult patients/family situations?
      68 Failure 69 70 Satisfactory 71 72 Outstanding N/A
   h. Resident is able to communicate risks, side effects and benefits of treatment plan to the patient and their families?
      68 Failure 69 70 Satisfactory 71 72 Outstanding N/A
i. Resident communicates effectively with physicians and other health professionals including acting in a consultative role?
   68 Failure 69 70 Satisfactory 71 72 Outstanding N/A

III. Professionalism
1. Resident demonstrates a commitment to ethical principles pertaining to provision or withholding of clinical care, confidentiality of patient information, informed consent and business practices?
   68 Failure 69 70 Satisfactory 71 72 Outstanding N/A

2. Resident demonstrates respect, compassion and integrity?
   68 Failure 69 70 Satisfactory 71 72 Outstanding N/A

3. Resident demonstrates responsiveness to the needs of patients and society that supersedes self-interest?
   68 Failure 69 70 Satisfactory 71 72 Outstanding N/A

4. Resident demonstrates accountability to patients, society and the profession of medicine?
   68 Failure 69 70 Satisfactory 71 72 Outstanding N/A

5. Resident demonstrates sensitivity and responsiveness to patient’s culture, age, gender and disabilities?
   68 Failure 69 70 Satisfactory 71 72 Outstanding N/A

6. Resident demonstrates a commitment to excellence and on-going professional development?
   68 Failure 69 70 Satisfactory 71 72 Outstanding N/A

IV. Additional Comments

V. Overall Grade
   68 Failure 69 70 Satisfactory 71 72 Outstanding

________________________   __________________________
Nurse signature               Date

________________________   __________________________
Resident signature            Date

________________________   __________________________
Program Director signature     Date
Ashesh Jani, M.D.
Resident Rotation Evaluation by Radiation Therapists

Rotation Date:________________    Today’s Date:_________________
Therapist:_____________________    Resident:______________________

I. Practice Based Learning and Improvements
   1. Resident uses evaluation of peers, patients, superiors and subordinates to improve practice?
      68  Failure  69 70  Satisfactory  71  72 Outstanding  N/A

II. Interpersonal Skills
   1. Communication issues:
      a. Resident speaks understandable English?
         68  Failure  69 70  Satisfactory  71  72 Outstanding  N/A
      b. Resident listens well?
         68  Failure  69 70  Satisfactory  71  72 Outstanding  N/A
      c. Resident shows respect for patients and their families?
         68  Failure  69 70  Satisfactory  71  72 Outstanding  N/A
      d. Resident is able to gain the trust of patients and their families?
         68  Failure  69 70  Satisfactory  71  72 Outstanding  N/A
      e. Resident identifies key issues for patients and their families?
         68  Failure  69 70  Satisfactory  71  72 Outstanding  N/A
      f. Resident is able to communicate limitations of outcome?
         68  Failure  69 70  Satisfactory  71  72 Outstanding  N/A
      g. Resident is able to manage difficult patients/family situations?
         68  Failure  69 70  Satisfactory  71  72 Outstanding  N/A
      h. Resident is able to communicate risks, side effects and benefits of treatment plan to the patient and their families?
         68  Failure  69 70  Satisfactory  71  72 Outstanding  N/A
      i. Resident communicates effectively with therapist including acting in a consultative role?
         68  Failure  69 70  Satisfactory  71  72 Outstanding  N/A
III. Professionalism
1. Resident demonstrates a commitment to ethical principles pertaining to provision or withholding of clinical care, confidentiality of patient information, informed consent and business practices?
   68  Failure  69  70  Satisfactory  71  72 Outstanding  N/A

2. Resident demonstrates respect, compassion and integrity?
   68  Failure  69  70  Satisfactory  71  72 Outstanding  N/A

3. Resident demonstrates responsiveness to the needs of patients and society that supersedes self-interest?
   68  Failure  69  70  Satisfactory  71  72 Outstanding  N/A

4. Resident demonstrates accountability to patients, society and the profession of medicine?
   68  Failure  69  70  Satisfactory  71  72 Outstanding  N/A

5. Resident demonstrates sensitivity and responsiveness to patient’s culture, age, gender and disabilities?
   68  Failure  69  70  Satisfactory  71  72 Outstanding  N/A

6. Resident demonstrates a commitment to excellence and on-going professional development?
   68  Failure  69  70  Satisfactory  71  72 Outstanding  N/A

IV. Additional Comments

V. Overall Grade
   68  Failure  69  70  Satisfactory  71  72 Outstanding

________________________________   _________________________________
Therapist signature  Date    Resident signature  Date

________________________________
Program Director signature  Date
Ashesh Jani, M.D.
Elective
Resident Evaluation

Resident: ____________________

Date of Rotation: ____________________

Department:

Please comment on Dr. _________ ’s participation on the rotation:

Please comment on his/her daily attendance:

Any other comments:

Name: ____________________________
   (print)

Signature: ____________________________
CLINICAL PHYSICS ROTATION FOR MEDICAL RESIDENTS

NAME: ________________________________

DATE: ________________________________

Course Description and Objectives
Medical physics is a profession where practical experience must supplement theory and where textbook knowledge alone is not sufficient. The clinical rotation is designed to familiarize residents with the relevant hospital/clinical environment.

The clinical rotation is designed to expose residents to the daily activities of the clinical physicist as well as possible special procedures involving patients. Each resident will spend one month on a clinical physics rotation. The resident will rotate through one or more of the following Emory facilities, which include Emory University Hospital, Crawford Long Hospital and Grady Hospital. The resident will be will work with physicists or dosimetrists at each facility. Residents will maintain a log of activities in physics.

Residents will become familiar with the operation of various therapy units and dose measuring devices, with the techniques for measurement of different physical parameters which characterize radiation beams used in radiation therapy.

In order to comply with NRC regulations and expected new RRC guidelines related to oral high-dose I-131 therapy and parenteral therapy with unsealed sources, a resident will have to participate with preceptors in three cases involving oral administration of > 33 mCi of I-131 and three cases involving parenteral administration of unsealed beta-or photon-emitting by-product material with a photon energy of < 150 KeV. The specific dates on which experiences with oral I-131 and parenteral therapy occur and a case description should be kept in a log by each resident. A form is found on page 3.

Attendance in the physics activities is required for the clinical physics rotation. The resident will maintain a log of the activities performed during the physics rotation. At the end of each activity, the resident should have a preceptor (physicist) sign the form to acknowledge completion. Because of HIPAA concerns, data that might identify a patient should not be included in the log of activities. At the end of the rotation, a final evaluation form (page 4) will be filled out by the Director of Physics after reviewing the log of activities, and this will form will be marked pass or fail. It is the responsibility of the resident to have this form filled out and signed at completion of rotation. The Director of Residency Programs will be informed of the evaluation reports. The following tasks may be performed during the clinical physics rotation.

1. Monthly LINAC Calibration/Mechanical Checks (TG 21,51, and TG40)
2. Weekly Chart Checks, Double Checks, Closeouts (TG40)
3. Computerized Treatment Planning, Conventional & IMRT
4. CT Simulation & Image-Guided Radiation Therapy
5. High-Dose Rate Brachytherapy Procedures
6. Low-Dose Rate Brachytherapy Procedures
7. Total Body Irradiation (TG-30)
8. Total Skin Electron Irradiation (TG-29)
9. Stereotactic Radiosurgery (AAPM Report 54)
10. IMRT Quality Assurance
<table>
<thead>
<tr>
<th>Date</th>
<th>Medical Physics Task</th>
<th>Emory Physicist Name/Signature</th>
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Unsealed Source Therapy
In order to comply with NRC regulations and expected new RRC guidelines related to oral high-dose I-131 therapy and parenteral therapy with unsealed sources, a resident will have to participate with preceptors in three cases involving oral administration of > 33 mCi of I-131 and three cases involving parenteral administration of unsealed beta-or photon-emitting by-product material with a photon energy of < 150 KeV. The specific dates on which experiences with oral I-131 and parenteral therapy occur and a case description should be kept in a log by each resident. Because of HIPAA concerns, data that might identify a patient should not be included in the log of activities.

Resident Name: ________________________________

Program: Radiation Oncology, Emory University School of Medicine, Atlanta, GA

<table>
<thead>
<tr>
<th>Date</th>
<th>Disorder</th>
<th>Dose Administered</th>
<th>Preceptor Name/Signature</th>
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<tbody>
<tr>
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<td>2.</td>
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<td>6.</td>
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</tbody>
</table>

Karen Godette, M.D.
Residency Program Director
Clinical Physics Final Evaluation Form

<table>
<thead>
<tr>
<th>Date:</th>
</tr>
</thead>
<tbody>
<tr>
<td>Resident Name:</td>
</tr>
<tr>
<td>Comments:</td>
</tr>
<tr>
<td>Final Evaluation: Pass  Fail</td>
</tr>
<tr>
<td>Director of Physics Signature:</td>
</tr>
</tbody>
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<table>
<thead>
<tr>
<th>MOCK ORAL BOARD EXAM EVALUATION</th>
<th>DATE:</th>
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<tbody>
<tr>
<td>ATTN. PHYSICIAN:</td>
<td></td>
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<tr>
<td>SUBJECT / SITE:</td>
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<table>
<thead>
<tr>
<th>GRADING SCALE:</th>
<th>1</th>
<th>2</th>
<th>3</th>
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<tr>
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<td></td>
<td>Pass</td>
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<td>Honors</td>
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<tr>
<th>EXAMINEE:</th>
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</table>

<table>
<thead>
<tr>
<th>CASE:</th>
<th>SCORE:</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td></td>
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| 2.    |        |
|       |        |

| 3.    |        |
|       |        |

| 4.    |        |
|       |        |

| 5.    |        |
|       |        |

| GENERAL COMMENTS: | |
|-------------------|---|---|---|---|---|
|                   |   |   |   |   |   |
PGY level: __________

Academic year: ______________

Please comment on your experience with the attending physicians you worked with over the last year:

Do you think Friday morning academic time is effective and well structured? List any suggestions for improvement.

How effective were the Cancer Biology and Physics courses? Do you have any suggestions for improvement?

What aspect(s) of the program do you find most helpful / least helpful?
**GRIEVANCE/DUE PROCESS/OTHER INFORMATION:**

<table>
<thead>
<tr>
<th></th>
<th>Poor</th>
<th>Adequate</th>
<th>Excellent</th>
</tr>
</thead>
<tbody>
<tr>
<td>• Informed of program/institutional policies for grievance/due process</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• Information provided on compensation/benefits</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• Availability of counseling services</td>
<td></td>
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</tbody>
</table>

**COMMENTS:**

________________________________________________________________________

________________________________________________________________________

**Overall Program Rating**

<table>
<thead>
<tr>
<th></th>
<th>Poor</th>
<th>Adequate</th>
<th>Excellent</th>
</tr>
</thead>
</table>

**COMMENTS:**

________________________________________________________________________

________________________________________________________________________
EVALUATION OF PROGRAM AND ROTATIONS

1. What is your highest completed year in-training? Radiation Oncology 1
   2
   3
   4

2. With respect to the year just completed, which rotation contributed most/least to the development of your:

   Knowledge base
   Clinical skills
   Communication skills
   Technical skills

   Contributed Most
   ---
   ---
   ---
   ---

   Contributed Least
   ---
   ---
   ---
   ---

   With respect to the program as a whole, which rotation contributed most/least to the development of your:

   Knowledge base
   Clinical skills
   Communication skills
   Technical skills

   Contributed Most
   ---
   ---
   ---
   ---

   Contributed Least
   ---
   ---
   ---
   ---

3. Which rotation provided the best/worst balance between service and education?

   For the year just completed
   For the program as a whole

   Best Balance
   ---
   ---

   Worst Balance
   ---
   ---

4. Which rotation provided the most/least appropriate balance between autonomy and supervision?

   For the year just completed
   For the program as a whole

   Best Balance
   ---
   ---

   Worst Balance
   ---
   ---

5. Were the number and types of conferences appropriate?

   What was the best conference?
   What was the worst conference?
6. Please rate the overall quality of the year just completed

   1  2  3  4  5
   Poor  Excellent

7. Please rate the overall quality of the educational program as a whole

   1  2  3  4  5
   Poor  Excellent

8. What did you value most/least about the educational program?

____________________________________________________________________
____________________________________________________________________
____________________________________________________________________
____________________________________________________________________
____________________________________________________________________

9. Please make specific suggestions regarding measures which, in your opinion, might improve the Radiation Oncology Training Program at Emory University. Please consider all aspects of the program, including rotations, faculty, working conditions, etc.

____________________________________________________________________
____________________________________________________________________
____________________________________________________________________
____________________________________________________________________
____________________________________________________________________
The Radiation Oncology Training Program is committed to resident development of ongoing self-assessment and self-reflection skills. Each resident needs to complete the following self-assessment form prior to each 6-month formal meeting with program leadership.

**PATIENT CARE competencies** (gather essential/accurate information about pts; make informed decisions about diagnostic/therapeutic interventions based on pt information/preferences, up-to-date scientific evidence/clinical judgment; develop/carry out patient management plans; counsel/educate patients and families; perform competently all medical/invasive procedures essential for the area of practice.)

<table>
<thead>
<tr>
<th>How I am doing? (circle)</th>
<th>Feel Uncomfortable</th>
<th>Feel Comfortable</th>
<th>Feel Very Comfortable</th>
</tr>
</thead>
<tbody>
<tr>
<td>Need Improvement (circle)</td>
<td>A lot</td>
<td>Some</td>
<td>Little to none</td>
</tr>
</tbody>
</table>

Area(s) in which I feel strong
_________________________________________________________________________________________________

Area(s) I need to keep improving
_________________________________________________________________________________________________

Specific objectives for next 6 months and strategies to achieve objectives
1.___________________________________________________________________________________________________
2.___________________________________________________________________________________________________

**MEDICAL KNOWLEDGE competencies** (demonstrate an investigatory/analytic thinking approach to clinical situations; know and apply the basic and clinically supportive sciences which are appropriate)

<table>
<thead>
<tr>
<th>How I am doing? (circle)</th>
<th>Feel Uncomfortable</th>
<th>Feel Comfortable</th>
<th>Feel Very Comfortable</th>
</tr>
</thead>
<tbody>
<tr>
<td>Need Improvement (circle)</td>
<td>A lot</td>
<td>Some</td>
<td>Little to none</td>
</tr>
</tbody>
</table>

Area(s) in which I feel strong
_________________________________________________________________________________________________

Area(s) I need to keep improving
_________________________________________________________________________________________________

Specific objectives for next 6 months and strategies to achieve objectives
1.___________________________________________________________________________________________________
2.___________________________________________________________________________________________________

**Practice-Based Learning & Improvement competencies** (analyze practice experience/perform practice-based improvement activities; locate, appraise, and assimilate evidence from scientific studies related to pts’ health problems; apply knowledge of study designs/statistical methods to the appraisal of clinical studies and other information on diagnostic/therapeutic effectiveness; use information technology to manage/access medical information.)

<table>
<thead>
<tr>
<th>How I am doing? (circle)</th>
<th>Feel Uncomfortable</th>
<th>Feel Comfortable</th>
<th>Feel Very Comfortable</th>
</tr>
</thead>
<tbody>
<tr>
<td>Need Improvement (circle)</td>
<td>A lot</td>
<td>Some</td>
<td>Little to none</td>
</tr>
</tbody>
</table>

Area(s) in which I feel strong
_________________________________________________________________________________________________

Area(s) I need to keep improving
_________________________________________________________________________________________________

Specific objectives for next 6 months and strategies to achieve objectives
1.___________________________________________________________________________________________________
2.___________________________________________________________________________________________________

(Over)
Interpersonal and Communication Skills (create and sustain a therapeutic and ethically sound relationship with patients use effective listening skills and elicit and provide information using effective nonverbal, explanatory, questioning, and writing skills; work effectively with others as a member or leader of a health care team or other professional group)

How I am doing? (circle)    Feel Uncomfortable         Feel Comfortable        Feel Very Comfortable

Need Improvement (circle)  A lot                        Some                      Little to none

Area(s) in which I feel strong

Area(s) I need to keep improving

Specific objectives for next 6 months and strategies to achieve objectives
1._______________________________________________________________________________________
2._______________________________________________________________________________________

Professionalism competencies (demonstrate respect, compassion, and integrity; responsive to the needs of patients and society that supercedes self-interest; accountability to patients, society, and the profession; committed to excellence and on-going professional development; demonstrate a commitment to ethical principles pertaining to provision or withholding of clinical care, confidentiality of patient information, informed consent, and business practices; demonstrate sensitivity and responsiveness to patients’ culture, age, gender, and disabilities).

How I am doing? (circle)    Feel Uncomfortable         Feel Comfortable        Feel Very Comfortable

Need Improvement (circle)  A lot                        Some                      Little to none

Area(s) in which I feel strong

Area(s) I need to keep improving

Specific objectives for next 6 months and strategies to achieve objectives
1._______________________________________________________________________________________
2._______________________________________________________________________________________

Maintaining duty hours within ACGME prescribed limits (no more than 80 hours/week averaged over 4 weeks; 10 hours between shifts; no longer than 30 hours/shift and no new patients after 24 hours) is a challenge for residents on some rotations. Have you been able to develop personal strategies to enable yourself to stay within duty hour requirements?

How I am doing ? (circle)    Feel Unsuccessful         Feel Generally Successful        Feel Successful

Need Improvement (circle)  A lot                        Some                      Little to none

Area(s) in which I feel strong

Area(s) I need to keep improving

Specific objectives for next 6 months and strategies to achieve objectives
1._______________________________________________________________________________________
2._______________________________________________________________________________________

Systems-Based Practice competencies (understand how their patient care and other professional practices affect other health care professionals, the health care organization, and the larger society and how these elements of the system affect their own practice; know how types of medical practice and delivery systems differ from one another, including methods of controlling health care costs and allocating resources; practice cost-effective health care and resource allocation that does not compromise quality of care; advocate for quality patient care and assist patients in dealing with system complexities; know how to partner with health care managers and health care providers to assess, coordinate, and improve health care and know how these activities can affect system performance).

How I am doing? (circle)    Feel Uncomfortable         Feel Comfortable        Feel Very Comfortable

Need Improvement (circle)  A lot                        Some                      Little to none

Area(s) in which I feel strong

Area(s) I need to keep improving

Specific objectives for next 6 months and strategies to achieve objectives
1._______________________________________________________________________________________
2._______________________________________________________________________________________

FORM REVIEWED BY (PD, etc.)____________________________________________________________Date__________
Date:

What are the strengths of this Emory training program? Check all that apply:

☐ Diversity of patient populations
☐ Diversity of clinical venues
☐ Lectures and Conferences
☐ Faculty
☐ Clinical Teaching
☐ Volume of clinical and surgical experiences
☐ Research opportunities
☐ Other: _______________________

Comments:

What are the weaknesses of the training program at Emory? Check all that apply:

☐ Diversity of patient populations
☐ Diversity of clinical venues
☐ Lectures and Conferences
☐ Faculty
☐ Clinical Teaching
☐ Volume of clinical and surgical experiences
☐ Research opportunities
☐ Other: _______________________

Comments:
If you were the Residency Program Director, what one thing would you change about the residency training program at Emory?

Comments:

How would you rate the overall quality of the residents’ education in this program?

☐ Excellent  ☐ Good  ☐ Fair  ☐ Poor

What changes would you suggest?

How would you rate the current resident selection process in selecting the best residents?

☐ Excellent  ☐ Good  ☐ Fair  ☐ Poor

What changes would you suggest?

Comments:
DATE

Dear Dr. ____________________,

We are submitting the attached survey because you graduated from Emory University Department of Radiation Oncology.

We have recently started a new process whereby we send out surveys 1 year and 5 years from graduation. This is done in an effort to identify strengths/weaknesses of our program so we can continually improve our residency training experience.

This information is valuable to us and will allow Emory to be a continued center of excellence for radiation oncology training.

Please take a few minutes to fill out the survey and return it in the provided self-addressed envelope. Your responses are confidential and will only be used by the residency program administrators and graduate medical education office. Your input is very valuable to us.

Sincerely,

______________________________________________
Ashesh B. Jani, M.D.
Professor & Residency Program Director
Department of Radiation Oncology
Emory University
Resident Post-Graduation Survey

What year did you graduate from Emory’s Radiation Oncology Residency? ___________

Please briefly describe your current position (full time vs part time, academic vs private):
________________________________________________________________________

Please evaluate how well Emory’s Radiation Oncology residency prepared you for each of the below:

**Patient Care:** Gathering data; ordering diagnostic tests; interpreting data; making decisions; performing procedures; managing patient therapies; working with others to provide patient-focused care.

<table>
<thead>
<tr>
<th>Excellent</th>
<th>Poor</th>
</tr>
</thead>
<tbody>
<tr>
<td>5</td>
<td>1</td>
</tr>
<tr>
<td>4</td>
<td>2</td>
</tr>
<tr>
<td>3</td>
<td>2</td>
</tr>
</tbody>
</table>

Comments: _____________________________________________________
________________________________________________________________________
________________________________________________________________________

**Medical Knowledge:** Fund of knowledge; active use of knowledge to solve medical problems

<table>
<thead>
<tr>
<th>Excellent</th>
<th>Poor</th>
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<tbody>
<tr>
<td>5</td>
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<tr>
<td>4</td>
<td>2</td>
</tr>
<tr>
<td>3</td>
<td>2</td>
</tr>
</tbody>
</table>

Comments: _____________________________________________________
________________________________________________________________________
________________________________________________________________________
**Practice-Based Learning and Improvement:** Analyzing practice performance and carrying out needed improvements; locating and applying scientific evidence to the care of patients; critically appraising the scientific literature; using the computer to support learning and patient care; facilitating the learning of other health care professionals.

<table>
<thead>
<tr>
<th>Excellent</th>
<th>Poor</th>
</tr>
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<tbody>
<tr>
<td>5</td>
<td>1</td>
</tr>
</tbody>
</table>

Comments: _____________________________________________________

________________________________________________________________

**Interpersonal and Communication Skills:** Developing a therapeutic relationship with patients and their families; using verbal and non-verbal skills to communicate effectively with patients and their families; working effectively as a team member or leader.

<table>
<thead>
<tr>
<th>Excellent</th>
<th>Poor</th>
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</thead>
<tbody>
<tr>
<td>5</td>
<td>1</td>
</tr>
</tbody>
</table>

Comments: _____________________________________________________

________________________________________________________________

**Professionalism:** Demonstrating integrity and honesty; accepting responsibility; acting in the best interest of the patient; demonstrating sensitivity to patients' ethnicity, age, and disabilities.

<table>
<thead>
<tr>
<th>Excellent</th>
<th>Poor</th>
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<tbody>
<tr>
<td>5</td>
<td>1</td>
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</tbody>
</table>

Comments: _____________________________________________________

________________________________________________________________

**Systems-Based Practice:** Demonstrating awareness of interdependencies in the health care system that affect quality of care; providing cost-effective care; advocating for quality patient care; working with hospital management and interdisciplinary teams to improve patient care.

<table>
<thead>
<tr>
<th>Excellent</th>
<th>Poor</th>
</tr>
</thead>
<tbody>
<tr>
<td>5</td>
<td>1</td>
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</tbody>
</table>

Comments: _____________________________________________________

________________________________________________________________
Which rotation(s) contributed most/least to the development of your:

<table>
<thead>
<tr>
<th></th>
<th>Contributed Most</th>
<th>Contributed Least</th>
</tr>
</thead>
<tbody>
<tr>
<td>Knowledge base</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Clinical Skills</td>
<td></td>
<td></td>
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<tr>
<td>Communication Skills</td>
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<td></td>
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<td>Technical Skills</td>
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<td></td>
</tr>
<tr>
<td>Comments</td>
<td></td>
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</tbody>
</table>

Please rate the overall quality of the clinical experiences:

- Excellent: 5, 4, 3, 2, 1

Comments: _____________________________________________________

Please rate the overall quality of the elective rotations:

- Excellent: 5, 4, 3, 2, 1

Comments: _____________________________________________________

Please rate the overall quality of the research experience/rotations:

- Excellent: 5, 4, 3, 2, 1
- Poor: N/A

Comments: _____________________________________________________

Comments: _____________________________________________________

Comments: _____________________________________________________

Comments: _____________________________________________________
Please rate the overall quality of the departmental clinical didactics:

<table>
<thead>
<tr>
<th>Excellent</th>
<th>Poor</th>
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<tbody>
<tr>
<td>5 4 3 2 1</td>
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</table>

Comments: _____________________________________________________
_______________________________________________________________
_______________________________________________________________

Please rate the overall quality of the departmental physics didactics:

<table>
<thead>
<tr>
<th>Excellent</th>
<th>Poor</th>
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</thead>
<tbody>
<tr>
<td>5 4 3 2 1</td>
<td></td>
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</table>

Comments: _____________________________________________________
_______________________________________________________________
_______________________________________________________________

Please rate the overall quality of the departmental biology didactics:

<table>
<thead>
<tr>
<th>Excellent</th>
<th>Poor</th>
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</thead>
<tbody>
<tr>
<td>5 4 3 2 1</td>
<td></td>
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</tbody>
</table>

Comments: _____________________________________________________
_______________________________________________________________
_______________________________________________________________
Please rate how well the program prepared you for the following:

<table>
<thead>
<tr>
<th>Written Examination:</th>
<th>Excellent</th>
<th>Poor</th>
</tr>
</thead>
<tbody>
<tr>
<td>Physics</td>
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<td></td>
</tr>
<tr>
<td>Biology</td>
<td>5  4  3  2  1  N/A</td>
<td></td>
</tr>
<tr>
<td>Clinical</td>
<td>5  4  3  2  1  N/A</td>
<td></td>
</tr>
</tbody>
</table>

Oral Examination:

| Comments: _____________________________________________________ |
|_______________________________________________________________ |
|_______________________________________________________________ |

Please rate the overall quality of the educational program as a whole:

<table>
<thead>
<tr>
<th>Excellent</th>
<th>Poor</th>
</tr>
</thead>
<tbody>
<tr>
<td>5  4  3  2  1</td>
<td></td>
</tr>
</tbody>
</table>

Comments: _____________________________________________________

What suggestions do you have for program improvement?

Please mail this survey (using the provided return envelope) to:
Ashesh B. Jani, M.D.
Professor & Residency Program Director
Department of Radiation Oncology
Emory University
1365 Clifton Rd, NE, Suite A1300
Atlanta, GA 30322

Thank you for your time in completing this survey.
DEPARTMENT OF RADIATION ONCOLOGY

Rotation Goals and Objectives Attestation Form

Resident Name: _________________________________________

PGY-level (circle 1):   PGY 2-3 (1st rotation)   PGY 4-5 (2nd rotation)

The initials below attest to having reviewed the Rotation Component of the Core Curriculum and the appropriate Curriculum Rotation Goals and Objectives section(s) of the Residency Manual for the appropriate level: *Initial all that apply:*

<table>
<thead>
<tr>
<th>Resident</th>
<th>Attending(s)</th>
</tr>
</thead>
<tbody>
<tr>
<td>_____ Breast Cancer Rotation</td>
<td>________________</td>
</tr>
<tr>
<td>_____ Central Nervous System Rotation</td>
<td>________________</td>
</tr>
<tr>
<td>_____ Gastrointestinal Cancer Rotation</td>
<td>________________</td>
</tr>
<tr>
<td>_____ Genitourinary Cancer Rotation</td>
<td>________________</td>
</tr>
<tr>
<td>_____ Gynecological Malignancies Rotation</td>
<td>________________</td>
</tr>
<tr>
<td>_____ Head and Neck Cancer Rotation</td>
<td>________________</td>
</tr>
<tr>
<td>_____ Lung/Thoracic Cancer Rotation</td>
<td>________________</td>
</tr>
<tr>
<td>_____ Lymphoma Rotation</td>
<td>________________</td>
</tr>
<tr>
<td>_____ Pediatrics Rotation</td>
<td>________________</td>
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<tr>
<td>_____ Sarcoma/Soft Tissues Rotation</td>
<td>________________</td>
</tr>
</tbody>
</table>

Resident Signature/Date ___________________________________________

Attending Signature/Date___________________________________________

Attending Signature/Date___________________________________________

Attending Signature/Date___________________________________________

Attending Signature/Date___________________________________________
Department of Radiation Oncology
CQI/M&M Report

Name of Patient: __________________________   MRN: __________________
Attending Physician ________________________   Resident: _______________
Institution:   Emory ___  Emory Midtown ___  Grady ____  VAMC _____
Diagnosis: ___________                         Definitive / Palliative (circle one)
Area Treated _________

Reason for this report:

1. Break > 5 days ______ Duration of break: ______ Reason: ____________
2. Did not finish ______  Reason: ____________
   Dose delivered ______ Dose planned _______
3. Grade 3 or 4 toxicity ______ (specify grade 3 or 4).  Describe ___________
4. Death ___________

__________________________________________  __________________________
Attending Signature                                                    Date

CQI / M&M Conference Review:

Event was:  Common / Uncommon (circle)

Was there a deviation from the standard of care?  Yes / No (circle).
   If Yes, was it minor?  Yes / No (circle)
      If minor, Avoidable / Unavoidable (circle)

If major, describe:
______________________________________________________________

Recommendations for QI:
______________________________________________________________

Reviewed by:
__________________________________________,  M D.           Date:  ____________
NOTE: BELOW FORM IS NO LONGER USED – TIMESHEETS ARE NOW LOGGED BY RESIDENTS IN NEW INNOVATIONS.

Department of Radiation Oncology
Monthly Resident Timesheet

Name: __________________________________

Rotation Date: __________________________

Name of Rotation & Site: ______________________

Attending Physician(s): ___________________________

What was the average number of hours each week you spent:

Providing patient care

In structured learning, i.e., conferences, lectures, journal club & discussion

In informal learning

What was the average number of hours you worked per week (excluding call from home)?

What was the maximum number of continuous hours worked (excluding call from home)?
# Faculty SIGN-IN SHEET

**Date:** _________________

<table>
<thead>
<tr>
<th>CONFERENCE (circle one):</th>
<th>Presenter(s) (as applicable):</th>
</tr>
</thead>
<tbody>
<tr>
<td>Attending Didactic</td>
<td></td>
</tr>
<tr>
<td>Chair Rounds</td>
<td></td>
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<tr>
<td>Chart Rounds</td>
<td></td>
</tr>
<tr>
<td>Guest Lecture</td>
<td></td>
</tr>
<tr>
<td>Journal Club</td>
<td></td>
</tr>
<tr>
<td>M&amp;M Conference</td>
<td></td>
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<tr>
<td>Physics Lecture</td>
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<tr>
<td>Radiobiology Lecture</td>
<td></td>
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<tr>
<td>Resident Clinical Didactic</td>
<td></td>
</tr>
<tr>
<td>Resident Seminar</td>
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<tr>
<td>Visiting Professorship</td>
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</tbody>
</table>

<table>
<thead>
<tr>
<th>Attending Physician</th>
<th>Signature</th>
<th>Biology/Physics Faculty - Name</th>
<th>Signature</th>
</tr>
</thead>
<tbody>
<tr>
<td>Dr. Arif Ali</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Dr. Jonathan Beitler</td>
<td></td>
<td></td>
<td></td>
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<tr>
<td>Dr. Ian Crocker</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Dr. Walter Curran</td>
<td></td>
<td></td>
<td></td>
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<tr>
<td>Dr. Scott Edelman</td>
<td></td>
<td></td>
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<tr>
<td>Dr. Natia Esiashvili</td>
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<tr>
<td>Dr. Karen Godette</td>
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<tr>
<td>Dr. Bruce Hershatter</td>
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<tr>
<td>Dr. Kristin Higgins</td>
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<tr>
<td>Dr. Ashesh Jani</td>
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<tr>
<td>Dr. Shannon Kahn</td>
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<tr>
<td>Dr. Mohammad Khan</td>
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<tr>
<td>Dr. Jerome Landry</td>
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<tr>
<td>Dr. Pretesh Patel</td>
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<tr>
<td>Dr. Peter Rossi</td>
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<tr>
<td>Dr. Joseph Shelton</td>
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<tr>
<td>Dr. Hui-Kuo Shu</td>
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<tr>
<td>Dr. Mylin Torres</td>
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<tr>
<td>Dr. Jeffrey Vahnstein</td>
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<tr>
<td>Dr. David Yu</td>
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Radiation Oncology
Oral I-131 & Parenteral Administration Log

<table>
<thead>
<tr>
<th>Date</th>
<th>Disorder</th>
<th>Radionuclide</th>
<th>Dose Administered</th>
<th>Preceptor Name/Signature</th>
</tr>
</thead>
<tbody>
<tr>
<td>Oral I-131 (≥33 mCi)</td>
<td></td>
<td></td>
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</tbody>
</table>
1. |          | I-131        |                   |                         |
2. |          | I-131        |                   |                         |
3. |          | I-131        |                   |                         |
| Parenteral |
1. |          |              |                   |                         |
2. |          |              |                   |                         |
3. |          |              |                   |                         |
RADIATION ONCOLOGY
RESIDENT VACATION/MEETING FORM

NAME: ________________________________________________________________

DATE: _________________________________________________________________
(Form must be submitted at least 1 month prior to start of intended time away).

DATES OF LEAVE: _____________________________________________________

PURPOSE OF LEAVE:___________________________________________________
_______________________________________________________________________

APPROVED BY:
(Must be signed by all service attendings and/or research mentors of the rotation in
which the intended leave occurs).

Attending Physician/Mentor #1:   _________________________________________
Attending Physician/Mentor #2:   _________________________________________
Attending Physician/Mentor #3:   _________________________________________
Attending Physician/Mentor #4:   _________________________________________

Please submit form to:   Patrice Moya
Dept. of Radiation Oncology
Room A1316 Building A
EMORY CAMPUS
FAX:  778-5152

_______________________________________________________________________

OFFICE USE ONLY

Date Received by Office: _____________________

Time Away Approved:
Program Director: ____________________________ Date _______

Remaining Vacation Days in Academic year:______________
DEPARTMENT OF RADIATION ONCOLOGY INTERVIEW FORM
PGY-II TRAINING POSITION

Name of Resident Applicant: ____________________________

1. CLINICAL BACKGROUND (experience in medical school and/or internship)
   Comment: ____________________________________________

2. RESEARCH INTERESTS
   Comment: ____________________________________________

3. ORAL EXPRESSION
   Poor (says little)   Fair (but tries)  Average  Good (to the point)  Excellent (fluent)
   Comment: ____________________________________________

4. MATURITY
   Immature (is trying)   Fair   Average  Good (shows potential)  Excellent (independent)
   Comment: ____________________________________________

5. POISE
   Ill at Ease   Somewhat Tense  Average  Confident  Aggressive  Evenly Composed
   Comment: ____________________________________________

6. ALERTNESS
   Slow to Catch On   Seems Sluggish  Average Ability  Quick; perceptive  Exceptionally keen; sharp
   Comment: ____________________________________________

Page 283 of 286
7. **GOALS**

<table>
<thead>
<tr>
<th>Poorly Defined</th>
<th>Little Clarity of purpose</th>
<th>Some Clarity of purpose</th>
<th>High Desire to achieve</th>
<th>Well Defined goals; clearly stated</th>
</tr>
</thead>
</table>

Comment: ____________________________________________________________

________________________

8. **KNOWLEDGE OF GENERAL FIELD OF STUDY**

<table>
<thead>
<tr>
<th>Poor</th>
<th>Fair</th>
<th>Average</th>
<th>Good</th>
<th>Excellent</th>
</tr>
</thead>
</table>

Comment: ____________________________________________________________

________________________

9. **OVERALL APPRAISAL**

<table>
<thead>
<tr>
<th>Definitely Unsatisfactory</th>
<th>Substandard</th>
<th>Average</th>
<th>Definitely above average</th>
<th>Outstanding</th>
</tr>
</thead>
</table>

10. On the basis of this interview, I would consider this applicant to be an

<table>
<thead>
<tr>
<th>Outstanding</th>
<th>Very Good</th>
<th>Good</th>
<th>Fair</th>
<th>Poor</th>
</tr>
</thead>
</table>

11. In addition to the above check list, we would like the interviewer's general comments regarding the applicant on such topics as his motivation for the study of radiation oncology, special interests or hobbies and the like. (Add a separate sheet of paper if additional space is needed.)

Interviewer (please sign): ____________________________________________
MILESTONE FEEDBACK SUMMARY

Resident: ________________________________

ENDPOINT:

<table>
<thead>
<tr>
<th></th>
<th>LEVEL ACHIEVED:</th>
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<tbody>
<tr>
<td></td>
<td>PGY2</td>
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<tr>
<td>Lymphoma-Patient Care</td>
<td></td>
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<tr>
<td>Head &amp; Neck-Patient Care</td>
<td></td>
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<tr>
<td>Genitourinary (GU)-Patient Care</td>
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<tr>
<td>Palliation-Patient Care</td>
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<tr>
<td>Breast-Patient Care</td>
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<tr>
<td>Gastrointestinal (GI)-Patient Care</td>
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<tr>
<td>Gynecologic (GYN)-Patient Care</td>
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<tr>
<td>Lung-Patient Care</td>
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<tr>
<td>Adult Brain Tumor-Patient Care</td>
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<td>Brachytherapy-Patient Care</td>
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<tr>
<td>SRS/SBRT-Patient Care</td>
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<tr>
<td>Medical Physics-Medical Knowledge</td>
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<tr>
<td>Radiation/Cancer Biology-Medical Knowledge</td>
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<tr>
<td>Work &amp; coordinate patient care effectively…</td>
<td></td>
</tr>
<tr>
<td>Systems-Based Practice</td>
<td></td>
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<tr>
<td>Incorporate considerations of cost awareness…</td>
<td></td>
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<tr>
<td>Systems-Based Practice</td>
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<tr>
<td>Work in interprofessional teams…</td>
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<tr>
<td>Systems-Based Practice</td>
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<tr>
<td>Identify strenghts, deficiencies, and limits…</td>
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<tr>
<td>Practice-Based Learning &amp; Improvement</td>
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<tr>
<td>Participate in the education of patients…</td>
<td></td>
</tr>
<tr>
<td>Practice-Based Learning &amp; Improvement</td>
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</tr>
<tr>
<td>Compassion, integrity, and respect for others…</td>
<td></td>
</tr>
<tr>
<td>Professionalism</td>
<td></td>
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<tr>
<td>Accountability to patients, society, and the profession…</td>
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<tr>
<td>Professionalism</td>
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<tr>
<td>Effective communication with patients, families…</td>
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<tr>
<td>Interpersonal &amp; Communication Skills</td>
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<tr>
<td>Effective member or leader of a healthcare team…</td>
<td></td>
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<tr>
<td>Interpersonal &amp; Communication Skills</td>
<td></td>
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</tbody>
</table>