

BS Medical Dosimetry Program

All Tasks must be completed and signed-off during clinical internship.

Journals submitted without sign-off will be returned to student and will delay graduation. AMA Format is used to cite sources for research. All student work must be approved by CMD or other credentialed practitioner before applying to patient treatment. Any patient care competencies require Direct Supervision by qualified practitioner.

Diagnostic Imaging

#	Task(s) / Discussion points	Deliverable	Sign-off	Date
D1	Computed Tomography (a) Imaging principles (b) Slice thickness (c) High and low contrast resolution (d) Helical z-axis characterization (e) Positioning light alignment (f) Lasers (g) QC and accreditation	*Identify your site's CT equipment *Discuss in journal		
D2	CT daily tests	*Observe *Document and discuss		
D3	CT annual tests (if being performed)	*Observe *Document and discuss		
D4	CT simulation (a) TG-66 (b) Daily, Monthly, and Annual QA (c) Electron Density Tables	*Observe QA, if possible *Document and discuss		
D5	MRI daily tests	*Observe, if possible *Document and discuss		
D6	PET daily tests	*Observe, if possible *Document and discuss		
D7	Portal Imaging QA (a) TG-58 (b) TG-142	*Observe QA, if possible *Document and discuss		

Body-Site-Specific Imaging

#	Site	Deliverable	Sign-off	Date
SI1	Diagnostic CT with/without contrast (a) Lung (b) Abdomen (c) Pelvis	*Observe *Document		
SI2	MRI: any site	*Observe *Document		
SI3	PET: any site	*Observe *Document		
SI4	US: Prostate	*Observe *Document		
SI5	C-Arm: Surgery	*Observe *Document		
SI6	Gamma Camera: Any site	*Observe *Document		
SI7	Other	*Observe *Document		
SI8	Other	*Observe *Document		
SI9	Other	*Observe *Document		
SI10	Other	*Observe *Document		
SI11	Other	*Observe *Document		

Radiation Therapy Physics: Instrumentation, QA, and Clinical Studies

#	Task(s) / Discussion points	Deliverable	Sign-off	Date
T1	Attend multidisciplinary cancer conferences / tumor boards and weekly peer review Observe one chart check weekly	*Attend *Observe *Provide documentation		
T2	Assist with two clinical independent TLD/Diode measurements	*Observe two (If not available, research topic) *Document and discuss		
T3	Defining GTV, CTV, PTV, and critical structures	*Discuss in your journal		
T4	Calculate MU for five photon non-IMRT clinical cases	*Calculate *Document and discuss		
T5	Hand Calcs: * Calculate three cases of irregular photon fields, including one mantle field, by hand, checking with your second-check program *Calculate at least 10 separate fields (or as many as possible)	*Calculate *Document and discuss		
T6	Calculate a rotational photon beam average TMR manually and check with your second-check program	*Calculate *Document and discuss		
T7	Dose modeling for external photon and electron beams; determine the models used for your TPS and any calculation algorithms validated.	*Discuss your TPS in your journal		
T8	Observe your site's daily linac tests. Shadow procedures at least 3 times.	*Observe *Document and discuss		
T9	Perform equipment inventory, focusing on simulation and treatment planning hardware/software to include patient immobilization devices. Review all available spec sheets.	*Observe *Document and discuss		
T10	Patient IMRT QA with your physicist. Observe at least two	*Shadow *Document and discuss		

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T11	Review badge reports Review ALARA notifications, if any Review provisions for protection of pregnant workers	*Discuss		
T12	Follow one electron case from new start to delivery (a) New start (b) Weekly chart checks (c) Simulation (d) Block or cutout manufacture (e) Treatment planning (f) Delivery (g) Patient-specific QA (h) Patient follow-up	*Document and discuss		
T13	Performance of routine QA of any device not listed above (e.g., a block cutter)	*Observe *Document and discuss		
T14	Other	*Observe *Document and discuss		
T15	Other	*Observe *Document and discuss		
T16	Other	*Observe *Document and discuss		

Simulation Procedures

#	Task(s) / Discussion points	Deliverable	Sign-off	Date
S1	Prostate (CT Sim)	Observe, Assist, & Discuss		
S2	Lung (CT Sim)	Observe, Assist, & Discuss		
S3	Head/Neck (CT Sim)	Observe, Assist, & Discuss		
S4	Breast (CT Sim)	Observe, Assist, & Discuss		
S5	Brain (CT Sim)	Observe, Assist, & Discuss		
S6	Colon (CT Sim)	Observe, Assist, & Discuss		
S7	Gyn (CT Sim)	Observe, Assist, & Discuss		
S8	Extremity (CT Sim)	Observe, Assist, & Discuss		
S9	Abdomen (CT Sim)	Observe, Assist, & Discuss		
S10	Electron field (CT Sim)	Observe, Assist, & Discuss		
S11	Special Procedure SRS:	Observe, Assist, & Discuss		
S12	Special Procedure SBRT:	Observe, Assist, & Discuss		
S13	Quality Assurance Process for Simulation (e.g., Review pathology report, patient identification):	Observe, Assist, & Discuss		
S14	MRI: any site	Observe, Assist, & Discuss		
S15	Misc. Simulation:	Observe, Assist, & Discuss		
S16	Misc. Simulation:	Observe, Assist, & Discuss		

Treatment Planning

If your site performs brachytherapy and external beam for a given body site, be sure to plan and plan review one plan of each body site. You may use 2D, 3D, IMRT, or VMAT as appropriate. All competencies designated **MANDATORY** must be completed for successful completion of Clinical Internship. Each **MANDATORY External Beam** competency must be accompanied by a Mandatory Competency Evaluation Form. All student work must be approved by CMD or other credentialed practitioner **before** applying to patient treatment.

#	Site	Deliverable	Sign-Off	Date
P1	Prostate 3D or IMRT MANDATORY	Plan and Plan Review		
P2	Pelvis 3 or 4-Field with wedges- MANDATORY	Plan and Plan Review		
P3	Pelvis 4-Field- MANDATORY	Plan and Plan Review		
P4	Lung MANDATORY	Plan and Plan Review		
P5	Esophagus MANDATORY	Plan and Plan Review		
P6	Head & Neck (primary) MANDATORY	Plan and Plan Review		
P7	Fusion Plan- MANDATORY	Plan and Plan Review		
P8	Breast (Intact) Tangential- MANDATORY	Plan and Plan Review		
P9	Chest Wall or Intact Breast Tangents with S'clav, and Axilla- MANDATORY	Plan and Plan Review		
P10	Craniospinal	Plan and Plan Review or Research Discuss in Journal		
P11	Brain (Whole Brain) or Spine- MANDATORY	Plan and Plan Review		
P12	Brain (Primary) MANDATORY	Plan and Plan Review		
P13	Gyn- MANDATORY	Plan and Plan Review		
P14	Extremity Limb Melanoma/Sarcoma MANDATORY	Plan and Plan Review		
P15	Abdomen (e.g., Pancreas) MANDATORY	Plan and Plan Review		

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P16	Para-Aortic/Nodal Irradiation- MANDATORY	Plan and Plan Review		
P17	Anal or Vulva	Plan and Plan Review or Research Discuss in Journal		
P18	Electron Field- MANDATORY	Plan and Plan Review		
P19	Palliative- MANDATORY	Plan and Plan Review		
P20	Re-irradiation or Composite Plan- MANDATORY	Plan and Plan Review		
P21	Lymphoma Plan (Hodgkin's or other)- MANDATORY	Plan and Plan Review		
P22	Simultaneous Integrated Boost (SIB) plan MANDATORY	Plan and Plan Review		

Special Procedures A minimum of two brachytherapy procedures (one interstitial and one intracavitary) are **MANDATORY**. If not available in your clinic, please review videos provided by the school. **A Mandatory Competency Evaluation Form is not required.**

#	Task(s) / Discussion points	Deliverable	Sign-off	Date
SP1	Brachytherapy: Interstitial Implant: Seed Implant (a) Observe implant or volume study, if possible (b) Review a plan (c) Manually calculate dose	*Observe or Research Topic *Calculate *Document and discuss in Journal		
SP2	Brachytherapy: Intracavitary Implant: HDR Breast or Prostate- (a) Observe implant, if possible (b) Review a plan (c) Manually calculate dose	*Observe or Research Topic *Calculate *Document and discuss in Journal		
SP3	Brachytherapy: LDR/HDR Gyn (a) Observe implant, if possible (b) Review a plan (c) Manually calculate dose	*Observe or Research Topic *Calculate *Document and discuss in journal		
SP4	Stereotactic: Brain (a) Observe procedure, if possible (b) Review a plan (c) Check dose to a point by hand	*Observe or Research Topic *Calculate *Document and discuss in journal		
SP5	Stereotactic: Body (a) Observe procedure, if possible (b) Review a plan (c) Check dose to a point by hand	*Observe or Research Topic *Calculate *Document and discuss in journal		
SP6	Intraoperative Irradiation (IORT) (a) Observe procedure, if possible (b) Review a plan	*Observe or Research Topic *Document and discuss in journal		
SP7	Respiratory Gaiting: 4D CT (a) Observe procedure, if possible (b) Review a plan and treatment on the machine	*Observe or Research Topic *Document and discuss in journal		

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SP8	If you are able to perform or observe any other procedures of interest (Proton, TBI, TSET, EBCT, Arc Therapy, Tomotherapy, VMAT, Hodgkin's Lymphoma, Grid Therapy, Craniospinal, Re-irradiation, Composite planning, etc.)	*Observe, if possible *Document and discuss		
SP9	Other:	*Document and discuss		