

UNIVERSITY *of* MARYLAND
MEDICAL CENTER

Medical Dosimetry Program

JRCERT Accredited

Program Handbook

2024-2025

Table of Contents

Introduction	4
Statement of Understanding	5
Medical Dosimetry as a Profession	6
Program Information	8
Overview & Accreditation	8
Mission, Objectives & Goals	9
Admission Requirements & Process	11
Health and Insurance	12
Tuition & Finances	14
Organization and Administration	15
Medical Dosimetry Program Organizational Chart	16
Instructional Staff	17
Learning Resources	18
Classroom & Instructional Facilities	18
Academic Requirements	19
Grading Policy and Graduation Requirements	19
Program Grading Scale	19
Due Process Procedures	20
Disciplinary Action	20
Confidentiality	20
Curriculum	21
Academic Calendar	21
Curriculum Outline	22
Course Descriptions	22
Clinical Practicum	24
Clinical Practice Locations	24
Clinical Practice Equipment Details	25
Clinical Practice Dosimetry Staff Details	25
Clinical Obligations and Responsibilities	26
Policies	29
Enrollment Policies	29
Acceptance:	29

Initial UMMC Employee Probationary Period	30
Completion of the Program	31
Medical Dosimetry Program Probationary Period	32
Dismissal.....	33
Withdraw.....	33
Radiation Safety.....	34
Pregnancy Policy	34
Declaration of Pregnant Worker (DPW) Status	34
APPENDIX I: JRCERT Standards	35

Note: Due to the ongoing improvement of our program, any information is subject to change without notice. Reviewed and Revised July 2024 for the Academic Year 2024-2025.

Introduction

The following information which includes policies, procedures, regulations, and schedules has been prepared for students entering the University of Maryland Medical Dosimetry Certificate Program. Students should become familiar with this handbook, ask questions for better understanding and abide by the policies, procedures, regulations and schedules as best as possible. Students should recognize that in addition to being students of the University of Maryland Medical Dosimetry Program, they are also employed as dosimetry trainees by the University of Maryland Medical Center and must adhere to policies, procedures, and regulations of the Medical Center in addition to the policies within this handbook.

Students of all backgrounds are equally welcome to the program irrespective of race, color, gender, age, disability, religion, national origin or any other protected class.

Statement of Understanding

Receipt of Handbook

I have received a copy of the current Student Handbook. It is my understanding that if I have any questions concerning material in this handbook I may contact any of the University of Maryland Medical Dosimetry Program Advisors (i.e. Program Director, Clinical Coordinator, and/or Chief Dosimetrist) for further clarification. I am responsible for all the information contained in this handbook as well as any subsequent additions, and I understand and agree to follow the policies during my enrollment in the program, including all clinical education and University of Maryland Medical Center policies.

Date Student Signature Printed Name

Medical Dosimetry as a Profession

Definition

As defined by the [American Association of Medical Dosimetrists \(AAMD\)](#):

“A medical dosimetrist is an analytical member of the radiation oncology team who works closely in collaboration with the radiation therapists, medical physicists, and radiation oncologists within the department. A medical dosimetrist has an overall knowledge of math, physics, anatomy & physiology, radiobiology, and knows the characteristics and clinical relevance of radiation oncology treatment machines and equipment. With their expertise, medical dosimetrists design, generate, and measure radiation dose distributions and dose calculations while providing oversight to high level treatment procedures in both external beam radiation therapy and brachytherapy.”

Profession

As defined by the [American Association of Medical Dosimetrists \(AAMD\)](#):

“Following consultation, the patient is simulated for tumor localization to ensure reproducibility and accuracy of treatment. The simulation consists of a CT scan of the specific area where the tumor or area of interest is located. During simulation, a medical dosimetrist may assist in creating molds and/or immobilization devices to establish the best body position for accurate daily treatment delivery. The radiation oncologist decides on the specific treatment modality and radiation dosage, based on the patient’s tumor type, stage, and location of cancer. CT scans, alone or in combination with MRI or PET scans, allow the physician to map out the exact location of the area to be treated. Medical dosimetrists use their knowledge and skills in conjunction with advanced computer technology to design a treatment plan specifically for each patient.

Clinical medical dosimetrists will typically specialize in one or more of the following types of radiation:

External Beam Radiation Therapy- radiation delivered from outside the body to the tumor or treatment area.

Photon therapy- administered by a machine called a linear accelerator, which is a sophisticated device that produces high energy therapeutic x-rays that are used to treat tumors.

Proton therapy- treatment that uses high-energy proton beams to treat tumors. Proton beams are generated by an extremely large and complex particle accelerator—only a few dozen exist in the US.

Brachytherapy- a radioactive source is placed directly inside or next to the area where the tumor is located. The radioactive source can be either temporary or permanent.

In external beam radiation therapy, the medical dosimetrist will carefully select the treatment technique, beam angles, and beam shapes to deliver a high dose of radiation to the tumor while sparing as many healthy cells and organs as possible. Once the medical dosimetrist has developed the best treatment plan given the anatomy, tumor location, and dose, the radiation oncologist will review and approve the plan.

Before the treatment plan can be executed, members of the radiation oncology team work together by performing rigorous quality assurance checks to ensure that the treatment plan is safe and effective. A medical dosimetrist will communicate the patient's treatment plan to the radiation therapists by providing field arrangements, beam modification devices, and any concerns that may arise during treatment planning phase. Medical dosimetrists may perform or assist a medical physicist with radiation measurements including ion chamber, thermoluminescent dosimeters (TLD), or film measurement. Another area a medical dosimetrist can contribute to quality assurance and safety is by providing technical and physics support. This support could be in radiation protection, qualitative machine calibrations, and/or quality assurance of the radiation oncology equipment.

In conclusion, a medical dosimetrist is a vital member of the radiation oncology team who performs calculations for accurate delivery of the radiation oncologist's prescribed dose, documents pertinent information in the patient record, and verifies the mathematical accuracy of all calculations.”

Scope of Practice & Practice Standards

As defined by the **American Association of Medical Dosimetrists (AAMD)**:

“The Scope of Practice of a Medical Dosimetrist is designed to assist the Qualified Medical Dosimetrist (QMD) in defining their role in the clinical and technical services they provide in patient care. This document defines a QMD, their basic responsibilities, and addresses the educational requirements, board certification, and maintenance of certification. Statements are included on supervision by and of the QMD. This document stresses the importance that the QMD is an active participant in the patient care team; and that effective communication with the radiation oncology team is essential for providing quality patient care and ensuring patient safety.

In addition, this Scope of Practice is intended to educate professionals in the fields of health care, education, other communities of interest, and the public regarding the expectations of a QMD. This document can be used by individual facilities to develop job descriptions and practice parameters..”

The **Scope of Practice** can be located at: <https://pubs.medicaldosimetry.org/pub/0D422D93-A306-DC24-3BB8-CF7E046B1779>

“These Practice Standards are designed to assist Qualified Medical Dosimetrists (QMDs) in defining their roles in the technical services that they provide in radiation oncology. This document stresses that it is essential that the QMD be an active participant in the collaborative team approach to patient care and that effective communication with the radiation oncology team is essential for providing quality patient care .”

The **Practice Standards** can be located at: <https://pubs.medicaldosimetry.org/pub/0D4F14CE-F3FE-DC5B-3329-9A7658229EEB>

Program Information

Overview & Accreditation

The University of Maryland Medical Center Medical Dosimetry Program is a one -year, certificate program accredited by the Joint Review Committee on Education in Radiologic Technology (JRCERT). A copy of the Standards for an Accredited Educational Program in Medical Dosimetry is available in the Appendix of this handbook as well as online and from the Program Director. Any questions about the program may be forwarded to either the program director or the JRCERT (JRCERT Standard 1.5). The JRCERT contact information is:

JRCERT
20 N. Wacker Drive
Suite 2850
Chicago, IL 60606
312-704-5300
FAX: 312-704-5304
mail@jrcert.org
www.jrcert.org

Accreditation of our program has been effective since May 10, 2007. In 2018, our program was re-accredited by the JRCERT for a total of 8 years, until 2026. In 2022 an interim report was submitted and maintenance of the 8 year accreditation was awarded.

The Department of Radiation Oncology, under the auspices of the University of Maryland Medical Center, started the School of Medical Dosimetry in 2001. Students of this program are employed by the University of Maryland Medical Center as dosimetry trainees, not students of the University of Maryland.

JRCERT accreditation is part of the eligibility requirements by the Medical Dosimetry Certification Board and our program fulfills this requirement. However, the applicant, student or graduate are urged to contact the MDCB with questions of eligibility.

Complaints Relating to Non-Compliance with JRCERT Standards

Per JRCERT Standard 1.5, “Any individual associated with the program has the right to submit allegations against a JRCERT-accredited program if here is a reason to believe that the program has acted contrary to JRCERT accreditation standards and/or JRCERT policies. Additionally, an individual has the right to submit allegations against the program if the student believes that conditions at the program appear to jeopardize the quality of instruction or the general welfare of its students.”

Any person who believes the Medical Dosimetry Program is in non-compliance with any of the JRCERT standards is asked to formally submit in writing to the Program Director the details of the believed non-compliance. The Program Director and/or Program Officials will confer with the person submitting the non-compliance complaint to gain further information. The Program Director and/or Program Officials will then attempt to establish compliance. If the complainant still believes the issue has not been resolved they should contact the JRCERT.

The program takes every complaint or alleged non-compliance seriously. Each complaint will be thoroughly investigated and should the complaint be found valid, the program is dedicated to speed resolution of the problem. In addition, it is the policy of the program to work closely and professionally with the JRCERT to resolve any reported non-compliance allegations.

Mission, Objectives & Goals

Mission

“To provide world class education and training in medical dosimetry and provide competent dosimetrists to serve the needs of the community in the treatment of patients with radiation”

Objectives

- 1) Provide education and expertise in medical dosimetry through didactic and clinical instruction
- 2) Foster critical thinking, analytical skills, and problem solving in the rapidly changing world of science and technology
- 3) Promote a commitment to patient care and professional development.

Goals & Outcomes:

Goal 1: Students will graduate as clinically competent dosimetrists.

Student Learning Outcome:

1. Students will demonstrate the ability to perform CT-based contours for organ at risk structures (OARs) at a clinically acceptable level and/or to a gold standard
2. Students will design clinically acceptable and treatable external beam radiotherapy plans utilizing 3DCRT, IMRT/VMAT, SBRT, and other techniques.
3. Students will demonstrate an understanding of basic radiation physics concepts and treatment planning concepts and relate them to treatment planning

Goal 2: Students will demonstrate the critical thinking skills required for medical dosimetry.

Student Learning Outcome:

1. Students will demonstrate an understanding of the physics and radiobiology of radiation therapy
2. Students will be able to present formal clinical case plans and a research project to the broader community and sufficiently respond to questions from staff dosimetrists, physicists, and physicians regarding such treatment plans and projects

Goal 3: Students will effectively communicate within an interdisciplinary radiation oncology team.

Student Learning Outcome:

1. Students will display effective oral communication skills with physicians, physicists and dosimetrists
2. Students will display effective written communication skills with physicians, physicists and dosimetrists

Goal 4: Students will conduct themselves in a professional manner and practice the ideals of professional growth and lifelong learning.

Student Learning Outcome:

1. Students will conduct themselves in a professional manner
2. Graduates will demonstrate lifelong learning

Goal 5: Students will graduate as entry-level dosimetrists.

Student Learning Outcome:

1. Students will obtain a job in the field of medical dosimetry
2. Students will take the CMD board examination within one year of graduation
3. Students will feel prepared to enter the workforce as an entry-level dosimetrist
4. Students will complete the program within 12 months.
5. Students will pass their CMD board exams within two years of graduation
6. Employers will be satisfied with the performance of graduates

Admission Requirements & Process

Admission Requirements:

Trainees must hold a Bachelor of Science or Bachelor of Applied Science Degree, with minimum overall GPA of 3.0 (preferably with at least one year of physics coursework), **or** be a graduate of an accredited Radiation Therapy Program with a Bachelor's Degree. All applicants must have completed post-secondary instruction in the following areas:

- Basic mathematics including algebra, trigonometry, and intro to calculus
- Basic physics
- Oral and written communication
- Biology
- Medical terminology, anatomy and physiology
- Computer competency

Transfer Credits:

The UMMC Medical Dosimetry Program does not accept transfer credits. Course credits from our Medical Dosimetry Program cannot be counted towards a higher education degree from a higher education organization, nor can credits from other programs be counted by our program.

Admission Policy:

It is the policy of the school and its sponsor to admit trainees without regard to race, color, gender, age, religion, national origin, other protected status or disability, unless that disability would prevent the trainee from fulfilling their clinical requirements.

Applications including all associated materials such as personal references, CV and transcripts must be received by December 1st for admission the following July 1st. The selection of candidates will occur on or before March 1st.

Selection Process:

The selection of all trainees will be through the admissions board. Admission data will be kept on file for five years in the department of radiation oncology. All federal and state nondiscriminatory laws are observed. Refer to enrollment policy section if further detail is needed.

The admissions board will consist of at least the following individuals:

1. Physician Representative
2. Program Director
3. Clinical Coordinator
4. Chief or Associate Chief of Medical Physics
5. Chief Medical Dosimetrist or Designee
6. Staff Dosimetrist

Equal Opportunity:

The University of Maryland Medical Center is actively committed to providing equal educational and employment opportunity in all of its programs. It is the goal of the institution to assure that equitable representation of women and minorities exists among the faculty, staff and administration of the institution, so that its work force reflects the diversity of Maryland's population.

All employment policies and activities of the University of Maryland Medical Center shall be consistent with federal and state laws, regulations and executive orders on nondiscrimination on the basis of race, color, religion, age, ancestry or national origin, sex, sexual orientation, handicap, marital status and veteran status. Sexual harassment, as a form of sex discrimination, is prohibited among the work force of the institution.

The University of Maryland Medical Center's full equal opportunity policy is available on the intranet. The human resource website can be accessed at: <http://intra.umms.org/umms>

Health and Insurance

All University of Maryland Medical Center employees (i.e. Dosimetry Trainee), are required to complete a health assessment before beginning employment per the Pre-Placement Health Assessment Policy. The health assessment ensures an applicant can perform the essential functions of the job for which s/he is being offered employment. In keeping with the University of Maryland's commitment to maintaining a drug free workplace and to reducing safety risks to patients and co-workers, all new team members will be screened for illicit and controlled substances through urinalysis as a part of the pre-placement health assessment.

The health assessment will include the following:

- Complete Medical History, with focused physical examination if indicated
- Team members may be required to obtain medical documentation from a current treating provider for medical conditions
- Urine drug screen
- Vital signs including height, weight, blood pressure, pulse, and body mass index
- Tuberculosis screening
- Counseling and administration, if indicated, of Hepatitis B, Measles, Mumps, Rubella (MMR), Td/Tdap and Varicella Immunizations
- Collection of COVID-19 vaccination documentation or advising on how to receive vaccine or submit request for exemption
- Flu vaccination during flu season or submission of an approved medical or religious exemption
- A blood draw for antibody titers to the infectious diseases listed above if indicated
 - Vision Screen
 - Color Vision Screen
 - Respirator medical clearance and fit testing for clinical staff involved in direct-patient care
- Individuals who will be working in the hyperbaric chamber will be required to undergo an expanded medical history along with a qualifying dive

Trainees who accept the stipend will be offered health coverage by UMMC.

Counseling Services

Trainees can take advantage of The Counseling Center at the University of Maryland, Baltimore. It serves as the primary centrally administered service center providing short-term individual, couples, family and group counseling for dysfunctions that impinge on academic or work achievement. It also provides direct service to trainees, faculty and staff members with acute problems and acute exacerbations of chronic problems. The employee assistance program (EAP) is also available.

Liability Insurance

All trainees accepted into the program will be covered by UMMC.

Tuition & Finances

The University of Maryland Medical Center will provide full financial support for the program.

The value of the Program for each trainee is Fifty-One Thousand Two Hundred Dollars (\$51,200). As part of the program value, the accepted trainee will receive an educational stipend of Thirty-One Thousand Two Hundred Dollars (\$31,200.00). In consideration of the value of the program, including the Educational Stipend, the trainee agrees to full time employment with UMMC as a dosimetrist for a period of twenty-four (24) months following graduation from the program, if a position is available. Trainees who are employed after graduation, by UMMC are paid a competitive salary during the twenty-four-month obligation to the University of Maryland Medical Center. Notably, if a position is not available upon completion of the program, the trainee does not have to pay back any part of the (\$51,200.00) value of the program. If an applicant is accepted into the program and wishes not to enter the commitment to work for 24 months, a one-time fee will be due of (\$51,200.00) to cover the value of the program. In such instance, the trainee will receive the stipend portion of that fee, back in the amount of (\$31,200.00) as a salary during their one-year employment at UMMC. If a trainee should need or wish to breach the agreement to commit to employment after graduation or at any time during the 24 months employment after graduation, a one-time fee of (\$51,200.00) shall be due. It should be noted that both the tuition and the contractual obligations are reviewed on an annual basis and are subject to change.

A trainee will not serve as a substitute for full-time equivalent (FTE) or part-time employees.

The program will not charge any fees to the trainee.

The program's policies and procedures have been reviewed by the hospital's legal office.

Financial Aid

Our program provides each graduate with a Certificate of Completion. We are not a degree-granting program. Therefore, the Medical Dosimetry Program is not presently recognized as a degree-granting Higher Education Organization, or branch of such, by student loan managing agencies.

Transportation

All trainees will be responsible for providing their own transportation to and from the clinical sites of the Department of Radiation Oncology. Trainees will be responsible for paying their own parking costs.

Housing

All trainees will be responsible for providing their own housing. University and/or the Medical Center facilities will not be available.

Organization and Administration

Sponsoring Institution:

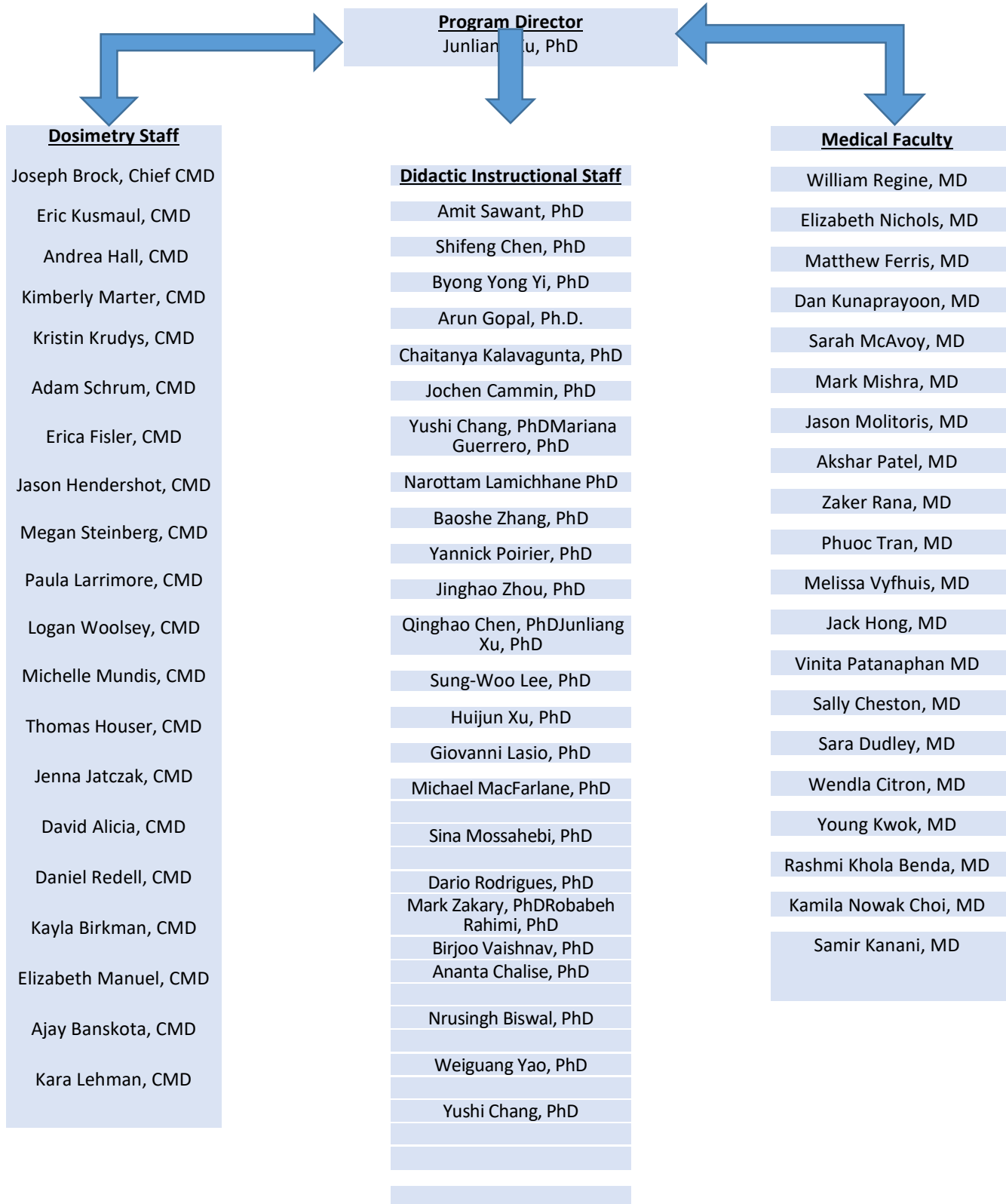
The program is a hospital-based program sponsored by the University of Maryland Medical Center, Department of Radiation Oncology, 22 South Greene Street, Baltimore, Maryland, 21201. The hospital is a JCAHO accredited facility and the department meets the Standards for Radiation Oncology as defined by the ACR (Res. 38-1995)

Chief Executive Officer:	Bert O'Malley, Jr., M.D., President and CEO
Department Chairman:	William Regine, M.D., FACR, FACRO, FASTRO
Department Administrators:	Erika Maynor, M.P.A., Executive Administrator for Dosimetry Training Program and Sr. Director of Clinical Operations Frank Young, Senior Administrator

Program Officials

Program Director:	Junliang Xu, PhD
Clinical Coordinator:	Joseph Brock, CMD
Medical Advisor:	Sarah McAvoy, MD, Vice Chair of Education
Physics Advisors:	Shifeng Chen, PhD, Chief of Clinical Medical Physics
Administrative Coordinator:	Keona Davis

Medical Dosimetry Program Organizational Chart



Instructional Staff

Didactic Instructional Staff

(Physics Faculty: UM School of Medicine):

Amit Sawant, PhD
Shifeng Chen, PhD
Byong Yong Yi, PhD
Stewart Becker, PhD
Arun Gopal, PhD
Chaitanya Kalavagunta, PhD
Jochen Cammin, PhD
Mariana Guerrero, PhD
Narottam Lamichhane, PhD
Baoshe Zhang, PhD
Yannick Poirier, PhD
Jinghao Zhou, PhD
Junliang Xu, PhD
Sung-Woo Lee, PhD
Huijun Xu, PhD
Giovanni Lasio, Ph.D.
Michael MacFarlane, PhD
Sina Mossahebi, PhD
Dario Rodrigues, PhD
Nrusingh Biswal, PhD
Weiguang Yao, PhD
Mark Zakhary, PhD
Yushi Chang, PhD
Qinghao Chen, PhD
Robabeh Rahimi, PhD
Ananta Chalise, PhD
Birjoo Vaishnav, PhD

Didactic Instruction Staff

(Biology Faculty: UM School of Medicine)

Juonng Rhee, Ph.D., Associate Professor

Clinical Dosimetry Instructors

Joseph Brock, CMD
Kimberly Marter, CMD
Andrea Hall, CMD
Adam Schrum, CMD
Kristin Krudys, CMD
Eric Kusmaul, CMD
Erica Fisler, CMD
Jason Hendershot, CMD
David Alicia, CMD
Daniel Redell, CMD
Megan Steinberg, CMD
Jenna Jateczak, CMD
Michelle Mundis, CMD
Elizabeth Manuel, CMD
Thomas Houser, CMD
Kayla Birkman, CMD
Kara Lehman, CMD
Ajay Banskota, CMD

Clinical Faculty (Medical Instructors):

William Regine, MD
Elizabeth Nichols, MD
Young Kwok, MD
Sally Cheston, MD
Wendla Citron, MD
Sarah McAvoy, MD
Mark Mishra, MD
Jason Molitoris, MD

Learning Resources

Classroom & Instructional Facilities

The Nicola Regine Conference Room:

The Radiation Oncology Department conference room is used for all lectures. This conference room is equipped with a projector for all PC based lectures, review of CT, MRI and PET studies from the department of Radiology and Nuclear Medicine. There is also a whiteboard available for more explanations that are detailed.

UMMC/Midtown Campus:

Multiple computer classroom locations are available at these two campuses. They allow each individual student to utilize a computer workstation with access to the treatment planning system (TPS) and clinical software. An instructor has access to their own workstation in which they present material from onto a projection screen and/or monitor. This allows students the ability to work alongside the instructor. These locations are used most often during the Introduction to Dosimetry Curriculum (also known as Bootcamp) as well as throughout Treatment Planning Labs.

University of Maryland Health Sciences and Human Services Library (HS/HSL):

This facility is located across the street from the Department of Radiation Oncology, serving all schools on campus and the University of Maryland Medical Center. It contains more than 350,000 volumes, including more than 2,500 journal titles. It has more than 900 seats, 40 study rooms, 3 microcomputer labs, a satellite conferencing center and network connections throughout the building. It allows the trainee quiet access to the Internet to do research as well as a space to study as needed.

Designated Computer Workstation:

Trainees each have their own designated computer workstation with dual monitors, in the dosimetry area of UMMC. This workstation has access to RayStation and Eclipse TPS software as well as other clinical software. This computer is available to each individual student during clinical building hours for didactic and clinical assignments.

Internet access:

Trainees have onsite and virtual internet access to their dedicated computer workstations.

Textbooks & Supplies:

The dosimetry area of UMMC maintains a library of textbooks specifically for dosimetry students. It also contains some copies of dosimetry related journals and other study materials. Additionally, trainees have access to our residents' library that contains scores of books on radiation therapy and scholarly journals in the field. Office supplies are available in this area as well and can be requested through the program director, clinical coordinator and/or dosimetry program administrator as necessary.

Academic Requirements

Grading Policy and Graduation Requirements

The trainees of the Medical Dosimetry Program at University of Maryland Medical Center are evaluated in an ongoing basis from the beginning to the end of the one-year program. The grading plan accumulates performance from clinical practicum, didactic class performance, completion of coursework and homework, completion of trainee presentations and associated preparation, and attendance. The grading policies are disclosed herein, to trainees, prospective trainees, faculty and staff. This grading policy is under continuous development to meet changes in the program and to adapt to shortcomings in its design.

Trainees must maintain a 3.0 GPA (B grade) or higher, in order to avoid failing the program of Medical Dosimetry. Graduates with a GPA of 3.0 (B grade) and greater will successfully complete the program, and receive a certificate of completion from the Medical Dosimetry Program.

For grading policies of the individual courses, please refer to the syllabi for the individual courses.

Program Grading Scale

The absolute numerical grading system was discarded in favor of a normalized grading system starting September 2008. Due to a large number of faculty involved with teaching and relatively small number of dosimetry trainees, there is a large variation in the difficulty level of the various exams used for trainee assessment. The relative or normalized grading is introduced to make the assessment process fair to the trainees and reduce “fluctuations” from faculty to faculty and from one year to the next. The normalized grade is largely based on the mean and standard deviation. Usually, 1.25 standard deviation above the average score is an A, and the average is “defined” to be between, B- and a B depending on the course. This grading scheme subject to adjustment based on the discretion of the particular faculty member involved. The assigned grade must reflect the trainee’s ability compared to competent dosimetrists in our department as well as across the country. Medical dosimetry trainees also attend some courses taught at the same level as radiation oncology residents and medical physics residents, such as the biology and physics didactic lectures. Separate exams are given to dosimetry trainees to ensure the tested information is at a level appropriate for that of a future dosimetrist. The following scale is used for GPA assignment.

Points	Letter Grade	GPA
97-100	A	4.00
93-96	A-	3.67
89-92	B+	3.33
85-88	B	3.00
81-84	B-	2.67
77-80	C+	2.33
73-76	C	1.67
69-72	C-	1.33
65-68	D	1.00
Below 65	F	0.00

Scheduled Reporting of Grades to Trainees

The trainees will receive the evaluations of the tests and exams in a timely manner so that they are aware of their overall standing at any given time and to be in compliance with JRCERT standards. The trainees falling short of the 3.0 GPA (B grade) average will be required to spend extra time with the director, clinical coordinator and appropriate faculty to maintain the minimum standard.

Due Process Procedures

Trainees with a complaint should first present the complaint orally to the person(s) involved. If the complaint is not resolved in five business days, the trainee can present a formal written complaint to the program director. This formal written complaint should be filed within ten business days of the original oral presentation. A review of the appeal and rendering of a decision will be completed within five business days. If the trainee wishes to appeal beyond the program director, he or she can file a written appeal to the Human Resources Department.

The appeal process of the Human Resources Department is outlined in detail on our intranet at: <http://intra.umms.org/-/media/intranets/ummc/pdfs/policies/hr/hrm-501cs.pdf?upd=20150701205103>

A copy of this document will be provided to any trainee upon request.

Reporting Non-Compliance of JRCERT standards

The Program adheres to the standards for medical dosimetry set by JRCERT (“Standards-MD”). The procedure for reporting non-compliance can be found the JRCERT website and will be given to each trainee in printed form at the start of the program. The form for filing complaints can be found at:

http://www.jrcert.org/pdfs/accreditation_process/forms_&_checklists/other_forms/allegations_reporting_form.pdf

Disciplinary Action

Any activities or behavior that violate the policy and procedures of the University of Maryland Medical Center as outlined in the policy and procedure manual of the University of Maryland Medical Center (the sponsoring organization of this program) and located on the intranet will be grounds for disciplinary action to include dismissal from the program.

Confidentiality

Trainee records will be maintained in accordance with JRCERT standards and the Family Education Rights and Privacy Act (FERPA) (Buckley Amendment).

Curriculum

The length of the program will be 12 months. It consists of 1700 hours of clinical training and 300+ hours of formal classroom, laboratory exercises or modules. There will not be a difference in the length for any trainee with respect to their background.

Program

The University of Maryland Medical Center (UMMC) dosimetry program exists to provide training in the field of medical dosimetry. Upon completion of the program, graduates will be able to:

1. Perform entry-level dosimetry tasks.
2. Develop treatment plans for three-dimension conformal radiotherapy.
3. Develop treatment plans for intensity modulated radiation therapy.
4. Perform hand calculations to verify plan accuracy.
5. Understand the principles of IGRT in treatment planning and delivery
6. Communicate effectively orally and in writing.
7. Function in a professional manner as part of an interdisciplinary team.

Trainee to Instructor Ratio

Trainee to instructor ratio of 2:1

Academic Calendar

This year long program commences the first week of July.

Didactic courses will be offered to the students on a weekly basis during a majority of the academic year. These courses are taught by department faculty and the day and time which they are taught may vary year to year. They will account for roughly 2 hours a week of the student's time.

Clinical hours for trainees are in accordance with the normal clinic schedule, Monday - Friday, 7:30 a.m. - 4:00 p.m., however this is subject to change depending on the number of patients under treatment and availability of clinical preceptors. Trainees are not required to work as a part of clinical practicum beyond normal operating hours or observed holidays honored by the University of Maryland Medical System. Trainees are not to exceed 40 hours per week of clinical practicum hours. The University of Maryland Medical System recognizes 7 holidays a year, during which the department of radiation oncology is closed. The 7 holidays in which the trainee will not participate in clinical activities due to department closure and lack of required supervision are New Year's Day, Martin Luther King Holiday, Memorial Day, July 4th, Labor Day, Thanksgiving Day and Christmas Day. Students are required to take a lunch break during their clinical days.

The academic year has two semesters (fall and spring). The fall semester runs from July through December, the spring semester runs January through June. Transcripts will be given for both semesters.

Curriculum Outline

Course #	Credits	Course Name
First Semester (20 Credits)		
DOS21.100	2.0	Introduction to Medical Dosimetry
A.	0.2	Healthcare Ethics & Professional Conduct
B.	0.2	Medical Terminology
C.	0.2	Computers & Computer Networking
D.	0.2	Math Review for Dosimetrists
E.	0.2	ICRU Concepts
F.	0.2	Imaging, Simulation & Patient Data Acquisition
G.	0.8	Cross Sectional Anatomy & Introduction to 3D Planning
DOS21.101	2.0	Fundamental of Medical Management of Cancer I
DOS21.102	2.0	Medical Treatment Planning Concepts I
DOS21.103	5.0	Medical Treatment Planning Labs I
DOS21.104	3.0	Clinical Practicum I
DOS21.105	2.0	Radiobiology and Pathophysiology I
DOS21.106	3.0	Radiation Physics I
DOS21.107	1.0	Treatment Planning Project I
Second Semester (20 Credits)		
DOS21.201	2.0	Fundamental of Medical Management of Cancer II
DOS21.202	2.0	Medical Treatment Planning Concepts II
DOS21.203	5.0	Medical Treatment Planning Labs II
DOS21.204	5.0	Clinical Practicum II
DOS21.205	2.0	Radiobiology and Pathophysiology II
DOS21.206	3.0	Radiation Physics II
DOS21.207	1.0	Treatment Planning Project II

Course Descriptions

DOS21.100	Introduction to Medical Dosimetry
A.	Healthcare Ethics & Professional Conduct An introduction to the profession of medical dosimetry and its standards, scope of practice, ethical codes and professional conduct are detailed in this course. Students will learn the major ethical philosophies and rules and how they apply to health care.
B.	Medical Terminology Commonly used radiation oncology terminology will be reviewed.
C.	Computers & Computer Networking Basic computer terminology, features of computer hardware components and their functions, software essentials, programs and applications of computers used in radiation oncology will be introduced. Security for computers and networking in the health care environment will be discussed. Protocols in healthcare, imaging, and radiation oncology will be reviewed.
D.	Math Review for Dosimetrists Basic mathematical concepts and calculations utilized in dosimetry will be reviewed. This includes the study of geometry, trigonometry, and algebraic principles.
E.	ICRU Concepts The International Commission on Radiation Units and Measurements reports and standards and how they apply to the field of radiation oncology will be examined.

F.	Imaging, Simulation & Patient Data Acquisition This course reviews the production of medical images used in radiation oncology, including CT, PET and MRI. Techniques of simulation with respect to patient set-ups and treatment devices are explored. Basic principles of data acquisition and tumor localization are also addressed.
G.	Cross Sectional Anatomy & Introduction to 3D Planning Anatomical structures and functions which affect the treatment planning process are examined. Students learn to become proficient with identification and contouring of anatomic structures on radiographs, CTs, and MRI images. As a part of this course students will be introduced to the treatment planning system.
DOS21.101 & 201	Fundamental of Medical Management of Cancer I and II Trainees will learn about the medical management of cancer by attending weekly treatment planning rounds and new case conferences in which all patients under treatment are peer-reviewed by the radiation oncology team. A thorough discussion of new patient case details takes place during these conferences. Trainees will also attend physics educational events, occurring at least monthly and focusing on emerging technology within the field of radiation oncology. Other educational conferences offered and attended by trainees will be counted for credit of this course as well.
DOS21.102 & 202	Medical Treatment Planning Concepts I and II Lectures and methods of planning will be reviewed for both 3DCRT and IMRT/VMAT in at least eight anatomical sites, reviewing key planning details including contouring organs at risk, technical components of developing a treatment plan, dose constraints, target coverage goals and how to properly evaluate a plan.
DOS21.103 & 203	Medical Treatment Planning Labs I and II Students will use the information provided to them during their Medical Treatment Planning Concept lectures and create their own treatment plans on a data set. Plans will then be evaluated for clinical competency to ensure the trainee is able to produce treatable plans for at least eight anatomical locations with both 3DCRT and IMRT/VMAT.
DOS21.104 & 204	Clinical Practicum I and II Students will gain clinical experience under supervision of the clinical preceptor at designated clinical sites. This will include reviewing simulation procedures and set up, assisting with image fusions, contouring of organs at risk, developing treatment plans, reviewing plans with radiation oncologists, participating in plan quality assurance procedures and plan documentation. * Students will be required to be on-site and rotate through the clinical practice sites
DOS21.105 & 205	Radiobiology and Pathophysiology I and II Students will attend weekly lectures held by the biology faculty of the University of Maryland. This lecture course reviews the effect of radiation on the human body in the context of radiation therapy.
DOS21.106 & 206	Radiation Physics I and II Students will attend weekly lectures held by the physics faculty of the University of Maryland. They will be introduced to physics concepts that relate to the production of radiation and its use in treating cancer. Dose measurement and instruments utilized within the field of radiation oncology will be reviewed. Quality assurance procedures will also be discussed.
DOS21.107 & 207	Treatment Planning Project I and II Students will attend journal club as it is offered and/or available. Students will be introduced to fundamental principles guiding research in radiation oncology. A research topic that is relevant to the clinic will be chosen and students will be provided with a research mentor group consisting of a physicist, dosimetrist and physician. They will conduct background research to understand the current information and research within their subject and develop a literature review of their findings. Students will then conduct research under supervision of their research team and develop a final research project presentation that will be given to dosimetry, physics, and physician faculty members.

Clinical Practicum

Clinical Practice Locations

Our program has one main campus and two clinical practice settings at off-site treatment facilities affiliated with the University of Maryland Medical System (UMMS):

University of Maryland Medical Center (UMMC)

22 South Greene Street

Baltimore, Maryland, 21201

410-328-0777

Clinical Coordinator: Michelle Mundis, MS, CMD

* Maryland Proton Treatment Center (MPTC) affiliated and on campus location

Central Maryland Radiation Oncology Center (CMRO)

10710 Charter Drive #G030

Columbia, Maryland 21044

443-546-1330

Preceptor: Adam Schrum, CMD

Tate Cancer Center at Baltimore Washington Medical Center (BWMC)

305 Hospital Drive

Glen Burnie, Maryland, 21061

410-553-8100

Preceptor: Eric Kusmaul, CMD

Clinical Practice Equipment Details

- Simulators
 - Philips Brilliance Big Bore Multi-slice (Siemens SOMATOM go.Open Pro) CT/Simulator
 - Varian Acuity Radiographic/Fluoroscopic Simulator
- Immobilization Devices
 - Vac-Loc bags
 - Med-Tec Breast Boards
 - Alpha-Cradles
 - Pituitary head holder and BOS Frame Systems
 - CivcoRT Type-S head and neck overlay board
 - Encompass SRS immobilization System
- Linear Accelerators (4)
 - Varian IX
 - Varian Trilogy with Stereotactic Capabilities, On Board Imaging and Cone-beam CT (CBCT)
 - Varian TrueBeam Edge (dedicated stereotactic system for SRS & SBRT)
 - Varian Truebeam
- Cyclotron (Proton Treatment Machine)
 - Varian ProBeam
- Treatment Planning Systems
 - Varian Eclipse
 - RaySearch RayStation
 - Elekta Nucletron Oncentra (Brachytherapy HDR Planning)
 - Varian VariSeed (Brachytherapy LDR Planning)
- Image Guidance and Motion Management Systems
 - Varian kV on-board imager and Cone-beam CT (CBCT)
 - Varian RPM & RGSC respiratory motion management system
 - Vision RT surface localization and tracking system

In addition to the above equipment, Radiation Oncology Department has numerous radiation measurement devices including ionization chambers, survey meters, and films.

Clinical Practice Dosimetry Staff Details

UMMC employs four MDCB certified dosimetrists; CMRO employs two certified dosimetrists; BWMC employs two certified dosimetrists. The Faculty includes a hosts of physicists, clinicians, and radiobiologists, see the program organizational chart and/or instructors listing for more information.

Clinical Obligations and Responsibilities

Purpose

Preceptors and clinical staff are valued professionals who help in the educational process to form, mentor, and provide valuable experience to student trainees. These guidelines outline responsibilities of preceptors, students, and the clinical staff learning team.

Trainee Responsibilities

The learning experience can be optimized by the following guidelines:

Preceptor Assignments

Student's clinical practicum rotations and clinical site visitation to a clinical preceptor's site are assigned and approved by the Program Director, Chief Dosimetrist, and Clinical Coordinator.

Contact with Preceptor

Trainees must contact the preceptor prior to the first clinical day to make an initial introduction and verify arrival time and necessary logistics. The Clinical Coordinator will assist the trainee in providing contact information of the preceptor and aid in arranging a meeting time. Any changes to the start or end time of the clinical day must be approved by the Program Director and/or Clinical Coordinator as well as the Chief Dosimetrist.

Trainees will meet with the preceptor and other staff dosimetrists, if available, involved in their training at the clinical site prior to beginning clinical hours.

Documentation of Clinical Hours

Trainees are to keep a record of their clinical hours and schedule. Approved time off during the clinical rotation must be communicated to the clinical site preceptor as well as the Chief Dosimetrist and Clinical Coordinator. Changes to the approved time off must be submitted in writing to the Chief Dosimetrist and Clinical Coordinator and approved before implementation.

Attendance at Clinical Sites

Trainees are expected to treat the clinical rotation schedule as a professional contract. If the trainee is to be absent, the preceptor should be notified prior to the beginning of the clinical day or given as much advanced notice as possible. Trainees also must contact the Clinical Coordinator and Chief Dosimetrist promptly. Trainees are not sole owners on any clinical tasks, however if they are working with a preceptor or staff on a task and feel assistance on the task is needed while they are absent they should provide the professional courtesy of reminding the preceptor or staff of the task and report to them their current progress on the task.

Evaluation of Clinical Site and Preceptor

Trainees are required to evaluate their preceptors, clinical site and dosimetry staff at the end of the program. However, if there are issues at a clinical site, with a preceptor or staff member, the trainee should make the Clinical Coordinator, and/or Program Director, and/or Chief Dosimetrist aware immediately. Trainees should refer to the grievance policy as necessary if they feel it is warranted.

Preceptor Responsibilities

Application and Documentation of Credentials

A current affiliation agreement with the UMMC Medical Dosimetry Program must be in place prior to the student being on site for clinical practicum. Documentation of the preceptor license and credentials to practice is required by the Joint Commission of Education in Radiologic Technology (JRCERT) to assure the quality of providers who mentor students. These documents must be available to the visiting accrediting bodies during program evaluation and renewal. The documentation is placed in the Medical Dosimetry Program accreditation files.

Oversight of the Trainee

Preceptors provide direct oversight of a Trainee. Under a preceptor arrangement, the Program Director may not be consistently at the clinical site, therefore preceptors must provide continuous oversight of a trainee, and the trainee may not be left under the supervision of unlicensed personnel. Preceptors are responsible for obtaining feedback related to the students' performance from the certified staff and are ultimately responsible for student evaluation.

Communication with Medical Dosimetry Staff

Trainees will provide preceptors with contact information. Preceptors and dosimetry staff are encouraged to contact the Program Director at any time. The Program Director and Clinical Coordinator as well as Chief Dosimetrist must be contacted immediately for situations involving a trainee's unsafe practice, unethical conduct, or changes in preceptor/certified staff availability. Any concerns expressed by other employees or staff should be communicated to the Program Director. Preceptors will have the opportunity to discuss Trainee's progress with the Program Director or Clinical Coordinator at any time.

Communication with Student

Preceptors are encouraged to provide regular daily feedback to the trainee and final performance reviews to the trainee and program officials. In order for the trainee to resolve any concerns in an expeditious manner, preceptors are encouraged to relate concerns to the trainee when they occur. Written documentation of concerns and resolution must be shared with the Program Director and Clinical Coordinator.

Evaluation of Student

While the Program Director has the ultimate responsibility for the formal evaluation, the preceptor's input provides evidence to support the ratings. The "Clinical Site Rotation-Trainee Performance Evaluation" form provides a guide for collecting and recording data related to student performance. The preceptor's primary role is teaching. In this process, the preceptor will observe the trainee in practice and fit those observations into the evaluation framework. The preceptor not only collects data that verifies trainee competence, but also has the opportunity to support professional practice standards and the credibility of UMMC Medical Dosimetry Program. The preceptor's observations regarding the trainee's performance should be compared with practice standards, corroborated with program officials, and shared with the student. Preceptors need to remember that they do not fail students or impede a student's progress. Rather, the student's performance either meets or fails to meet criteria.

Clinical Staff Learning Team Responsibilities

Preceptor/ Site Approval and Verification of Current Affiliation Agreements

The Program Director confirms that a current affiliation agreement is in place. The Program Director ensures that the preceptor receives information about the clinical objectives, is provided a current program handbook, and how to evaluate the student in the clinical setting. The Program Director maintains documentation of the preceptor license and credentials to practice in the JRCERT accreditation files.

Communication with Preceptors

The Clinical Coordinator will contact the preceptor prior to the assigned experience. Information shared include clinical site rotation schedule; names of each trainee; time and method of regular communication; expectations of the preceptor; and method(s) of student performance evaluation. In addition, program officials will communicate with the preceptor at the time of site visits. Additional communications deemed necessary by the Clinical Coordinator or preceptor would be arranged.

Student Preparation

The Clinical Staff Learning Team will orient trainees regarding clinical practice protocols followed at their specific clinical site. Students are responsible for maintaining and following clinical compliance practices during their clinical site rotation. Students however will not be graded on site specific criteria but rather overall dosimetric skills and abilities.

Site Visits & Facilitation of Clinical Activities

The Program Director or assigned program official will make scheduled visits to the clinical site. The purpose of the site visit is to observe and evaluate the trainee in actual practicum situations, to observe and evaluate the trainee's interaction with staff and preceptor, and to evaluate the facility.

Student Evaluation

The requirements and evaluation criteria for successful trainee performance is found in the course syllabus and clinical site performance evaluation forms. Evaluations by the preceptor with input from the staff dosimetrists are an important component of the student performance. Open communication between the dosimetry staff, preceptor and trainee is essential for trainee success. The Program Director assumes the ultimate responsibility for the evaluation of the student. While specific criteria is identified in each program, program officials utilize a combination of methods including making the site visit(s) to observe the trainees performance and interactions with trainee, staff, and preceptor. Regular review of clinical documentation and supportive evidence from the clinical preceptor are utilized.

Clinical Site Evaluations

The Program Director or Clinical Coordinator will complete a regular review of each clinical site using information from trainees' evaluations of preceptor, preceptor evaluations and site visits. The review of clinical sites will be included in the program assessment reports and shared with the Medical Dosimetry Advisory Committee for review and modifications.

Policies

Enrollment Policies

The Enrollment Policies of the University of Maryland Medical Center Medical Dosimetry Program are instituted to provide a scholastic, professional and fair environment. This section of the handbook focuses on the four major areas of enrollment; acceptance, program completion, probation and dismissal. All aspects are reviewed by the Medical Dosimetry Program Advisory Committee:

Acceptance:

Up to Four positions are available each year and filled by individual applicants. The individual applicant, accepted to fill one position, must complete the application process, submitting all pertinent documentation of application form, school records and transcripts, recommendation letters and references, and assurance that all information is honest and true. The administrative coordinator will ensure that all documentation has been received and ensure documentation is kept secure.

The Medical Dosimetry Program Selection Committee, composed of the Program Director, Clinical Coordinator, Chief Dosimetrist or their designee, and the Chief of Clinical Medical Physics or their designated faculty physicist shall review all applications that were received and compiled by the administrative coordinator. This committee will complete a secondary verification that all application materials were received. The committee will then ensure that each individual applicant meets the programs admissions requirements. Depending then on the number of candidates and number of positions available, this committee will select the number and individual applicants to invite to interview for the positions available.

Interviews are conducted virtually. Each year, the program invites 4 or more candidates to interview for entry into the program, again dependent upon the number of applicants. Generally a maximum of 15 applicants are invited for interviews, however this is subject to change and may depend upon how many positions are available. Should the number of applicants exceed the specified maximum number of applicants invited to interview during a given year, and should an applicant invited to interview reject an offer to interview; the next applicant, ranked from the application review process shall be invited for interview and so on and so forth.

The final selection of all trainees will be through the admissions committee. Admission data will be kept on file for five years in the department of radiation oncology. All federal and state nondiscriminatory laws are observed.

The admissions committee will consist of at least the following individuals:

1. Physician Representative
2. Program Director
3. Clinical Coordinator
4. Chief or Associate Chief of Medical Physics

5. Chief Medical Dosimetrist or Designee
6. Staff Dosimetrist
7. Executive Administrator

An objective scoring system shall be used by the admissions committee to review GPA, letters of recommendation, letter of intent of the applicant and past professional experience, as well as other designated criteria during the actual interview process including but not limited to the closest match of interest of the applicant, experience, GPA, level of professionalism, and ability to complete a written exam that highlights the subject matter required for admittance.

All Applications are due on December 1st of the year prior of starting the program. Interviews are conducted no later than March of the year the trainee would start the program.

Acceptance may be denied based on the candidate being under-ranked relative to other applicants in GPA, recommendation, statement of interest, professional experience and overall performance in the interview process. Acceptance may also be revoked if a candidate is found to have submitted untrue information, or misled the program into believing any information submitted in the application that may be related to another person. Applications are reviewed objectively. In the application process, age, sex, and race are omitted. Ultimately, the application process is aiming towards an objective, performance-based evaluation to find the best candidate to perform the trainee role in the program.

Initial UMMC Employee Probationary Period

Trainees of the Medical Dosimetry Program become employed by the University of Maryland Medical Center as dosimetry trainees when they join the program. The UMMC policy and procedures institute a 6 month probationary period on all full-time hospital employees.

Trainees will not have access to the appeal process during initial review, as this is not available to employees of UMMC, until after they complete their initial 6 month probationary period. This does not mean the trainee starts the program in bad standing, rather this signifies that UMMC reserves the right to oversee employee conduct, professional ability and commitment to patient care through direct approach from administration if that is necessary. Such circumstances would become active if a trainee was to display disciplinary misconduct, failure to show up for work, or evident inability to conduct basic tasks assigned during the initial 6 months of employment. The trainees are advised to review the UMMC guidelines on the UMMC intranet website. A copy of the appeal process is also available to prospective trainees on request. The intranet link for all policies and procedures is <http://intra.umms.org/ummc/policies/human-resources>

Completion of the Program

Completion of the one-year program will yield a Certificate of Completion and its associated benefits, as the trainee may expect to support application for other employment. Completion is important to our program. We encourage each trainee to advance and to complete the program to the best of their ability. However, it is important that all competencies be completed. Delays in completion are addressed in the monthly program director meetings and if necessary by meeting with the Program Director and Clinical Coordinator, as this may be required. If a trainee falls outside of the bounds of reasonable time to complete a competency requirement, displays undue behavior, disrespect of faculty and staff, or deliberately decides not to conduct certain competencies, the trainee will default to a probationary period.

At completion of the program the school goals shall be met:

- 1) Demonstrate a clear understanding of medical dosimetry of radiation oncology so that the trainees can easily adapt to ever changing technology.
- 2) Design treatment plans for three-dimensional conformal radiotherapy (3DCRT).
- 3) Design treatment plans for intensity modulated radiation therapy (IMRT).
- 4) Perform hand calculations to verify plan accuracy.
- 5) Understand image-guided radiation therapy (IGRT) as it applies to radiation treatment planning and delivery
- 6) Effectively communicate with an interdisciplinary radiation oncology team.
- 7) Pursue a career that embraces professional development.

The Medical Dosimetry Program believes deeply in these goals and will guide each trainee to reach these goals recognizing that trainees may fall behind at times or need additional support. Unkind, inhumane, disrespectful or belligerent behavior will not be fostered and trainees exhibiting such trends will be held accountable in a probationary period.

Medical Dosimetry Program Probationary Period

Trainees are hospital employees and are subject to policies and procedures within hospital grounds. Hospital employees are sanctioned, and possibly dismissed due to smoking on hospital grounds, inappropriate behavior, time and attendance, activities that place patient care at risk, or unwillingness to conduct assigned work. Within the program of Medical Dosimetry, focus is placed on trainee achievement in learning, and clinical duties. The trainee shall enter a period of probation within the Medical Dosimetry Program that will span from 1 to 3 months. For example, if a trainee fails more than one of the courses during a single month's time, the trainee will be advised of this.

The Medical Dosimetry Advisory Committee will assign the Program Director, or Clinical Coordinator to discuss the trainee's performance with the trainee. In such discussion the source of the failure in that competency shall be reviewed with the trainee, and a formal written statement describing the performance improvement plan will be delivered to the trainee and signed of awareness by the trainee. The trainee will be allowed to explain the reasons for such performance and a solution will be proposed by the Clinical Coordinator or Program Director. Review of progress will occur in one month. If the trainee has recovered to a passing performance in all areas, the trainee will be released of the probationary period, with due note in writing. If the trainee does not correct the performance in all areas to be at passing or better, the trainee will have a committee meeting. At the committee meeting the trainee will be allowed to explain if extraordinary circumstances are preventing the trainee from performing at an acceptable level in the program, in any one of the areas where the trainee is failing. The status will be summarized by the committee in writing. The trainee will also be asked to return to the committee in one month where performance shall be reviewed. If the trainee returns to normal levels of performance, the probationary period shall be stopped, and the trainee will be expected to continue to perform at an acceptable level, with a letter to the trainee from the committee of the resolution of probation.

Should a trainee show some improvement in performance after the second month of probation, but continue to fail in one or more areas, the trainee will be granted one final month of probation before the hospital is advised to consider dismissal at the administrative level. Also, at this point the trainee will be clearly informed in person and in writing of these circumstances and a permanent record will be placed in the trainee file. At the completion of this third month the trainee will have to demonstrate passing level in all areas and will be held in close observation.

Misconduct, failure in any competency, time and attendance, or incomplete assignments will be due cause to initiate termination without further notice.

Should a trainee continue to fail in any area at the completion of the third month of probation a written statement will be issued to the hospital administration to pursue termination of the trainee's contract with UMMC.

The trainee has access to the hospital appeal process if the trainee finds that any probationary period assigned by the Medical Dosimetry Program is not due, is unfair, or simply wishes to challenge the probationary period instituted by the program. Trainees are advised on how to use

the appeal process from the hospital intranet and from the appeal documents provided to each new employee.

Dismissal

A trainee may be dismissed from the program due to extraordinary circumstances such as unusual behavior that may threaten co-workers, staff, faculty, trainees, or patients. Any trainee, who reaches three months of program probation, will also be forwarded for dismissal to the UMMC administration. Dismissal due to trainees violating any aspect of the employee regulations not expressed herein, are at the discretion of the UMMC administration. Such regulations include sexual harassment, threatening intimidation, dangerous behavior, smoking on hospital grounds after disciplinary actions have been taken, or extended absence from work. Trainees are alerted to review the hospital employee handbook from the UMMC intranet at their earliest enrollment in the program.

Withdraw

A trainee may choose at any time to withdraw from the Medical Dosimetry Program at any time and for any reason. If a trainee withdraws from the Medical Dosimetry Program and thus their University of Maryland Medical Center trainee employment position they must do so by formal written notification to both the Chief Dosimetrist who supervises their University of Maryland Medical Center employment and the Program Director who supervises their Medical Dosimetry Program enrollment. A resignation/withdraw date should be specified within this formal written notification and it should be signed by the trainee wishing to withdraw. All applicable hospital policies and procedures for withdraw of employment should be followed.

Radiation Safety

The Radiation Oncology Department of the University of Maryland Medical Center (UMMC) including its regional clinical settings in accordance with the University of Maryland Baltimore (UMB) Radiation Safety Program (<http://www.ehs.umaryland.edu>) is committed to maintaining all employee radiation exposures and individual members of the public to the lowest possible levels achievable. To accomplish this goal, the radiation safety committee has adopted a formal ALARA Program designed to maintain employee radiation exposure to levels "As Low As Reasonably Achievable".

All trainees will receive radiation safety training conducted by the department's radiation safety officer and all trainees are issued radiation monitor badges when they start the program. The program includes didactic training in radiation safety including basics of radiation protection, applicable state and national rules and regulations, quality assurance in radiation oncology and the department's radiation safety policy. The trainees also participate in an annual radiation safety refresher course, taught by a medical physicist to all radiation workers in the department.

When performing procedures involving radiation, a qualified radiation worker will directly supervise each trainee. Monthly records of the personnel exposure (Film Badge Readings) shall be readily available for trainees review. The monthly records will be reviewed during their monthly meeting with the Program Director.

The declaration of pregnant worker status is voluntary, administered by the office of environmental health and safety, and must be submitted in writing. Declared pregnant trainees will be offered an alternative schedule to gain competency in brachytherapy procedures when sources are present.

Pregnancy Policy

The pregnancy policy will be maintained in accordance with the policies of the University of Maryland Medical Systems, which are discussed in the UMMC policy and procedure manual, procedure #409, leave of absence.

Declaration of Pregnant Worker (DPW) Status

The declaration of pregnant worker status is voluntary and is administered by the office of environmental health and safety. Declared pregnant trainees will be offered an alternative schedule to gain competency in brachytherapy procedures when sources are present. The pregnancy policy of our Department of Environmental Health and Safety is available through their website at:

http://www.ehs.umaryland.edu/Radiation%20Safety/Policies/docs/RSP_1_4%20April%201%202005.pdf. Additionally, this page includes a link where one can voluntarily disclose their status as a pregnant radiation worker.



APPENDIX I: JRCERT Standards

<https://www.jrcert.org/wp-content/uploads/Documents/Resources/Standards-PDFs/2021-Medical-Dosimetry-Standards.pdf>