UNIVERSITY OF MINNESOTA

Graduate Medical Education

2018-2019

Policy & Procedure Manual

Department of Radiation Oncology
Residency Program

The Institution Manual (http://z.umn.edu/gmeim) is designed to be an umbrella policy manual. Some programs may have policies that are more rigid than the Institution Manual in which case the program policy will be followed. Should a policy in a Program Manual conflict with the Institution Manual, the Institution Manual will take precedence.

Introduction/Explanation of Manual

Welcome to the Residency Program in the Department of Radiation Oncology at the University of Minnesota. The faculty and staff in this department hope that the time you spend with us will be both educational and enjoyable. This Program Manual is specific to the Department of Radiation Oncology.

All materials are intended to be written in accordance with the Accreditation Council for Graduate Medical Education and the Guidelines constituted by the American Board of Radiology.

Please note information in Institution Policy Manual will not be replicated in Program Policy Manual. Also, all information outlined in this manual is subject to periodic review and change. Revisions may occur at the program, medical school, or University of Minnesota level.

Residents are responsible for familiarizing themselves and adhering to the policies and guidelines contained in this manual.

The information contained in this Policy Manual pertains to all residents and fellows in the department's programs except as otherwise identified in the Program Policy Manual.

Department & Program Mission Statement

The Mission of the Department of Radiation Oncology is to conduct high quality education, cutting-edge basic and clinical research and provide excellent patient care. The department is committed to and serves the broader mission established by the University of Minnesota Academic Health Center to be a leader in the ethical, innovative and efficient discovery and dissemination of knowledge and to enhance the health and wellbeing of people in Minnesota, the nation and the world.

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SECTION 1 - STUDENT SERVICES

University Pagers

The Department provides residents with an individual digital pager that is to be utilized for both standard and on-call duties. The trainee will obtain the pager from the Residency Coordinator and will utilize the same pager over the course of their training. During duty hours, the resident must have their pager with them. If the resident forgets their pager, a loaner pager is available at the UMMC information desk at no charge, but you will be responsible for any charges if your pager is permanently lost and needs to be replaced.

E-Mail and Internet Access

As students at the University, Medical Residents are provided with an e-mail/internet access account. They should use this privilege responsibly. It is the residents' responsibility to stay current with the information sent via email. University email is HIPAA compliant and is encrypted. DO NOT transfer your U of M email to a public or personal email account because of the patient information.

Website Addresses

- Department of Radiation Oncology- http://www.radiationoncology.umn.edu/
- GME- http://z.umn.edu/gmeim
- Medical School- http://www.health.umn.edu/

Campus Mail

Residents are given a department mailbox and may utilize the campus mail system at no charge. The campus mail drop box and resident mailboxes are located in the department administrative office. Medical Residents may receive professionally related campus or U.S. Mail as well. Trainees should not receive or send personal mail through the campus mail system.

Departmental Mailing Address:	Radiation Oncology 516 Delaware St., SE First Floor, 1-200 Minneapolis, MN 55455
Shipping address:	Radiation Oncology 516 Delaware St., SE First Floor, 1-200 Minneapolis, MN 55455

Identification Cards

An official ID with the resident’s name and job title must be worn when in patient care areas, along with a job identified badge which will also be provided to you.

SECTION 2 - BENEFITS

Stipends

Please see http://z.umn.edu/gmeim for base stipend rates for Medical Residents.

Paychecks

Residents may view their pay stubs on line https://www.myu.umn.edu

Leave Policies

All leave requests must be submitted via the program coordinator and are subject to approval by the staff physician and the program director.

All leaves must be reported in the Residency Management Suite (RMS) according to instructions received by MMCGME Services. Programs must also forward documentation to MMCGME Services for leaves that extend the trainee's time in the program.

Vacation Leave

University runs on a fiscal year calendar of July 1 to June 30th. On an annual basis each resident receives 15 vacation days (15 working days). No vacation days can be carried over to the next year. The minimum length of a vacation is one day.

To request vacation time, a resident should check with staff doctor if those days are acceptable. If the staff doctor approves the request, the resident fills out a Leave Request Form. The Leave Request Form will then need to be approved by the Residency Program Director and the Head of the Department.

Except for emergencies, all vacation day requests must be approved a minimum of 2 months in advance. Vacation is approved on a "first come first served basis" when multiple requests for the same period is received.

The PGY2 resident may not take vacation during the first month of residency. During the first 5 weekdays of each July, a non-PGY2 senior resident must be available at the University Hospital to assist with orientation of the PGY2 resident(s). The PGY5 resident may take vacation time during the last week of the academic year since residents graduating June 30th and beginning a fellowship/new job July 1st may need to use vacation time to relocate across the country to start their fellowship/job on time.

Mock Orals are mandatory for PGY3, PGY4, and PGY5 residents. It is challenging to schedule these exams, so no vacation may be taken on the Saturday of the Mock Oral exams, which are usually given on a Saturday in April or May. We will announce the exact date as early in March as possible so that you can plan accordingly.

In-service exams are mandatory for all residents and are usually given on the first Thursday of March. Vacation on the day of In-service exam is not allowed.

Please also refer to Institutional Policy Manual: http://z.umn.edu/gmeimvacationsickleave

Sick Leave

Residents must call department administrative office (612-626-6146) as soon as they know they are unable to show up for work because of acute illness of him/herself or child/children. In addition, residents must contact clinic and advise of absence so that clinic duties may be redistributed. Upon return from illness, residents must complete the sick leave form to report the time away as soon as possible.

Days of absence due to illness are considered paid leave for up to 10 days per year. Absence due to illness exceeding 10 working days in an academic year will be charged as vacation. There is no carryover of sick days from preceding years. In the event that a resident has exhausted all of their vacation leave, this time will be charged as unpaid leave. While on unpaid leave, the resident is responsible for payment their health and dental insurance and will be billed through the OSHB. In addition, extended leaves will require completion of FMLA documents.

Please also refer to Institutional Policy Manual: http://z.umn.edu/gmeimvacationsickleave

Professional Leave

A total of 15 days are allowed for attendance at national meetings. Priority for going to ASTRO is given to residents with oral presentations/posters. Residents may attend one ASTRO meeting without presentation once during the PGY4 or PGY5 year of training at their own expense.

For presentation at a meeting, residents are allowed a travel day prior and post presentation day. Any additional weekdays must be considered vacation. Requests for meeting should be submitted in writing to the program coordinator.

Time away for job interviews will be charged as meeting days or vacation days as long as they do not exceed the limit. In the event that a resident has exhausted all of their professional and vacation leave, this time will be charged as unpaid. PGY5 residents should keep in mind the total number of clinic days required for gradation when scheduling meetings, vacations and job interviews. See below: Policy on Effect of Leave for Satisfying Completion of Program.

Please refer to Institutional Policy Manual: http://z.umn.edu/gmeimprofessionalleave

Bereavement Leave

Please refer to Institutional Policy Manual: http://z.umn.edu/gmeimbereavement

Parental Leave

Please refer to Institutional Policy Manual: http://z.umn.edu/gmeimparentalleave

Medical Leave
Please refer to Institutional Policy Manual: http://z.umn.edu/gmeimmedicalleave

Family Medical Leave Act (FMLA)
Please refer to Institutional Policy Manual: http://z.umn.edu/gmeimfmla

Holidays
Holiday schedules vary depending on the site of rotation. When rotating to a particular site (e.g., VAMC), the holiday schedule for that site must be followed. Please also refer to Institutional Policy Manual: http://z.umn.edu/gmeimholiday

Jury/Witness Duty
Please refer to Institutional Policy Manual: http://z.umn.edu/gmeimwitnessjuryduty

Military Leave
Please refer to Institutional Policy Manual: http://z.umn.edu/gmeimmilitaryleave

Personal Leave of Absence
Please refer to Institutional Policy Manual: http://z.umn.edu/gmeimpersonalleave

Policy on Effect of Leave for Satisfying Completion of Program

The American Board of Radiology stipulates that leaves of absence and vacation may be granted at the discretion of the program director and/or department chair. Within the required period of graduate medical education, the total such leave and vacation time may not exceed the following:

- 12 calendar weeks (60 working days) in any two years,
- 18 calendar weeks (90 working days) in any three years, or
- 24 calendar weeks (120 working days) in four years.

If a longer level of absence is granted for any cause, the required period of graduate medical education must be extended accordingly.

Professional Allowance

ABR Certification & Other Education Allowance
The department will reimburse the resident for education expenses incurred up to $3,000 during the course of their residency. Examples are:

- ABR certification: The department will reimburse the resident for the cost of ABR annual fees for initial certification as outlined at the www.abr.org**.** The allowance will NOT be used for late registration penalty, late payment fees, cancellation fees, exam no-show fees or re-exam fees.
- Books

- Journal subscriptions

National Meetings

Oral presentations at national meetings will be reimbursed for meeting registration fees, transportation and food/lodging for up to $1,500.00 per meeting. Poster presentations at national meetings will be reimbursed for meeting registration fees, transportation and food/lodging for up to $1,000 per meeting.

Residents must submit their travel request form and provide a written projected budget (registration, airfare and hotel costs) to the program coordinator. The same presentation topic can only be presented at ONE meeting throughout your residency. Once a paper is presented, a manuscript must be completed and submitted for publication before another presentation will be paid for by the department.

The department may supplement and support residents at any meeting from which they receive a Travel Award. Residents must submit award letter and the abstract and/or manuscript to the Program Director and Department Chairman for approval.

Insurance Information

For clarification and further information regarding

- *Health Insurance*
- *Dental Insurance*
- *Long/Short-term Disability Insurance*
- *Life Insurance,* and
- *Voluntary Life Insurance*

refer to the Office of Student Health Benefits website: https://shb.umn.edu/health-plans/shbp-home

For further information regarding insurance coverage, contact the program coordinator.

Professional Liability Insurance

Questions regarding liability insurance should be directed to:

Pamela A. Ubel
Office of Risk Management and Insurance
1300 South 2nd Street, Suite #208 WBOB
Minneapolis, MN 55454
Phone: 612-624-5884
Fax: 612-625-7384
Email: novic002@umn.edu
Policy number: **RUM-1005-14**

Meal Tickets/Food Services

The department does not provide meals for residents.

Laundry Services

The department provides Medical Residents with standard laboratory coats at the start of their residency. Soiled laboratory coats can be dropped off at the designated location by the Administrative Office. Ameripride delivery and pick up of lab coats are on Tuesdays of every week. If you drop off your lab coat on Monday, they will have it back the next Tuesday.

Worker's Compensation Program Specific Policies and Procedures

For clarification and/or further information, contact Program Coordinator or refer to the Institutional Policy Manual: http://z.umn.edu/gmeimworkerscomp

Parking

University of Minnesota Medical Center

The department has a limited number of contract parking cards. These cards are temporarily made available at no cost to the residents for their rotations at the University of Minnesota Medical Center Fairview (UMMC) during their 4 years. Residents not currently rotating at UMMC may be asked to return the parking card to the Program Coordinator, who will then temporarily reassign that card to a visiting resident currently rotating at UMMC. Permits for after-hours and weekend parking is available upon request.

Veterans Affairs Medical Center

Parking is free at the VA Medical Center and a permit can be obtained by the resident from the VAMC Radiation Oncology Clinic.

Fairview Lakes in Wyoming & Fairview Maple Grove Medical Center

Parking is free.

SECTION 3 – INSTITUTION RESPONSIBILITIES

Please refer to the Institution Policy Manual located on the GME website at http://z.umn.edu/gmeim for University of Minnesota Graduate Medical Education specific policies. Should policies in the Program Manual for Fellowship Addenda conflict with the Institution Manual, the Institution Manual takes precedence.

SECTION 4 - DISCIPLINARY AND GRIEVANCE PROCEDURES

Discipline, Dismissal, Non-Renewal Policy & Procedure

Residents can be disciplined for both academic and non-academic reasons. Forms of discipline include, but are not limited to: warning, required compliance, remedial work, probation, suspension, contract non-renewal and dismissal.

Refer to the Institutional Policy Manual: http://z.umn.edu/gmeimdiscipline

Grievance Procedures

The following describes the general process for resolving grievances within the residency program at the departmental level. It is understood that if the grievance cannot be resolved at the department level, the parties will pursue the Medical School process.

Possible areas of grievance to be resolved can include evaluation of resident performance, resident duties, resident assignments/schedules, resident conflicts with peers or administrative chief residents or faculty. It is understood that many potential areas of conflict can be avoided via discussions with resident mentors and/or faculty advisors. If these usual and customary means of resolving issues do not suffice, the head of the department may assemble a grievance committee from appropriate membership. Membership can include the parties to the complaint, representatives from the resident class, administrative chief residents, faculty from services or sites concerned, mentors, and the Residency Program Director. If an outcome acceptable to principals in the complaint is achieved, no further action is necessary. If parties fail to achieve an acceptable resolution, the matter is carried forward to the Medical School grievance procedure.

SECTION 5 - GENERAL POLICIES AND PROCEDURES

Program Curriculum

It is our objective to train well-rounded radiation oncologists who will know indications and contraindications for radiation therapy, be familiar with and able to utilize all modalities of radiation commonly used, and understand the possible adverse side effects and ways to minimize them. Additionally, the resident needs to be familiar with indications and contraindications for the use of chemotherapeutic agents, understand the principles of surgical treatments and be informed in basic radiation biology and tumor pathology. Through completion of the training program residents are enabled to qualify for and be certified as a Radiation Oncologist by the American Board of Radiology.

We also stress that in achieving these levels of competence that residents develop and show the skills necessary to communicate with referring doctors, associates, departments, hospital staff and most importantly the patients and their family. The concept of treating the patient and their needs as well as the disease is stressed.

To accomplish this, residents rotate on a *three-month basis* with different attending staff who specialize in and treat various different diseases. The residents work with staff in different settings ranging from a University based teaching hospital (University of Minnesota Medical Center), to a community setting (Fairview Wyoming Lakes and Fairview Maple Grove) and at the Minneapolis VA Medical Center. Rotating with the different faculty physicians allows for exposure to different treatments, interaction styles and environments as well as offering a wide variety of patients and disease types.

Clinical training is augmented by various multi-modality specialty conferences as well as morning conferences designed to discuss the patients as a group and optimize treatment strategies. There are also didactic lectures dealing with various topics in Oncology ranging from disease specific talks to those on pain management and end of life issues. There are also journal clubs that discuss recent literature and a mortality and morbidity conference that addresses radiation complications, how to avoid them, their cause and their treatment.

In addition, the residents are required to develop, work and present a research project, which must be prepared into a finished manuscript for submission for publication by December prior to completion of the residency.

All residents are required to take and pass three semesters of radiation physics and one semester of radiation biology. These courses are provided by the department faculty and time is allocated for the resident to attend the lectures. These courses provide the basic information to understand and prescribe treatments and meet the standards set by the American Board of Radiology. A course grade of B- or better is required or the course must be repeated. The course must also be repeated if your score on the in-service exam is equal or less than 25th

percentile for your level of training prior to taking the ABR board exam.

ACGME Competencies

Residents must demonstrate the following ACGME Competencies:

- ***Patient Care*** that is compassionate, appropriate, and effective for the treatment of health problems and the of health.
- ***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.
- ***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.
- ***Interpersonal and communication skills*** that result in effective information exchange and collaboration with patients, 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 of and responsiveness to the larger context and system for health care and the ability to effectively call on system resources to provide care that is of optimal value.

Program Goals and Objectives

Overall Education Goals for the Program

The educational goal for the program and its rotations are referenced to relevant ACGME Core competencies of:

- Patient care (PC)
- Medical knowledge (MK)
- Professionalism (Prof)
- Interpersonal and communication skills (CS)
- Practice based learning and improvement (PBLI)
- Systems-based practice (SBP).

Upon completion of the training program residents are expected to:

- Understand the epidemiology, etiology, and natural history of all major types of malignancies in children and adults (PC, MK, PBLI).
- Perform accurate staging of major malignancies in children and adults (PC, MK, PBLI).
- Develop a radiation treatment plan including creating a radiation prescription which includes the daily dose, treatment technique, energy, total dose and fractionation as well as type of daily or weekly imaging desired (PC, MK, PBLI).
- Perform simulations for both basic and complex treatment fields (PC, MK, PBLI).
- Evaluate and design simple and complex isodose plans for malignancies and select benign diseases (MK, PC).

- Perform brachytherapy applications and evaluate brachytherapy isodose plans (PC, MK).
- Effectively communicate with patients and families to explain diagnosis, plan treatment, and discuss risks and benefits of the radiotherapy and anticipate outcomes (CS, PC, Prof).
- Understand and perform the various radiation therapy techniques and dosages used to treat malignancies (PC, MK, SBP).
- Understand the expected outcomes when these radiation therapy techniques are used and the effects of radiation on the normal structure(s) (MK, PBLI).
- Possess a detailed knowledge of radiation physics and tumor biology (MK, PBLI, PC).
- Understand the acute and late effects that a patient may experience during and after radiation therapy (MK, PC, PBLI).
- Understand the major types of alternative therapies and the relative risk and benefits of those therapies (MK, PC, PBLI, SBP).
- Provide follow-up of patients previously treated with radiation therapy including the judicious use of diagnostic x-rays and lab tests (PC, MK, SBP).
- Work effectively with members of the treatment team including technicians, physicists and nursing staff to coordinate and deliver treatment (PC, SBP, Prof).
- Critically read, interpret and apply appropriate scientific evidence to patient care (PC, PBLI).
- Consider cost and benefit when discussing and planning treatment options with patients and families (PC, SBP, MK).
- Skillfully and honestly discuss end of life and palliative measures with patients and families (PC, CS, MK).
- Recognize areas for error and recommend changes to improve safety (PC, SBP).

Performance Expectations by Training Year

First Year Expectations (PGY2):

Being interested and enthusiastic are the best ways to excel in the first year. The expectations for first year residents are generally to learn the following:

- Learn vocabulary unique to radiation oncology (central axis, compensators, collimation, gantry angle, wedges, monitor unit, etc).
- Know the spread pattern of the common cancers.
- Understand the basics of the surgical and chemotherapeutic approaches to the common cancers (i.e. what is a radical hysterectomy? What is adjuvant chemotherapy versus neoadjuvant chemotherapy?)
- Take a thorough and appropriate history and physical.
- Know how to access pathology reports, review films with the diagnostic radiologist.
- Clearly tell the staff physician what the assessment (and AJCC stage) the patient has.
- Have a general idea of how to work up patients for their particular cancer (which tests are used to stage that particular cancer). If you know which treatments are used for which stage you are doing really well at this point.
- Prescribe doses, develop general ideas of what doses are given for the routine

situations encountered.

- Learn how to write prescriptions for external beam radiotherapy and written directives for brachytherapy.
- Understand what you are treating and why.
- Learn how to check port films and IGRTs.
- Follow your patients closely; being certain you understand how their treatments are being delivered.
- **Begin a patient case log**. Enter your cases into the ACGME web site (http://www.acgme.org) every month and keep them up to date.
- Be knowledgeable and competent at handling, transporting and recording the use of radioactive isotopes.
- Start on unsealed source procedures.

Additional responsibilities and expectations include the following:

- History Taking Ability - Demonstrates completeness/accuracy of dictated history from consult/follow-up
- Physical Examination Ability - Has examination thoroughness/accuracy from dictated consult/follow-up
- Simulation Set up – prepare simulation order and assists at simulation
- Simulation Contouring (basic) – be able to do simple organ contouring as well as GTV, CTV and PTV
- Simulation of Metastatic disease - knows appropriate field definition, fraction/dose information
- Documentation - completes notes in a timely manner on the day of patient encounter.
- Communication with Patients/Families - Open to discussions/requests of patient/family
- Treatment Management - Manages common problems of patients on treatment
- Timeliness - Completes interview/exam in timely manner; timely in patient response; answering pages/etc.
- Empathy - demonstrates compassion in patient interactions
- Attitude - creates a constructive environment for patient/family
- Investigatory thinking - Evidence of reading of texts/literature
- Respectful behavior - Demonstrates mutual respect in patient/family interactions
- Department Citizenship - Demonstrates an ability to work with others in cooperative/respectful manner
- Physics course – Takes Physics course and must pass all quizzes with a B- average

The Director meets with each trainee individually to review their annual progress in June and discuss eligibility for promotion to the next level of training.

Second Year Expectations (PGY3):

By the second year, the resident is expected to begin understanding the indications and contraindications for the use of radiation therapy. The tasks, which took great lengths of time as a first year resident, should be much easier and done faster now. The second year resident

needs to know the staging work-up for most of the cancers in detail and, after evaluating the patient, should be able to discuss the pros and cons of using radiation for that particular patient. Patient directed reading is probably the most important thing you can do in the second year.

Second year resident are expected to:

- Being able to discuss the appropriate staging work-up in detail.
- Understand the University of Minnesota technique for the various tumors in detail. If no technique exists, know the most common technique in the textbooks.
- Simulation Contouring (complex) - contours complex/multiple organs accurately without supervision
- Determine the target volume for different situations (i.e., what to include if the patient has a Stage I seminoma, or a T1 larynx cancer).
- Prescribe total dose and fraction size for the common tumors treated.
- Dosimetry knowledge - Has in-depth understanding of the abilities and limitations of dosimetry.
- Interpretation of information - Able to discern and optimize treatment plans
- Know the organ tolerances in detail.
- Discuss the acute and long-term side effects of using radiation.
- Start to know the important articles in the literature in detail. It's a good idea to keep a file of the "important" papers, which usually are the randomized trials, or key reports pertinent to our specialty. Your staff person will help you with this.
- Teach and to set a good example for first year residents.
- Multi-tasking -Managing multiple difficult patients without assistance
- Intellectual curiosity - Takes time to look up/ask probing questions to clinical dilemmas
- Uses scientific evidence - Appropriate application in patient cases
- Assessment of research - Able to evaluate and integrate current literature
- Interactions with Desk/Secretary/RTT – Responds appropriately to pages/requests
- Communication/presentation of data - Able to transmit information to therapists- written and verbal
- Ethics - Demonstrates ethical behavior in management of all clinical arenas
- Patient Centered Care - "Needs of the patient comes first"/advocate for patient
- Demonstrates ability to coordinate care for patient – social services/PMR/DDS, etc.
- Radiation Biology (if offered this year) - Takes Radiation Biology course and must pass all quizzes with a B- average
- Quality Improvement – Begin to identify a quality improvement project.
- Start working on a research project. Try to do this as early in the year as possible.
- Participate in Mock Orals
- Continue to keep patient case logs up to date on the ACGME website: http: www.acgme.org
- Continue to collect unsealed sources procedures. A total of 6 are required for graduation.

The Director meets with each trainee individually to review their annual progress in June and

discuss eligibility for promotion to the next level of training.

Third Year Expectations (PGY4):

By the third year, things are starting to "come together." By this time the resident should be able to work relatively independently, using the staff person as a resource. You learn the most by trying to make decisions on your own, and then telling your staff person what you think (since they have to check everything you do anyway). Committing yourself in this way will make it a lot easier when you are on your own. In particular, you are expected to:

- Know the staging systems for the usual (and unusual) cancers by heart.
- By now the resident should be familiar with the RT literature and be working at knowing it in great detail.
- After seeing a patient, not only give a good history and physical, but also an assessment and plan.
- Documentation – Able to document a complex patient care situation
- Be able to discuss whether RT is indicated and why, what other treatments might be available and why they are or are not indicated.
- Know the technique by which you plan to give the radiation, the dose you would give and the expected side effects.
- Be able to direct a simulation from start to finish.
- Be able to draw the target, give directions to the physicist, and evaluate the computer plans generated.
- Know when to use the different devices (IJ, wedge, compensators)
- Interaction with professionals - Coordinates local care of patient during RT.
- Be familiar with, and know the indications for techniques such as:
  - HDR Brachytherapy
  - Stereotactic Radiation
  - Prostate Brachytherapy
  - 3D Conformal Radiation
  - Intensity Modulated Radiation Therapy (IMRT)
- Brachytherapy technical skills – Competency in technical skills that allow independent use of brachytherapy
- Brachytherapy and brachytherapy dosimetry - Able to apply brachytherapy in an appropriate setting; understands and applies brachytherapy dosimetry
- Set good example for and demonstrate the ability to convey information to first and second year residents
- Continue to keep patient case logs up to date on the ACGME website
- Complete all 6 required unsealed source procedures by the end of this year
- Research – Research project should be well underway and in the data collection stage
- Quality Improvement – Continue to work on quality improvement project.
- Radiation Biology (if offered this year) - Takes Radiation Biology course and must pass all quizzes with a B- average
- Participate in annual Mock Oral
- Take and pass ABR Radiation Physics and Radiobiology Board Certification Exams.

The Director meets with each trainee individually to review their progress in June and discuss with eligibility for promotion to the next level of training.

Fourth Year Expectations (PGY5):

- Independent function - Begins to function with minimal correction on supervision
- Difficult scenario - Presents/manages a difficult patient care situation involving; able to integrate complex issues such as social and/or emotional challenges
- Cost conscious care - Considers cost in recommending treatment/technology
- Facilitates learning of others - Able to share knowledge with others
- Coordinates care - Advocate for patient care outside radiation oncology and treatment center
- Submit patient logs for final review.
- Complete your research project. A manuscript ready for submission to a peer-reviewed journal should be completed by December. Project will be presented at a Wednesday Research Conference in January of their senior year. Final draft of the manuscript must be submitted by March to the Program Director.
- Complete a QA project
- Participate in annual Mock Orals

The Director meets with each trainee individually to review their annual progress in June and discuss eligibility for completion of residency

Chief Resident Duties (PGY5):

During final year, PGY5 resident may be asked to serve as the chief resident. This will include the following duties:

- Help orient the new residents.
- Help create the schedule for Wednesday Night Didactic Lecture Series and oversee resident participation in conferences. Make sure evaluations get filled out at the end of each conference.
- Coordinate the monthly Journal Club meetings.
- Create the resident call schedule.
- Teach the first year residents how to do MEDLINE/PubMed searches.
- Explain the process of Complications Conference to first year residents and coordinate the conferences.
- Serve on the Education Committee as liaison for the other residents.
- Be in charge of holding regular meetings of the residents.
- Assist with arrangements and selection of visiting professors.

USMLE Step 3 Policy

All residents must provide their program with documentation of a passing score on the United States Medical Licensing Examination (USMLE) Step 3 or an equivalent examination that qualifies for medical licensure (i.e. Comprehensive Osteopathic Medical Licensing Examination -COMLEX) by January 1 of their PGY2 year. Residents who do not notify their program of a passing score by January 1 of their PGY-2 year forfeit their continuing position in the training

program and are subject to contract non-renewal. Upon application to the program, residents who transfer into a University program (PGY-3 and beyond) are required to provide documentation of a passing score on their examination.

Radiation Physics and Radiobiology Courses

All residents must take three semesters of Medical Physics and one semester of Radiation Biology. Medical Physics is taught by our physics staff and meets twice weekly. This course is taken during the first year from September through May and second year from September through December.

The Radiation Biology course is taught by our radiation biology faculty and covers the basic principles of radiobiology. This course meets twice weekly from September through December and is given every other year. Depending on the year it is offered, residents take this course during either PGY3 or PGY4. Attendance is mandatory and passing with a B- or better is required.

Attendance is mandatory for both courses. Vacation requests that conflicts with class schedules will be denied.

Both courses require the passing of written exams. Failure to achieve a grade B- or better results in mandatory retake of the course. This is a prerequisite for graduation.

Evaluation

RMS and Other Evaluation Methods

The residents must also complete confidential evaluations for the staff and the program after each rotation. Our department has integrated the RMS (Residency Management System) electronic evaluation system created by New Innovations, Inc. as the new web-based method of evaluation. This system is available to the residents 24 hours per day from any computer with Internet access. Residents are initially given their password, which can be changed frequently and obtained easily and confidentially through their e-mail if they forget it. This program has decreased the turnaround period for evaluations and provides complete assurance that the resident's evaluations are confidential. The web address for the RMS system is: http://www.new-innov.com

Formal Evaluation and Tests

At the end of every three-month rotation the staff fills out an electronic evaluation of a resident's performance in RMS. This evaluation is available to the resident immediately on-line and a copy is printed and placed in the resident's file. These evaluations are available to the resident to review at any time.

The Residency Program Director meets with each resident twice each year to review patients' logs and service evaluations. The Program Director also obtains feedback from the residents regarding their overall residency experience.

All residents take the annual In-Training Examination in Radiation Oncology, given by the American College of Radiology. The exam is on the first Thursday in March of each year. No vacations can be taken on during this time. The exam has separate sections on radiation biology, radiation physics, and clinical radiation oncology. The purpose is to provide insight into individual residents' strengths and areas for further development. It also aids the resident in taking the written board exam given by the American Board of Radiology. The Program Director will receive results of the In-Training Examination, as well as a ranking, which compares their result with residents nationwide at the same level of training. The Residency Program Director will review these results with the resident.

PGY-3, 4, 5 residents are required to take the Mock Oral Examination, exams are given every year by the Radiation Oncology staff at the University of Minnesota. Mock Oral Exams are given in April or May on a Saturday. No vacations can be taken on during this time. First year residents have an option to take the Mock Oral Examination if they so desire. Mock oral board results are not to be part of evaluation of clinical competency and if it is the determination of staff that the resident did not meet the expectations, the Residency Program Director will discuss the results with the resident, and develop a plan for improvement.

We have a small number of residents and staff. It is usually obvious if someone is having trouble. If an unsatisfactory rotation occurs, a meeting with the Program Director will occur and the resident will have a performance improvement plan developed. The resident is also encouraged to seek professional help via the Residency Residency Assistance Program (RAP). If the performance remains unsatisfactory, the resident may be put on probation and if there is not significant improvement, the resident may be dismissed.

Quality Improvement Requirements

Residents are required to complete a Quality Improvement Project under faculty supervision.

Research Requirements

Residents are required to complete a research project under faculty supervision. This may take the form of biological laboratory research, clinical research, medical physics research, or retrospective analysis of data from treated patients. The results of such projects shall be a quality that is suitable for publication in peer-reviewed scholarly journals or presentation at scientific meeting. Each Resident must produce a publication ready manuscript by December of their senior year. This is 6 months before completion of Residency Program.
This publication must to be formally presented during the month of January prior to graduation. Residents are responsible to schedule presentation at the Wednesday Night Conference.

During research rotations, residents must be physically present at the University of Minnesota Medical Center Radiation Oncology Clinic. Absence from the clinic must be reported to Program Director and may count towards total days of vacation/leave and potentially impact graduation (see below).

Graduation Requirements

Clinical Rotations

Successfully complete 36 months of rotations at the UMMC, VAMC or other affiliated hospitals with timely completion of RMS evaluations.

Elective Rotations

Successfully complete 6 months of research, 1 month of Medical Oncology and 2 months of Medical Dosimetry rotations with timely completion of RMS evaluations.

Course Work

Satisfactory performance in Radiation physics (3 terms) and Radiobiology (1 term) with grades of B- or better.

Research

By January of the resident's 4th year, the resident must present a research project to the department, as well as prepared it into manuscript form ready for submission to a peer-reviewed journal.

Case logs

Residents must have successfully performed and logged treatment procedures as required by the ACGME. Details can be found on the ACGME website (http://www.acgme.org/Specialties/Program-Requirements-and-FAQs-and-Applications/pfcatid/22/Radiation%20Oncology) and is further outlined below:

- A resident must treat at least 450 patients with external beam radiation therapy over 4 years.
- A resident should treat no more than 250 patients with external beam radiation therapy in any one year.
- Each resident must perform at least five interstitial and 15 intracavitary brachytherapy procedures.
- Each resident must treat at least 12 pediatric patients, including at least nine patients with solid tumors.
- 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.
- 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.
- Of the six procedures
    - Oral 1-131 ≥ 33 mCi: A minimum of three procedures must include the oral administration of I-131with administered activity equal to or in excess of 1.22 Gigabecquerels (33 mCi). Conditions may be either benign or malignant but the counted administration must be for therapeutic intent.
    - Parenteral unsealed source: A minimum of three procedures must include a parenteral

administration with therapeutic intent for a diagnosis of malignancy.

American Board of Radiology Certification Exams

Residents are required to take ABR Physics and Radiobiology Certification Exams at the end of PGY4. If they fail in one or both subjects, the corresponding course(s) will need to be repeated during PGY5 and the ABR Certification Exam will need to be retaken at the end of PGY5.

Duty Hours

Residents duty hours are from 7:30 AM to 5:00 PM or until work is done (whichever is later) Monday-Friday. Duty hours are defined as all clinical and academic activities related to the training program, i.e., patient care (both inpatient and outpatient), administrative duties related to patient care, the provision for transfer of patient care, time spent in-house during call activities, and scheduled academic activities such as conferences. Duty hours **DO NOT** include reading and preparation time spent away from the duty site.

Duty Hours are limited to 80 hours per week, averaged over a four-week period, inclusive of all in-house call activities. Residents are provided with 1 day in 7 free from all educational and clinical responsibilities, averaged over a 4-week period, inclusive of call.

Duty hours are to be entered and submitted and approved **the first day of the next month**. All fixes identified by Program Administrator will result in a notification to the resident. Resident failure to enter duty hours on time will result in the freezing of your parking pass. If you are on vacation during this time, your hours need to be entered and approved before leaving on vacation.

Duty hours are monitored according to the institutional polices, with frequency sufficient to ensure ACGME compliance. If needed, resident schedules will be adjusted to mitigate excessive service demands and/or fatigue. If an ACGME duty hour violation occurs, the RMS (Residency Management Suite) sends a report to Program Director, cc's the Program coordinator who then reviews with the resident the violation for accuracy to ensure it does not occur on a regular basis.

For additional requirements, please refer to Institution Policy Manual at:
http://z.umn.edu/gmeimdutyhours

On Call Schedules and Call Duties

Call is taken for 1-week blocks usually every 6 weeks, starting 1-month after beginning of the program. Call starts on Monday at 7:30 AM and continues through 7:30 AM the following Monday.

Call is taken from home. The on-call resident must be available by pager and able to get to the hospital in a timely manner when on-call. On average, residents are called in to the hospital only once or twice per week of call. Over the course of a typical month residents are usually off

at least 6 days. Therefore, residents will be allowed to spend, on average, at least one full day out of seven away from the hospital.

The resident on call schedule is prepared by the chief resident(s) subject to review and approval by the Program Director. All residents are included in the call schedule and calls are shared in an equitable manner. Changes in the on call schedule should be given to the Program Coordinator as soon as possible and be relayed directly to the hospital page operator, departmental receptionist and on call attending.

Senior residents will back up the new resident. A staff person is always on-call and available for any questions or problems. All patient encounters occurring during the calls must be documented in the EMR. In addition, the residents must inform the attending physicians if their patients were sent to the Emergency Department or admitted for further evaluation.

Emergency consults, such as spinal cord compression, superior vena cava (SVC) syndrome, vaginal bleeding, or brain metastases, must be evaluated by the on call resident immediately following the request for consultation. The on call attending staff will also evaluate the patient. A consult note must be completed on all emergency in-patient consults and placed on the patient hospital chart as soon as the patient is staffed with the attending physician and a management plan has been put in place. The information of inpatient consult should be given to the appropriate attending physician who will ultimately manage the patient on the first day following weekend or holiday.

The on call resident is also responsible for helping with the TBI set-ups, treating emergency patients as well as others who have already been started on treatment and require continuing treatment through the weekends or holidays.

If call falls on a University Holiday, resident can take an exchange day, subject to approval by the Program Director. Only one exchange day is allowed per resident per academic year.

On Call Rooms

Residents do not have in house call.

Teaching Responsibilities

The residents are required to participate in the teaching program for medical students during the third- and fourth- year medical student electives at UMMC or VAMC. The teaching experience includes case presentations and discussions in the clinic.

The residents may also be asked to give lectures to the Radiation Therapy School trainees.

Support Services

Patient support services available in a manner appropriate to and consistent with education objectives and patient care. Support Services must be provided at all sites.

Laboratory/Pathology/Radiology Services

Laboratory, Pathology and Radiology services are available in an appropriate timely, quality manner for patient care.

Medical Records

Electronic Medical Records (Epic and Mosaiq) are available at all times to support quality patient care, the education of residents, quality assurance activities, and provide a resource for scholarly activity.

Security/Safety

Security and personal safety measures are provided to residents at all locations including but not limited to parking facilities, on-call quarters, hospital and institutional grounds, and related clinical facilities (e.g., medical office buildings).

	UMMC-University Campus	UMMC-Riverside Campus	VAMC	University of Minnesota
Escort Services/ Security	612-672-4544	612-672-4544	612-467-2007	612-624-WALK

Moonlighting

Moonlighting is time spent away by residents in extra clinical hours working at an internal or external site. Moonlighting is NOT allowed in our department.

For additional requirements, please refer to Institution Policy Manual:
http://z.umn.edu/gmeimmoonlighting

Supervision

All patient care is supervised by qualified faculty. The Program Director will ensure, direct, and document adequate supervision of residents at all times. Residents will be provided with rapid, reliable systems for communication with supervising faculty. Residents are supervised by teaching staff in such a way that the residents assume progressively increasing responsibility according to their level of education, ability, and experience.

On-call schedules for teaching staff are structured to ensure that supervision is readily available to residents on duty.

Faculty and residents are educated to recognize the signs of fatigue and will adopt and apply policies to prevent and counteract the potential negative effects.

For additional requirements, please refer to Institution Policy Manual:
http://z.umn.edu/gmeimsupervision

Fatigue

Faculty and Residents/Fellows are educated to recognize the signs of fatigue and will adopt and apply policies to prevent and counteract the potential negative effects. Additional information may be found at https://sites.duke.edu/thelifecurriculum/2014/05/08/the-life-curriculum/

Monitoring of Resident Well-Being

The Program Director and faculty work closely with residents to monitor the resident stress level, including mental or emotional conditions inhibiting performance or learning, and drug-related dysfunction. All faculty are sensitive to timely provision of confidential counseling and support services.

Residents may also contact **(RAP) Residency Assistance Program** at **651-430-3383** at no cost, confidential counseling.

Path of Resolution/Conflict

If a resident has a conflict or have concerns regarding confidentially they are to report it to the Chief Resident or Program Director for resolution. If the problem has not been resolved, then the resident will go to the Department Head. If no resolution after the Department Head, the resident will go to the GME office, Dr. John Andrews. Additionally, the University of Minnesota has an excellent Resident Assistance Program (RAP) for these and other problems residents may experience during their training. To contact (RAP) Residency Assistance Program call 651-430-3383 at no cost, confidential counseling.

ACLS/BLS/PALS Certification Requirements

Residents must be certified in BLS. For additional information, see institutional policy:
http://z.umn.edu/gmeimlifesupport

Program-Specific Visa Policies

The J-1 visa is the preferred visa status for foreign national trainees in all UMN graduate medical education programs; therefore, the Department of Radiation Oncology sponsors on J-1 alien physician visas through ECFMG. We do not sponsor H-1B visas. More information on the J-1 Visa can be found on the UMN-GME webpage.

SECTION 6 - ADMINISTRATION

Department and Program Administrative Contact List

Department Mailing Address

Radiation Oncology
516 Delaware St., SE
First Floor, 1-200
Minneapolis, MN 55455
Phone: 612-626-6146
Fax: 612-624-5445

Department Personnel

Department Head: Kathryn Dusenbery, M.D.
Program Director: Jianling Yuan, M.D./Ph.D.
Program Coordinator: Theresa Nace

Faculty List

University of Minnesota Medical Center Fairview

- **Phone number**: 612-273-6700
- **Clinicians**
  - Kathryn E. Dusenbery, M.D., Professor, Department Head
  - Margaret Reynolds, M.D., Assistant Professor, Residency Program Director
  - Lawrence Cho, M.D., Professor
  - Jianling Yuan, M.D., PHD, Assistant Professor, Residency Program Director
  - Christopher Wilke, M.D., Assistant Professor
- **Physicists**
  - Parham Alaei, Ph.D., Professor
  - Yoichi Watanabe, Ph.D., Professor
  - Eric Ehler, Ph.D., Assistant Professor
  - Clara Ferreira, Ph.D., Assistant Professor
  - Damien Mathew, Ph.D. Assistant Professor
  - David Sterling, Instructor, Physicist
  - Jane Johnson, M.S., Instructor, Physicist

Veterans Affairs Medical Center

- **Phone number**: 612-725-2133
- **Clinicians**
  - Joaquin Silva, M.D., Assistant Professor
  - Elizabeth Ester, M.D. Assistant Professor
- **Physicists**
  - Lihong Qin, Ph.D., Physicist

University of Minnesota Physicians Radiation Therapy Center (Lakes Wyoming)

- **Phone Number:** 651-982-3520
- **Clinicians**
  - TBD
- **Physicists**
  - Charles Conduah, M.S., Instructor

Fairview Maple Grove Medical Center

- **Phone Number:** 763-898-1600
- **Clinicians**
  - B. Aika Shoo, M.D., Adjunct Assistant Professor, Clinical Director
  - Andrew Lee, M.D., Adjunct Assistant Professor
- **Physicists**
  - Jane Johnson, M.S., Instructor

Department Event and Calendar

Department call schedules are posted on https://ummcradiation.wordpress.com/

APPENDIX I: SPECIFIC ROTATION LEARNING OBJECTIVES

General Description of Rotations and Learning Objectives

Rotations are generally one to three months in duration and include the following sites/areas:

- ***University of Minnesota Medical Center:*** This is the main teaching site and center of the residency. It is a University based tertiary care hospital. At this hospital, residents rotate with individual attending physicians taking part and following patient care for 3 months at a time. Residents rotate with Drs. Cho, Dusenbery, Reynolds, Wilke and Yuan.
- ***University of Minnesota Physicians Radiation Therapy Center (Lakes-Wyoming) and Maple Grove Cancer Center:*** Both Lakes and Maple Grove clinics are comprehensive cancer centers staffed by University of Minnesota Physicians. This experience allows residents to have exposure a variety of cancer patients in an outpatient setting with an emphasis on prostate and breast cancer treatments. Residents rotate with Dr. Wang, Dr. Lee and Dr. Shoo. Rotations are 3 months at a time.
- ***Veteran Affairs Medical Center:*** The Veterans Affairs Medical Center is staffed by University adjunct professors. Rotations at VAMC expose the residents to a variety of cancer diagnoses, especially prostate, lung, and head & neck cancers. Residents work with Drs. Siva and Ester. Rotations at VAMC are 3 months at a time.
- ***Medical Oncology:*** All residents will rotate for 1 month in Medical Oncology Division of Internal Medicine and Pediatrics at Clinical and Surgical Center (CSC). This rotation is geared to teach residents a better understanding of the perspective of medical oncology in patient care.
- ***Physics/Dosimetry:*** Residents are required to rotate 2 months on the physics and dosimetry service. This is to promote a better understanding of the role of physics in treatment planning and the applied use of physics in patient care.
- ***Research:*** Residents are expected to work on and complete at least one research project in their 4 years of training. Up to 6 months of time divided into 2 blocks will be allotted to work on this project. During the research rotations, residents must be physically present at the University of Minnesota Medical Center (UMMC) Radiation Oncology Clinic. Should the presence be required away from the clinic during research elective, residents are required to acquire approval from the Program Director and report time away to the Program Coordinator.

Rotations at University of Minnesota Medical Center (UMMC)

Residents spend a majority of their time during their residency working with faculty at UMMC. The rotations are structured so that each 3-month block at UMMC is spent working directly with a faculty member. This apprenticeship-like structure allows for continuity of experience with the faculty member and their patients and opportunities to focus on different clinical aspects of radiation oncology in which each faculty member specializes.

Each faculty member has developed their own learning objectives and expectations for their rotation blocks. While there is overlap among the attending physicians, each has defined additional areas of learning and performance expected of residents rotating on their service.

The learning objectives are referenced to the appropriate ACGME core competencies, i.e., Patient Care=PC, Medical Knowledge=MK, Professionalism=Prof, Communication Skills=CS, Practice Based learning and Improvement=PBLI, and Systems-based practice=SBP.

On each of these services the resident performs the initial history and physical examination. The pertinent diagnostic x-rays and laboratory evaluations will then be reviewed. The patient is then presented to the staff physician who also examines the patient and formulates, with the resident, a treatment plan. If the patient is to be treated, the resident performs the simulation, treatment planning, dose calculations and programming with appropriate staff supervision. The resident cares for the patient throughout treatment, and may see the patient in long-term follow-up. The resident's responsibilities are gradually increased during the period of training according to the judgment of the staff physician.

Dr. Cho Rotations

The special areas of emphasis when working with Dr. Cho include treatment of thoracic malignancies, urologic malignancies and sarcomas. Dr. Cho places a strong emphasis on the mastery of the principles of evidence-based medicine.

Most Important Goal when working with Dr. Cho is ***learn to practice evidence-based medicine.*** What is recommended in consultation and planning must be based on scientific evidence. Therefore, constant critical reading of the literature and referencing the literature is a must. Quotations of pertinent references in the consult notes are encouraged.

Other areas of focus include

- Development of good bedside manners.
- Be prompt and reliable.
- Develop inquisitive mind.

The learning objectives are referenced to the appropriate ACGME core competencies, i.e., Patient Care=PC, Medical Knowledge=MK, Professionalism=Prof, Communication Skills=CS, Practice Based learning and Improvement=PBLI, and Systems-based practice=SBP.

First Rotation (PGY2-PGY3) Objectives:
Upon completion of this rotation residents are expected to:

- Learn the natural history, workup, and evaluation of lesions arising from connective tissue, including bone, cartilage, muscle, fat, and blood vessels (MK, PC, PBLI).
- Become proficient in history taking and physical examination techniques that apply to tumors arising from connective tissue, including bone, cartilage, muscle, fat, and blood vessels (PC, MK, CS).
- Understand the anatomy involved in treating these tumors of connective tissue, including bone, cartilage, muscle, fat, and blood vessels (MK, PC).
- Understand the surgical and chemotherapeutic options involved in treating tumors of connective tissue, including bone, cartilage, muscle, fat, and blood vessels (PC, MK).
- Understand the epidemiology and etiology of lung cancer (PC, MK, PBLI).
- Recognize the clinical manifestations of lung cancer (PC, MK).
- Stage lung cancers using the International Staging System TNM categories for non-

small-cell lung cancer (PC, MK, PBLI).

- Develop treatment recommendations for non-small-cell lung cancers and small cell lung cancers (PC, MK).
- Understand the indications for the various treatment modalities for lung cancer including: Surgery, Chemotherapy, Radiotherapy and Sequential vs. Concurrent modalities (PC, MK, PBLI).
- Assess the results of treatments including: Local control, Absolute survival, Cause-specific survival and acute and long-term morbidity of treatments (PC, MK, PBLI).
- Simulate malignancies of all histological types and selected benign diseases including the design of both basic and complex treatment fields (PC, MK, PBLI).
- Evaluate and design isodoses for malignancies and select benign diseases (PC, MK, PBLI).

Second Rotation (PGY3-PGY4) Objectives:
Upon completion of this rotation residents are expected to:

- Become proficient in the radiotherapeutic techniques necessary to treat connective tumors, particularly for soft tissue sarcomas where complicated, extended SSD techniques are required (PC, MK, PBLI).
- Understand the late consequences of surgical and radiotherapeutic treatment to connective tissues (MK, PC).
- Understand the specifics of radiation treatment for lung cancers (MK, PC, PBLI)
- Under staff supervision, perform evaluation and treatment planning for lung cancers
- Understand the dosimetry issues in treatment of lung cancer (PC, MK, PBLI)
- Thoroughly target volumes, margins, and limits (tumor and normal tissues) including: (PC, MK, PBLI) 1) Beam arrangements, energies, weighting, compensators, and shielding; 2) Irradiation dose to tumor and regional lymphatics and 3) Tolerance limits of critical normal tissues (spinal cord, lung, heart)

Learner Performance Assessment: Resident performance on this rotation is assessed through

- Attending evaluation of resident performance using global form.
- Direct observation of procedures
- Regular feedback from attending.
- Performance on mock oral exams

Dr. Dusenbery Rotations

The special areas of emphasis when working with Dr. Dusenbery include gynecologic and pediatric malignancies, sarcomas, CNS tumors and stereotactic Gamma Knife radiosurgery.

Dr. Dusenbery expects residents to:

- Follow your patients closely.
- Read about each of their diseases (a minimum of a book chapter and possibly 1 article that pertains to them).

If something doesn't make sense or you disagree, ask or challenge me. Take initiative and search for data that agrees with or challenges what you are being taught, and, feel free to share it with me. Residents are expected to actively participate in all aspects of patient evaluation, treatment and care.

Remember although one of my primary reasons for being here is to support, teach and guide your education, it is ultimately up to you to assure that you are learning and processing the information you require to go on to your next step of education and practice. You must have a responsibility to yourself and this will require self-motivation and work. If at any time you do not feel I am keeping up my end of the bargain or you are having trouble with anything, please call it to my attention.

The learning objectives are referenced to the appropriate ACGME core competencies, i.e., Patient Care=PC, Medical Knowledge=MK, Professionalism=Prof, Communication Skills=CS, Practice Based learning and Improvement=PBLI, and Systems-based practice=SBP.

<u>First Block (Year 1 or 2)</u>:
Upon completion of this rotation residents are expected to:

- Understand the natural history and anatomy of gynecologic tumors, brain tumors, sarcoma and common pediatric cancers cancers (PC, MK, PBLI).
- Perform staging of gynecologic tumors, sarcoma and common pediatric cancers (PC, MK, PBLI).
- Know the details of your patient's history and staging (PC, MK).
- Follow up on all ordered lab and imaging tests (PC, MK, SBP).
- Develop an initial treatment recommendation and plan (PC, MK, PBLI)
- Ask for and seek recommended reading and literature (MK, PBLI).
- Present a cogent history and brief pertinent physical plus assessment at treatment planning conferences (PC, MK, CS).
- Communication with Patients/Families - Open to discussions/requests of patient/family (PC, CS)
- Respectful behavior - Demonstrates mutual respect in patient/family interactions (PC, Prof, CS).
- Learn how to contour the target and OAR volumes for common gynecologic tumors and pediatric tumors.
- Learn the fundamentals of gynecologic brachytherapy (high dose rate).

- Be able to evaluate a patient for GK radiosurgery (PC, MK, PBLI)

Second Block (Year 2 or 3):
Upon completion of this rotation residents are expected to:

- Understand the major methods of treatment of gynecologic tumors, sarcoma and common pediatric cancers (PC, MK, PBLI).
- Perform accurate implant contours and understand brachytherapy dosimetry (PC, MK, SBP, PBLI).
- Actively pre-plan and participate in all simulations and brachytherapy procedures (PC, MK, SBP).
- Follow up on all ordered lab and imaging tests (PC, MK).
- Present a cogent history and brief pertinent physical plus assessment at treatment planning conferences (PC, CS, MK).
- Discuss treatment recommendation and plan (PC, MK).
- Evaluate isodose plans, dose volume histograms (DVH) for complex treatments (PC, MK, PBLI)

Learner Performance Assessment: Resident performance on this rotation is assessed through

- Attending evaluation of resident performance using global form
- Direct observation of procedures
- Regular feedback from attending
- Performance on mock oral exams
- Presentations at treatment planning

Dr. Reynolds Rotations

The special areas of emphasis when working with Dr. Reynolds include malignancies of the head and neck, gastrointestinal system, skin, and gynecologic cancers.
For each rotation,

- Residents are expected to follow their patients closely and actively participate in all aspects of patient evaluation, treatment and care.
- Residents are expected to be present in the department from 7:30 am until the last patient has completed their treatment and all work is done.
- Residents are expected to attend all rotation specific Tumor Board conferences.

- Residents are expected to follow their patients through the entire process of consultation, simulation, planning, treatment, image verification, weekly on treatment visits and follow up visits of the patient.
- Residents are expected to read about their patient's diagnosis and treatment and formulate treatment plans with evidence based medicine.
- Resident's responsibilities are gradually increased during the period of training according to the judgment of the staff physician.

The learning objectives are referenced to the appropriate ACGME core competencies, i.e., Patient Care=PC, Medical Knowledge=MK, Professionalism=Prof, Communication Skills=CS, Practice Based learning and Improvement=PBLI, and Systems-based practice=SBP.

<u>First Block (Year 1 or 2):</u>
Upon completion of this rotation residents are expected to:

- Perform an accurate history and physical exam of a patient.
- Understand the natural history and anatomy of gynecologic tumors, head and neck tumors, skin, and gastrointestinal cancers (PC, MK, PBLI).
- Perform staging of gynecologic tumors, head and neck tumors, skin and gastrointestinal cancers (PC, MK, PBLI).
- Know the details of your patient's history and staging (PC, MK).
- Follow up on all ordered lab and imaging tests (PC, MK, SBP)
- Develop an initial treatment recommendation and plan (PC, MK, PBLI)
- Critically evaluate potential treatment plans for head and neck, gynecologic, gastrointestinal, and skin cancers.
- Ask for and seek recommended reading and literature (MK, PBLI).
- Develop communication with patients and their families and be open to discussions and requests of the patient and their family. (PC, CS)
- Demonstrate mutual respect in patient and family interactions (PC, Prof, CS)
- Learn how to contour planning volumes and organs at risk for gynecologic tumors, head and neck tumors, skin, and gastrointestinal cancers.
- Documentation - accurate and timely documentation of all patient encounters with a well thought out assessment and treatment plan.
- Demonstrate an ability to work with others in cooperative/respectful manner (PC, Prof)
- Monitor and manage side effects of patients undergoing external beam irradiation
- Evaluate patients in follow-up regarding side effects and disease recurrence
- Accurately (and in patient appropriate language) explain the treatment options to and obtain informed consent from patients undergoing brachytherapy
- Perform brachytherapy procedures under the supervision of the attending
- Be able to evaluate a patient for HDR brachytherapy (PC, MK, PBLI)
- Learn the fundamentals of gynecologic brachytherapy (HDR)
- Monitor and manage side effects of HDR brachytherapy
- Know fraction/dose information in the simulation of metastatic disease (MK, PC, PBLI)

Second Block (Year 3 or 4):

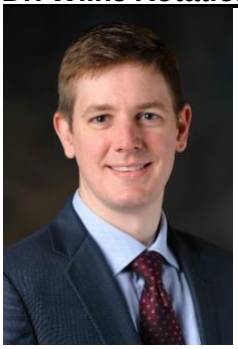
Upon completion of this rotation residents are expected to:

- Be able to easily perform all the expectations from the first rotation
- Understand the major methods of treatment of gynecologic tumors, head and neck tumors, skin and gastrointestinal cancers (PC, MK, PBLI)
- Present a cogent history, assessment and treatment recommendation at treatment planning conferences (PC, CS, and MK).
- Evaluate isodose plans, DVHs for complex treatments
- Accurately contour complex tumors/multiple organs without supervision (PC, MK)
- Multitasking -Manages multiple difficult patients without assistance (PC, MK, SBP)
- Select the appropriate type of brachytherapy approach and modality in a patient undergoing intracavitary brachytherapy
- Perform accurate HDR brachytherapy contours and understand the planning and treatment (PC, MK, SBP, PBLI)
- Actively pre-plan and participate in all simulations and implants (PC, MK, SBP)
- Critically evaluate potential treatment plans in HDR brachytherapy patients
- Demonstrates the ability to convey information effectively to the patient (MK, PBLI, CS)
- Integrates complex issues in diagnosis and treatment planning (PC, MK, PBLI)
- Facilitates learning of others – Effectively shares knowledge with others (MK, PBLI, CS)
- Become increasingly independent in the clinic.

Learner Performance Assessment: Resident performance on this rotation is assessed through

- Direct observation of procedures
- Attending evaluation of resident performance using global form.
- Regular feedback from attending
- Performance on mock oral exams
- Presentations at treatment planning

Dr. Wilke Rotations



The special areas of emphasis when working with Dr. Wilke include treatment of tumors of the head and neck and central nervous system.

Dr. Wilke expects residents to:

- Residents are expected to follow their patients through the entire process of consultation, simulation, planning, treatment, image verification, weekly on treatment visits and follow up visits of the patient.
- Residents are expected to be present in the department from 7:30 am until the last patient has completed their treatment and all work is done.
- Resident contours are expected to be completed by 7:30 am the the day following a simulation.
- Residents are expected to attend all rotation specific Tumor Board conferences.
- Residents are expected to read about their patient's diagnosis and treatment and formulate treatment plans with evidence based medicine.
- Resident's responsibilities are commensurate with the training level and advanced per the judgment of the staff physician.

The learning objectives are referenced to the appropriate ACGME core competencies: Patient Care=PC, Medical Knowledge=MK, Professionalism=Prof, Communication Skills=CS, Practice Based learning and Improvement=PBLI, and Systems-based practice=SBP.

<u>First Block (Year 1 or 2)</u>:
Upon completion of this rotation residents are expected to:

- Understand the natural history and anatomy of head and neck and CNS tumors (PC, MK, PBLI)
- Perform accurate staging of head and neck cancer (PC, MK, PBLI)
- Know the details of your patient's history and staging (PC, MK)
- Develop an initial treatment recommendation and plan (PC, MK, PBLI)
- Follow up on all ordered lab and imaging tests (PC, MK, SBP)
- Learn how to contour the target and OAR volumes for common head and neck and CNS tumors
- Be able to evaluate a patient for GK radiosurgery (PC, MK, PBLI)
- Ask for and seek recommended reading and literature (MK, PBLI)
- Communication with Patients/Families - Open to discussions/requests of patient/family (PC, CS)
- Respectful behavior - Demonstrates mutual respect in patient/family interactions (PC, Prof, CS)

<u>Second Block (Year 3 or 4)</u>:
Upon completion of this rotation residents are expected to:

- Be able to easily perform all the expectations from the first rotation
- Understand the major methods of treatment of head and neck and CNS tumors (PC, MK, PBLI)
- Present a cogent history, assessment and treatment recommendation at treatment planning conferences (PC, CS, and MK)
- Evaluate isodose plans, DVHs for complex treatments
- Accurately contour complex tumors/multiple organs without supervision (PC, MK)
- Multitasking - Manages multiple difficult patients without assistance (PC, MK, SBP)
- Able to formulate treatment recommendation and plan (PC, MK)
- Able to find the pertinent literature to support treatment recommendation (MK, PBLI).
- Perform accurate implant contours and understand brachytherapy dosimetry (PC, MK, SBP, PBLI)
- Follow up on all ordered lab and imaging tests (PC, MK)

- Present a cogent history and able to discuss indications of treatment as well as rationale for the chosen volume and dose at treatment planning conferences (PC, CS, MK)

Learner Performance Assessment: Resident performance on this rotation is assessed through

- Attending evaluation of resident performance using global form.
- Regular feedback from the attending
- Performance on mock oral exams
- Presentations at treatment planning conferences
- Evaluation of contouring/treatment planning

Dr. Yuan Rotations

The special areas of emphasis when working with Dr. Yuan include breast cancer, gynecologic malignancies, CNS tumors and GK radiosurgery.

Dr. Yuan expects residents to:

- Follow your patients closely.
- Read about each of their diseases and be ready to discuss supporting literature

If something doesn't make sense or you disagree, ask or challenge me. Take initiative and search for data that agrees with or challenges what you are being taught, and, feel free to share it with me. Residents are expected to actively participate in all aspects of patient evaluation, treatment and care.

Remember although one of my primary reasons for being here is to support, teach and guide your education, it is ultimately up to you to assure that you are learning and processing the information you require to go on to your next step of education and practice. You must have a responsibility to yourself and this will require self-motivation and work. If at any time you do not feel I am keeping up my end of the bargain or you are having trouble with anything, please call it to my attention.

The learning objectives are referenced to the appropriate ACGME core competencies: Patient Care=PC, Medical Knowledge=MK, Professionalism=Prof, Communication Skills=CS, Practice Based learning and Improvement=PBLI, and Systems-based practice=SBP.

First Block (Year 1 or 2):
Upon completion of this rotation residents are expected to:

- Understand the natural history and anatomy of breast cancer, gynecologic malignancies, and CNS tumors (PC, MK, PBLI).
- Perform accurate staging of gynecologic tumors and breast cancer (PC, MK, PBLI).
- Know the details of your patient's history and staging (PC, MK).
- Develop an initial treatment recommendation and plan (PC, MK, PBLI)
- Follow up on all ordered lab and imaging tests (PC, MK, SBP).
- Present a cogent history and brief pertinent physical and assessment at treatment planning conferences (PC, MK, CS).
- Learn how to contour the target and OAR volumes for common gynecologic tumors, breast cancer and CNS tumors.
- Learn the fundamentals of gynecologic brachytherapy (high dose rate).
- Be able to evaluate a patient for GK radiosurgery (PC, MK, PBLI)
- Ask for and seek recommended reading and literature (MK, PBLI).
- Communication with Patients/Families - Open to discussions/requests of patient/family (PC, CS).
- Respectful behavior - Demonstrates mutual respect in patient/family interactions (PC, Prof, CS).

Second Block (Year 2 or 3):
Upon completion of this rotation residents are expected to:

- Understand the major methods of treatment of gynecologic tumors, breast cancers and CNS tumors (PC, MK, PBLI).
- Able to formulate treatment recommendation and plan (PC, MK).
- Able to find the pertinent literature to support treatment recommendation
- Perform accurate implant contours and understand brachytherapy dosimetry (PC, MK, SBP, PBLI).
- Actively pre-plan and participate in all simulations and implants (PC, MK, SBP)
- Follow up on all ordered lab and imaging tests (PC, MK)
- Present a cogent history and able to discuss indications of treatment as well as rationale for the chosen volume and dose at treatment planning conferences (PC, CS, MK).
- Actively pre-plan and participate in all simulations and brachytherapy procedures with minimal supervision (PC, MK, SBP).
- Follow up on all ordered lab and imaging tests (PC, MK).
- Evaluate isodose plans, dose volume histograms (DVH) for complex treatments (PC, MK, PBLI)

Learner Performance Assessment: Resident performance on this rotation is assessed through

- Attending evaluation of resident performance using global form.
- Direct observation of procedures
- Regular feedback from attending.
- Performance on mock oral exams

Rotations at Fairview Lakes

The Radiation Therapy Center at Fairview Wyoming Lakes is a regional, ambulatory center attached to the Fairview Lakes Hospital with medical oncology and infusion chemotherapy bays nearby.

Residents typically spend up to 6 months in several blocks working at Lakes. This experience provides an excellent complement to the University site and the VAMC in that it is an ambulatory, community based treatment site with exposure to a wide range of disease entities and patient types. The major sites seen at the Lakes are prostate, breast, lung, GI, CNS, head and neck.

This is a very busy service and the resident is not expected to see and/or follow all patients. They are expected to see and follow a number of patients commensurate with their level of training. The resident is expected to be involved in all aspects of care for the patients they are actively following. The resident is also expected to see some of the patients returning for follow-up visits.

Responsibilities:

- Residents are expected to be present in the department from 8:00 am until the last patient has completed their treatment.
- Residents are expected to follow through entire process of consultation, simulation, planning, treatment, port films check, weekly visit and follow up of the patients.
- Medical Documentation- Residents are strongly encouraged to dictate all consultation notes and follow-up notes. Residents are expected to complete simulation notes, OTV notes and treatment summaries on time. The treatment summary note should be completed within 48 hours of the end of treatment.
- Residents should call in the Wednesday Treatment Planning Conference at UMMC using the ACANO meeting App: http://umn.webx.com/meet/rowebex
- Residents at Lakes are expected to attend the monthly tumor conference (3rd Thursday of the month, 12:00 to 1:00 pm).
- Evaluation- this will consist of observations of resident performance during the rotation and an end-of rotation oral exam based on specific learning objectives specified by the resident at the start of the rotation.

First Block Objectives (First or Second year):
Upon completion of this rotation the resident is expected to:

- Perform initial workup of patients referred for breast cancer treatment (PC, MK, PBLI).
- Perform initial workup of patient referred for prostate cancer treatment (PC, MK, PBLI)
- Understands the basic epidemiology and biology of breast cancer and prostate cancer.
- Know the spread pattern of common cancers (prostate, breast, GI, lung) (MK, PBLI, PC).
- Understand the basics of the surgical and chemotherapeutic approaches to breast cancer (PC, MK, PBLI).
- Understand the basics of the surgical and chemotherapeutic approaches to prostate cancer (PC, MK, PBLI).
- Understands the roles that are taken by surgeons, medical oncologists, diagnostic radiologist and radiation oncologists in the multimodality approach to breast cancer and prostate cancer (PC, MK, SBP).
- Determine the assessment (and AJCC stage) of the patient (PC, MK, PBLI).
- After evaluating the patient, discusses the pros and cons of using radiation for that particular patient (PC, MK, PBLI).
- Prescribe doses, develop general ideas of what doses are given for the routine situations encountered and how to do calculations (PC, MK, PBLI).
- Manages complex problems of patients on treatment (grade 3-4 complications) (PC, MK, PBLI).
- Understand the various roles of members of the treatment team (PC, Prof, SBP)
- Interacts appropriately and effectively with physicist, technician, and other team members (PC, Prof, SBP, CS)

Second and Third Block Objectives (third or fourth year):
At this stage of training, residents are expected to function independently under staff supervision. By the end of this rotation residents are expected to:

- Understands whether RT is indicated and why, what other treatments might be available and why they are or are not indicated (PC, MK, PBLI).
- Knows the techniques by which to give the radiation, the dose to give and the expected side effects (PC, MK, PBLI).
- Directs a simulation from start to finish (PC, MK, CS).
- Draws the target, give directions to the physicist, and evaluate the computer plans generated (MK, PC, CS, PBLI, SBP).
- Know when to use the different devices (IJ, wedge, compensators) (PC, MK, PBLI)
- Demonstrates competency in interstitial brachytherapy for prostate cancer without direction (PC, MK, SBP).
- Effectively works with team members and patients to coordinate care throughout treatment and between visits (initial and treatment, treatment and follow up) (PC, MK, SBP).
- Answer patient and family questions accurately and honestly (PC, CS, MK).
- Appropriately document treatments, visits and phone calls in a timely and accurate

manner (PC, CS).

- Accurately document services to ensure appropriate billing (PC, Prof, SBP).
- Understands the major differences between a private-practice type patient setting such as Lakes and Maple Grove and an academic practice such as UMMC (PC, SBP)

Rotations at Maple Grove Medical Center

Dr. Shoo & Dr. Lee


Maple Grove Radiation Oncology is part of an ambulatory cancer center. Residents rotating here can expect an experience more similar to a community-based radiation oncology practice. This experience provides an excellent complement to the University site that exposes them to a wide range of disease entities and referring services. The major sites seen at Maple Grove are Breast, Prostate, Lung, GI, Head and Neck, Lymphoma and Sarcoma.

There are two attending physicians at Maple Grove, Dr. Shoo and Dr. Lee. They both treat all sites, but Dr. Shoo has an interest in breast cancer and Dr. Lee has an interest in prostate/GI cancers. The resident may divide the rotation into 2 blocks to rotate with each attending, or see selected cases with both attendings at the same time. The resident is not expected to see and/or follow all patients, but they should try to be involved in all aspects of care for the patients they are actively following.

Responsibilities:

1. Residents are expected to follow through the entire process of consultation, simulation, contouring, planning, and treatment of patients.
2. Residents are expected to attend chart rounds and tumor board conferences with the attending physicians.

3. Medical Documentation- Residents are encouraged to write/dictate consult notes on new patients and formulate an assessment/plan, as well as assist in writing notes for follow-up visits, OTVs, and treatment summaries as needed.
4. Evaluation will consist of observations of resident performance during the rotation, improvements in their fund of knowledge, and may include an end-of-rotation oral quiz.

Block Objectives (third or fourth year): At this stage of training, residents are expected to function independently under staff supervision. By the end of this rotation residents are expected to:

- Understand whether RT is indicated and why, what other treatments might be available and why they are or are not indicated (PC, MK, PBLI).
- Know the techniques by which to deliver radiation and the expected side effects (PC, MK, PBLI).
- Direct a simulation from start to finish (PC, MK, CS).
- Enter target volumes, give directions to the physicist, and evaluate the computer plans generated (MK, PC, CS, PBLI, SBP).
- Know when to use different devices in radiation planning (bolus, wedge, compensators) (PC, MK, PBLI)
- Effectively work with team members and patients to coordinate care throughout treatment and between visits (initial and treatment, treatment and follow up) (PC, MK, SBP).
- Answer patient and family questions accurately and honestly (PC, CS, MK).
- Appropriately document treatments, visits and phone calls in a timely and accurate manner (PC, CS).
- Accurately document services to ensure appropriate billing (PC, Prof, SBP).
- Understands the major differences between a private-practice type patient setting such as Maple Grove and an academic practice such as UMMC (PC, SBP)

Rotations at VA Medical Center

Dr. Silva & Dr. Ester

Residents spend three, three-month blocks working with faculty at the Minneapolis VA Health Care System. The major sites seen at the VA are Prostate, Head and Neck and Lung. The resident will also encounter malignancies including GI, CNS, lymphoma, breast, and skin. To

get the most out of this rotation, it is encouraged that the residents focus their learning (and night-time reading!) on several of the major sites seen at the VA. Flexibility in focusing on other sites can be addressed on an individual basis. The resident's responsibilities are gradually increased during the period of training according to the judgment of the staff physician.

Responsibilities:

- Except for teaching sessions at the University, residents are expected to be present in the department from 8AM until the last patient has completed their treatment.
- Residents are expected to attend all tumor boards with their supervising physician.
- It will be expected that the resident be able to follow the planning of cases seen for consultation and simulation. However, there may be times when increased departmental workload or off site learning commitments at the University may adversely affect the ability to follow the development of a patient's treatment plan in real time. Residents are encouraged to review such cases with the supervising attending at the later date.
- Contouring – Residents will be requested to complete contouring of radiotherapy volumes and normal tissues by end of the next business day following CT simulation.
- Medical Documentation- Residents are strongly encouraged to dictate all consultation notes (i.e. H and P's.). Simulation notes, treatment summary notes, OTV notes, and follow-up notes may be entered manually into CPRS. It is expected that the treatment summary note be completed within 1 week of the end of treatment. Templates are available for simulation and treatment summary notes.
- Evaluation- this will consist of observations of resident performance during the rotation and an end-of rotation oral exam based on specific learning objectives specified by the resident at the start of the rotation.

First Block (Year 1 or 2):

Upon completion of this rotation residents are expected to:

- Understand head and neck anatomy (MK)
- Understand the natural history, prognostic factors, and staging of head and neck malignancies (PC, MK, PBLI).
- Perform the initial assessment of patients with head and neck malignancies (PC, MK, CS)
- Patient assessment- obtain H and P's tailored to the patient's diagnosis and stage.
- Appropriate utilization of imaging and laboratory investigations for the staging and workup of patients.
- Understand the general approach to assessment and management of head and neck cancer: Localized-disease, Locally-advanced disease and Metastatic disease (PC, MK, PBLI).
- Understand the effects of radiotherapy on normal tissues and organs of the head and neck (MK, PC)
- Understand the prognostic factors and staging of prostate cancer.
- Understand the general approach to assessment and management of the following types of prostate cancer: Localized-disease, Locally-advanced disease, Metastatic disease
- Understand and appreciate the role of other treatment modalities e.g. surgery, chemotherapy, hormonal therapy (PC, MK).
- Understanding and appreciation of the role for surgery, hormonal therapy and/or observation
- Effects of radiotherapy on normal tissues and organs of the pelvis
- Understand the pathologic classification of lung cancer
- Understand the Staging of lung cancer
- Understand the role of surgical management and chemotherapy in the treatment of lung cancer.
- Understand the prognostic factors in lung cancer
- Understand the effect of radiotherapy on normal tissues and organs of the mediastinum
- Understand the WHO classification of Hodgkin's lymphoma and non-Hodgkin's lymphoma (PC, MK, SBP)
- Pathologic assessment including role of immunohistochemistry (PC, MK, PBLI)
- Staging of Hodgkin's lymphoma and non-Hodgkin's lymphoma (PC, MK, PBLI)
- Understand the prognostic factors of Hodgkin's and non-Hodgkin's Lymphoma (PC, MK, PBLI)
- Understand the role of chemotherapy in management of Hodgkin's lymphoma
- Understand Role of R-CHOP chemotherapy in management of Diffuse large cell lymphoma
- Understand the assessment of response to treatment
- Understand the long-term effects of treatment in Hodgkin's lymphoma patients (PC, MK, PBLI)
- Understand the use of radiotherapy in palliative cases (bone metastases, brain

metastases, spinal cord compression, superior vena cava syndrome, mediastinal RT for lung cancer) (PC, MK, PBLI).

Second Block (Year 2 or 3):

- Develop an overall plan for management in collaboration with other members of the multidisciplinary team (i.e. surgical oncologists, medical oncologists) (PC, MK, SBP).
- Communicating with patients and their families – discussing diagnosis and prognosis, discussing results of tests, discussing results of tests, discussing management options and obtaining informed consent (PC, MK, CS).
- Understands the roles that are taken by surgeons, medical oncologists, diagnostic radiologist and radiation oncologists in the multimodality approach to prostate cancer (PC, MK, SBP)
- Perform Simulation and Treatment Planning
  - 4-Field Box
  - 3D conformal planning
  - IMRT
  - Locally-advanced disease
  - Post-op Prostate
- Perform indirect laryngoscopy and fiberoptic laryngoscopy (PC, MK)
- Understand Techniques:
  - POP larynx-T1/T2 vs. T3/T4 N0,
  - 3-Field Head and Neck
  - Off-cord techniques and matching electrons and photons
  - Ipsilateral-treatment techniques
  - Post-op head and neck fields

Third Block (Year 3 or 4):

Upon completion of this rotation the resident expected to:

- Understand more advanced techniques including (PC, MK, PBLI):
- Planning and Evaluation of IMRT treatment plans (PC, MK, PBLI)
- RT for paranasal sinuses
- RT for hypopharyngeal CA (Posterior pharyngeal wall lesions and Disease extending to the root of the neck)
- Perform the following Clinical and Technical Skills: 4D CT simulation, Treatment Planning including (PC, MK, PBLI): 1) AP-PA parallel pair, 2) Off-cord techniques; 3) 3D conformal planning for lung; 4) ITV-based treatment planning
- Perform Treatment Techniques including: Mantle field, STLI and matching fields, Inverted Y, Involved-field RT and RT for Waldeyer's ring (PC, MK, PBLI)

Physics/Dosimetry Rotation

Radiation Oncology residents are required to take a two-month physics/dosimetry rotation in which the resident works with the medical physicists and dosimetrists. The intent of this rotation will be for the resident to become intimately familiar with standard planning techniques. The

resident will be introduced to dosimetry and will be required to participate in the planning of a variety of “standard” cases. Additionally, the resident will also participate in the QA of radiation therapy equipment as it applies to clinical practice.

The learning objectives are referenced to the appropriate ACGME core competencies: Patient Care=PC, Medical Knowledge=MK, Professionalism=Prof, Communication Skills=CS, Practice Based learning and Improvement=PBLI, and Systems-based practice=SBP.

Upon completion of this rotation residents are expected to:

- Perform computer treatment planning including External beam radiation: photons and electrons (MK, PC, PBLI)
- Perform brachytherapy and the use of HDR for Eye Plaques (MK, PC, PBLI)
- Obtain/process patient data for computer input (contours, CT scans, MRI scans, simulator films, field outlines or targets, etc.)
- Operate computer program (MK, PC, PBLI)
- Generate treatment plans (MK, PC, PBLI)
- Understand the role of physicists and dosimetrists in treatment (PC, SBP, CS)
- Work effectively as a member of the treatment team (PC, Cs, SBP, Prof)
- Understand the necessary ongoing QA processes (PC, SBP)

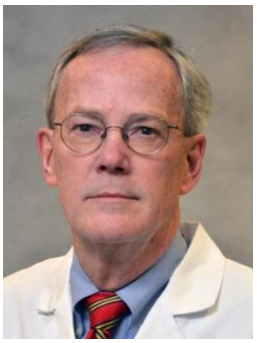
A variety of plans will be worked on as examples, e.g., multiple fields, wedges, irregular fields, rotation, etc. Important areas of focus on this rotation include:

- Plan Evaluation
- Plan parameters
- Dose specification
- Inhomogeneity corrections
- Plan normalization
- Dose-volume histograms (DVH)
- Using plan to calculate monitor units
- Stereotactic planning and set-up. (Gamma Knife)
- TBI: planning and calculations
- Compensator design
- IMRT planning and physics quality assurance
- HDR brachytherapy planning/checks
- Tomotherapy planning and DQA
- Quality Assurance, linac QA, Portal Imaging, kVCT
- Daily checks: accelerator and simulator
    - Monthly checks: accelerator and simulator
    - Quality Management Program (QMP) for brachytherapy
    - Physics chart checks

Review session: At the end of the Physics rotation, the resident will meet with physicist for about one hour to discuss the practicum done during the rotation. The residents’ comments about

improving the rotation and program are also noted. The physicist's evaluation of resident's work will also be discussed at this time.

Medical Oncology Rotation



Radiation Oncology residents are required to complete a one-month rotation in medical oncology with Dr. Bruce Peterson and his colleagues at the CSC on Fulton Street. Residents serve as members of the clinic team and conduct patient evaluations and follow-up in the Oncology Clinic and participate in oncology conferences. Emphasis is on the clinical evaluation and management of cancer patients and residents are expected to actively participate in all aspects of patient evaluation, treatment and care.

The learning objectives are referenced to the appropriate ACGME core competencies: Patient Care=PC, Medical Knowledge=MK, Professionalism=Prof, Communication Skills=CS, Practice Based learning and Improvement=PBLI, and Systems-based practice=SBP.

Upon completion of this rotation residents are expected to:

- Perform history and physical examinations appropriate to patients with various forms of cancer, with particular attention to examination of the primary site and common sites of spread of the particular type of malignancy (PC, MK, CS).
- Learn staging, treatment, natural history and anatomy of cancers (MK, PC, PBLI)
- Stage newly diagnosed cancer (MK, PC, PBLI)
- Interpret radiographic studies and recognize pertinent pathologic findings (MK, PC).

- Understand the various types of treatment for the specific age ranges and malignancies (MK, PC, PBLI).
- Manage medical problems of cancer patients (PC, MK, PBLI)
- Identify potential toxicities of and monitor response to chemotherapy programs for patients with malignancy (MC, PC, PBLI)
- Explore the psychosocial aspects of cancer (MK, PC, PBLI).
- Honestly and effectively communicate with patients and families regarding prognosis and treatment (PC, MK, CS).
- Expect and ask for recommended reading literature (PC, PBLI)

APPENDIX II: GUIDELINES FOR CLINCAL DUTIES

General Clinical and Attendance Expectations

Residents are expected to be in the department at 7:30 AM and stay until 5:00 PM or until all work is done. They should inform and get the consent of their attending for any scheduled or unscheduled leave time as well as going through the normal departmental mechanism for arranging this.

Residents are required to dress appropriately, maintain proper hygiene and behave professionally while in the department during clinic hours.

Residents are expected to attend all departmental and service related conferences even when they are rotating at Lakes, Maple Grove or VAMC. These include all treatment planning and Wednesday night didactic series. Other required conferences depend on the service you are rotating on. Check this with your attending each rotation. Some of the conferences can be called in via ACANO http://umn.wbex.com/meet/rowebex. For residents rotating at UMMC, they are expected to set up ACANO those off-site before conference starts. For treatment planning conference, be on time, participate and be ready to present your patients or other pertinent information. Residents should fill out attendance sheets and critiques of all lectures and conferences.

Residents are expected to be present at all patient consults, follow ups, simulations, and planning and to take an active role with their attending in evaluating, examining, and planning the patients care. This includes initial consults, simulation, treatment planning, treatment set up checks, weekly on treatment visits and follow-ups. Be able to give a concise brief history and physical (including their AJCC stage) rationale for treatment, and outline proposed treatment for all patients initiating radiotherapy.

Clinical Responsibilities and Expectations

Patients are to be seen and examined by both resident and supervising physician. Residents are expected to gather important patient information, including presenting symptoms, physical findings, important laboratory and radiographic study results and pathology reports. Request any needed records, films, etc. be obtained and uploaded into the electronic medical record. On all non-emergent consults, all records and films should be reviewed prior to the patient arriving to the clinic. Prior to seeing the patient, be prepared to summarize pertinent history and reason for consultation. Review literature and available protocols prior to seeing the patient. Integrate this information and be able to relate it in a cogent manner to the staff MD.

Be able to discuss the potential acute and late side effects of radiation with the patient.

Complete a clear and cogent consult note on the day of the patient encounter. Include all the pertinent information such as all the referring physicians, pathology numbers and reports if available, result of labs and diagnostic x-rays. The first sentence of the consult should be: Mr.

/Mrs. /Ms. (patient's name) was seen in Radiation Oncology consultation on (date) at the request of (referring physician) for an opinion regarding (chief complaint or diagnosis). Make sure to **cc** all referring M.D.'s copies of this note. Correct and forward transcribed dictations to the attending as soon as they become available. Each dictation completed by the resident must also be countersigned by the responsible staff physician.

Participate in simulations. Only patients simulated and planned by the resident can be entered into case log. Think about what area your will be treating and which technique(s) you will be using. Plan the field borders, immobilization devices, patient positioning before the actual simulation time. Place a simulation order into the chart PRIOR to the day of the simulation.

Together with staff write a full, clear treatment prescription which includes, total dose, dose fractionation, imaging and frequency during treatment (e.g., KV ports, cone beam, MVCT etc.) and additional special instructions such as bolus, compensator, IJ. Have the prescription checked by the supervising physician.

Understand and analyze the computer plan. When supervising staff is reviewing the computer plans, be involved in the decision making process.

Look at the electronic chart daily of your patients under treatment. Look to make sure the treatments are going correctly. Be aware of any missed treatments and the reason why. Check for thickness changes due to weight loss. Plan boosts well in advance, and schedule necessary simulations.

Try to check port films and cone beam CT everyday prior to your staff looking at them. If there is something significantly wrong with a port film (block backwards, wrong area of the body) make sure you tell the staff and treating tech IMMEDIATELY.

See your patients each week with your staff doctor for On-Treatment Visits (OTV). Document their visit with a progress note in electronic medical records. Follow-up on all radiology and laboratory studies ordered on patients either as part of pre-treatment evaluation, or during the course of treatment.

Evaluate follow up patients for important aspects of their follow up care. Dictate a note to the referring physician detailing their follow up visit. Include labs and x-ray results if done at the University and that referring physician is outside the University.

Consultations

Inpatient Consultation

Once the resident is notified of an inpatient consultation, they are responsible for obtaining the appropriate clinical information, imaging and pathologic studies. The initial part of the consult consists of obtaining a history and performing a physical examination. This is then presented to the appropriate faculty physician who will see the patient, together with the resident, within 24 hours of departmental notification. Once the patient has been seen, a short note is immediately

written to facilitate communication with the primary team. This is to be followed by a complete consultation note, preferably via dictation. Check off the consult as “done” in EPIC.

Outpatient Consultation

Patients are scheduled to be seen in the outpatient clinic area at designated times. A daily schedule for patient consultations, simulations, setup of new patients and patients under treatment is provided for each staff physician and resident. The outpatient consultation is seen first by the resident and then jointly with the faculty member. A complete consultation note with full history and physical is dictated on the day of the patient encounter. Outside pathology slides for each patient accepted for treatment in the Department of Radiation Oncology must be reviewed at UMMC. Release forms for pathology slides, reports, medical records, x-rays, scans, etc., should be obtained when appropriate.

Informed Consents

Consent for treatment is required for all patients prior to simulation. No patient will be treated without a consent form having been completed and signed. The consent form may be obtained by the resident and attending faculty either at the time of consultation or before simulation. Consent forms are created individually for every patient using Mosaiq. It is signed and dated by the patient, attending physician and witnessed. Anyone working in the department can serve as a witness to the patient’s signature. The signed consent should be scanned into the EMR by administrative staff. A new consent is required if a new treatment is planned. If more than 30 days have elapsed from the time when the consent was signed and the actual simulation or treatment, the previously signed consent will need to be resigned and initialed by both the patient and the attending physician.

Treatment Planning

Scheduling of new patients

Appointments for simulations and CT/MRI scans for planning purposes must be scheduled through the secretary in the reception area. Appointments for new patients beginning treatment are scheduled through the radiation therapists at the time of the simulation. In order to schedule a patient, a sim order should be completed. The resident must provide information including the patient's name, the faculty member responsible for the patient, the area to be irradiated, whether simulation or machine time is required, whether the patient has received prior radiotherapy, and the location of the patient (if an in-patient). The simulation order should also indicate any tailored information such as immobilization device, tentative CA, pregnancy test, CT/MRI in treatment position, contrast medium for the bladder, rectum, esophagus, stomach, or small bowel, or request for a gap calculation because of prior treatment. Simulation appointments are usually given at one-hour intervals.

Radiation Prescription

Prior to the simulation, a tentative radiation prescription needs to be entered into Mosaiq or Aria. Additionally, the ICD10 code for the treatment needs to be entered and affirmed. Be as specific as you can. For instance, if a person had breast cancer in the past and now has brain

metastasis, put in the ICD 10 code for breast cancer (right or left) and the code for brain metastasis. There is a place to stage the patient with TNM staging. Fill this out as completely as you can.

Simulation, Target Volume Generation and Plan Evaluation

Simulation is the process by which the treatment field outlines and orientations are determined. Usually a CT simulation is done. Simulation of a new patient is performed by the resident, simulator therapist, faculty physician as well as a physicist. If a treatment plan is to be developed by dosimetrist or physicist, the resident must delineate the target volume on the planning CT. The target volume should include the primary/regional disease, as well as appropriate margins. The target volume, as well as critical structures where a specified dose can be tolerated should be indicated on the computer system. Faculty approval of the target volume must be obtained prior to proceeding with a computer planning. If blocks are to be employed in the treatment, the resident will draw the appropriate blocks on the DRRs. The dosimetrist/physicist will then develop a treatment plan that will deliver the most homogeneous dose possible to the target volume while minimizing doses to critical structures and other normal tissues. The dosimetrist/physicist will present this plan to the resident and staff for approval. The resident is responsible for the review of the plan with the faculty physician.

The ACGME requires that a resident must be present at the simulation in order to be able to include the patient on their case log. Additionally, a resident must complete the contouring and plan evaluation.

New Start

At the time of the first radiation treatment, both the resident and faculty physician will be present to check the setup parameters and approve port films/MVCT.

Weekly Examination of Patient Under Treatment

All patients undergoing treatment are seen and examined on a weekly basis in the clinic area, both by the resident and faculty physician. Patients who are having problems during treatment are examined as often as necessary.

Each attending physician has a specific day to see patients under treatment. On this day the radiation therapist will bring the patient back in the examining area right after daily treatment, obtain their weight and place the patient in an examining room. The nurse will check the laboratory reports and recent test results as well as inquire patients' concerns. The resident will then be notified that the patient is ready. At the time of the examination, the physical findings, side effects, or problems should be addressed to the staff physician. The progress note should be dictated or typed on the day of examination. If a change in the treatment plan (i.e. boost, electron beam appointment, change in blocks, re-simulation, or target plan) is indicated, this should be scheduled as soon as possible. Advance planning is required in order to keep the patient on schedule.

When a patient is placed on break from treatment, the nurse and appropriate therapist should be notified and the date at which treatment is to resume should be indicated on the daily dose record.

At the completion of treatment, noted as EOTV, the patient is seen, and a follow-up appointment is scheduled through the nurse for a time determined by the physician.

Chart Completion

After each patient finishes radiation therapy, the resident completes a treatment summary, with details concerning both external beam and intracavitary or interstitial therapy. This will include the region treated, the dates of treatment, the daily dose, the total dose and number of fractions for each treatment region or course, any problems encountered during treatment, pain management and arrangements for follow-up care. A template is available in Mosaiq, and the summary needs to be created within 48 hours of treatment completion. The summary is then routed to physics for review, and the physicist will next send it to the attending physician for final check. A copy of this summary will also be sent to the referring and primary MD, therefore, the residents must include the names of the pertinent physicians in the treatment summary.

Follow-Up Clinic

At the completion of treatment, patients are given follow-up appointments, typically at 1 month. Patients are examined by the attending physician and the resident. Follow-up notes should be dictated on the day the patient is seen. Patients undergoing x-rays or other imaging studies on the day of follow-up will be reviewed both by the resident and attending physician.

Other Medical Records

Residents are also responsible for dictating procedure notes including simulation note, operative reports for intracavitary and interstitial procedures.

End of Rotation Patient Handoff

During the last week of each clinical rotation, the departing resident contacts the incoming resident for patient handoff and communication to ensure continuity of patient care. Patient handoff occurs prior to the first day of the incoming resident's clinical rotation. Communication between residents is in person, by phone and/or written summary.

Topics for discussion include:

- On treatment patients
- Patients seen in consultation who will need simulation
- Any outstanding laboratory tests or radiologic imaging that requires follow-up

APPENDIX III: CONFERENCES, JOURNAL CLUB, DIDACTICS & EXAMS

Required Meetings

All residents are expected to attend and contribute to the intradepartmental and interdepartmental conferences. Attendance at conference should take precedence over clinical responsibilities unless the attending physician requests the resident's assistance for a special circumstance during conference time.

Residents must attend at least 90% of the required meetings annually. They must actively participate in these lectures with timely completion of signing in and evaluation of the lectures.

Mandatory Conferences include the following:

- *Treatment Planning Conference:* Wednesday mornings 7:40 AM – 9:00 PM. This conference reviews all IMRT contours and critiques all new patients with discussion of the indication for treatment, review of their treatment plans, computer plans, simulation films and port films.
- *Resident Mini-Presentation:* Wednesday mornings 7:30 AM – 7:40 AM before Treatment Planning Conference. Residents will give 10 minute-presentations related to the treatment planning aspects of patients they have recently seen. This is done on a rotation basis among all residents currently on clinical rotations (excluding those on research block, medical oncology rotation or dosimetry rotation).
- *Departmental Staff Meeting/QA Conference:* Wednesdays 12:30 PM – 1:00 PM. Call schedules and clinic coverage are reviewed. Issues concerning patients on treatment are reviewed and discussed.
- *Education Didactic Lectures:* Wednesday afternoons 4:30 PM – 6:00 PM
- *Journal Clubs:* Wednesday afternoons 4:30 PM – 6:00 PM at monthly intervals.
- *Complication Conferences*: Wednesday afternoons 4:30-5:30 PM at intervals to be determined by the chief resident and Program Director. Presentations should focus on aspects of treatment planning that may have contributed to the complication observed with supporting literature. Each case should take no more than 10 minutes.
- *Departmental Research Conference*: Every 3rd Wednesday of the month.
- *All Multidisciplinary Conferences*: Joint conferences are held separately with Head and Neck Oncology, Breast Oncology, Neuro Oncology, Musculoskeletal Oncology, Gynecology Oncology, Hematologic Oncology, Thoracic Oncology, Melanoma and Pediatric Neuro and Solid Tumor. Residents are required to attend all conferences their attending physicians participate. Off-site interested are free to joint these conferences via Acano Meeting: http://umn.webex.com/meet/rowebex

Treatment Planning Conference

All patients who are undergoing curative radiotherapy treatments are to be presented at Treatment Planning Conference, during which residents are expected to discuss the indications for treatment, rationale and anticipated side effects.

Residents should review cases to be presented the day before to be sure all necessary data and films are available. They will start the case by presenting a concise but pertinent H&P, followed by an assessment that includes stage of the disease, rationale for RT, alternatives considered, and justification for treatment decision. They should also be able to describe contours and the radiation techniques being used. They will be quizzed on the literature relevant to the case.

Education Didactic Lectures

Each resident is expected to give 2 one-hour presentations each year on radiation oncology topics. Copying and modifying lecture notes from Professional Meetings such as ASTRO or another resident's lecture is prohibited. Faculty members are available to advise and provide guidance to residents.

Complication Conference

When residents are assigned complications conference, they are expected to review hospital and treatment charts, obtain outside records if necessary, and have pertinent films and diagnostic films available. For review process, consult the Chief Resident.

Journal Clubs

Announcements for journal club, and journal club articles, should be distributed to the resident and attending staff at least one week before the scheduled conference.

Required Examinations

In-Training Exam

All residents take the annual In-Training Examination in Radiation Oncology, given by the American College of Radiology in March of each year. The exam has separate sections on radiation biology, radiation physics, and clinical radiation oncology. The purpose is to provide insight into individual residents' strengths and areas for further development. It also aids the resident in taking the written board exam given by the American Board of Radiology.

Mock Oral Exam

Annually, the clinical staff administers a mock oral-board exam to the residents. It simulates the oral exam given by the American Board of Radiology. The exam covers eight areas: lung cancer and sarcoma; breast cancer; gastrointestinal cancer; cancers of the reticulo-endothelial system; head, neck, and skin cancers; pediatric and CNS cancers; genitourinary cancers; and gynecologic cancers. This is usually held on a Saturday in April or May and is mandatory for PGY3 - PGY5.

Confirmation of Receipt of your Program Policy Manual for Academic Year _____

By signing this document, you are confirming that you have received and reviewed your Program Policy Manual for this academic year. This policy manual contains policies and procedures pertinent to your training program. This receipt will be kept in your personnel file.

Resident Name (Please print)

_____

Resident Signature

_____

Date _____

Coordinator Initials _____

Date _____