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**New Staff Member**

**Orientation Sample Checklist:**

**Medical Dosimetrist**

***ASTRO provides the following as a sample checklist\*****.*

*An individual competent in the information and tasks should oversee the orientation. The scope of this document is focused on areas unique or specific to radiation oncology. For hospital-based radiation oncology departments, the radiation oncology team should work alongside hospital-specific learning and competency requirements to ensure staff have comprehensive onboarding. During orientation, new hires should be made aware of where all standard operating procedures and policies are located and position-specific expectations (e.g., staff meetings, remote vs. onsite hours, after-hours emergencies). Policies and procedures specific to dosimetry and related to the dosimetrist’s responsibilities should be reviewed with new staff.*

**DISEASE-SITE SPECIFIC WORK**

*In the table below, a new hire should observe a patient’s simulation and plan a patient’s case for all appropriate techniques for each disease site (i.e., row in the table below). For simulation, dosimetrists should have a good understanding of the imaging processes for various disease sites and how simulation positioning impacts planning (e.g., provide input to help with set-up, verify simulation images are appropriate). This experience can help minimize unnecessary re-simulation. For planning, new dosimetrists need to be aware of any disease-site specific timeframe expectations, including how urgent cases are communicated and affect the standard process. The practice should identify which techniques per disease site are relevant and add additional techniques as appropriate in the “other” category such as brachytherapy, 2-D, online adaptive, etc.*

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| **Disease site** | **Observing simulation of disease-site specific set-up/technique1** | **Planning a patient’s treatment per facility’s practice guidelines** | | | | |
| **3-D** | **IMRT** | **VMAT** | **SRS/ SBRT** | **OTHER** |
| **Lung** | * 4-D scan * Breath-hold |  |  |  |  |  |
| **Gynecology** | * Bladder fill check * Rectal fill check |  |  |  |  |  |
| **CNS** | * Devices (e.g., mask) |  |  |  |  |  |
| **Prostate/ Prostate Bed** | * Bladder fill, rectum/bowel emptying (air/stool) * Devices (rectal balloon/spacer, fiducials for alignment) |  |  |  |  |  |
| **Breast** | * Positioning (e.g., supine, prone, arms) * Devices (e.g., breast board, wing board) * Breath-hold |  |  |  |  |  |
| **Head and Neck** | * Positioning (e.g., chin, shoulder) * Devices (e.g., bite block, shoulder pulls) |  |  |  |  |  |
| **Upper GI** | * Positioning (e.g., arms, pannus) * Devices (e.g., bodyfix, fiducials) * 4-D scan * Breath-hold |  |  |  |  |  |
| **Lower GI** | * Positioning (e.g., legs) |  |  |  |  |  |
| **Hematologic/ Lymphoma** |  |  |  |  |  |  |
| **Pediatrics** | * Understand how anesthesia impacts patient procedure |  |  |  |  |  |
| **Palliative** |  |  |  |  |  |  |
| **Extremity** |  |  |  |  |  |  |
| **Other** | * Electron set-up * Bolus set-up |  |  |  |  |  |

1 This includes review of patient positioning and confirming simulation images (e.g., check FOV, ensure anatomy not clipped, confirm slice thickness).

Abbreviations: central nervous system (CNS), field-of-view (FOV), gastrointestinal (GI), intensity modulated radiation therapy (IMRT), stereotactic body radiation therapy (SBRT), stereotactic radiosurgery (SRS), volumetric modulated arc therapy (VMAT)

**PROCESS OF CARE**

**Imaging Import/Export and Fusion**

* Importing diagnostic images
* Importing simulation images
  + Familiarity with all relevant systems and processes
  + Process for verifying the correct import of images, DICOM transfer, etc.
  + Evaluation of quality of images (e.g., FOV, slice thickness)
  + Consideration of CIEDs (AAPM TG 2031, Heart Rhythm Society Consensus2)
  + Use of facility’s disease site/prescription-specific contouring templates (if appropriate and applicable)
  + Standard use of naming conventions (e.g., AAPM TG 2633)
* Prior radiation (e.g., importing outside records, fusion of accumulation of dose)
* Rigid image fusion
* Deformable image fusion
* CT to MRI image fusion
* CT To PET image fusion

**Dosimetry Planning**

* Communication with team members to initiate workflow steps
  + Special considerations (e.g., adaptive plans)
  + Physics check
  + Plan sign-off by physician
* Contouring normal anatomy (ASTRO standardizing normal tissue contouring paper4)
* Adding appropriate clinical goals to the plan
* Understanding different ways of prescribing (e.g., reference point, isodose line) and how communicated/standardized
* Expectations and completion of special planning procedures
  + Prior radiation (e.g., calculations, plan sum)
  + Use of dose tracking points
  + Phase-based planning
* Quality assurance and check of AI contouring (if applicable)

**Treatment Delivery Support**

**TECHNIQUE PLANNING**

*Below is a list of techniques intended only as examples. The specific equipment will vary between practices and therefore facilities will need to adjust equipment list to what is pertinent to their facility.*

**EBRT**

* + Electrons
  + 2-D
  + 3-D
  + IMRT/VMAT
  + SRS/SBRT
  + Offline adaptive
  + Online adaptive
  + Proton

**Brachytherapy**

* + HDR
  + LDR

**Radiopharmaceuticals**

* + I-131
  + Lu-177
  + Ra-223

**RADIATION THERAPY TEAM MEMBERS5**

*A cohesive team environment promotes a culture of safety and therefore it is important for a medical dosimetrist to appreciate and understand the role other radiation oncology team members play and how their dosimetry responsibilities intersect with other team members. New hires are encouraged to have an orientation with each group listed below and observe their team members if possible. As with other sections of the sample checklist, facilities may wish to adjust the suggestions below and subtract/add activities as needed. The ultimate goal is to increase awareness, improve communication and foster a good working environment.*

* Radiation Oncologist
  + Become familiar with communication channels for notifying plan readiness of contours and plan approvals
  + Observe key events in physician decision making (e.g., peer review, chart rounds, tumor board, patient intake process)
* Physicist
  + Observe and become familiar with overall physics workflow (e.g., understanding what is checked during plan/chart checks)
* Therapist
  + Observe and become familiar with therapist workflow (e.g., patient setup, chart checks, special considerations for treatment delivery such as clearance issues)
* Radiation Oncology Nurse
  + Become familiar with nurse’s role in patient care
* Front Desk/Scheduler
  + Become familiar with front desk’s role in patient care, documentation, and scheduling
  + Understand processes for acquiring relevant records (e.g., prior radiation)

**RADIATION THERAPY DOCUMENTATION**

*Given the extensive time dosimetrists interact with the Oncology Information System (OIS) and/or Electronic Health Record (EHR), detailed hands-on training is needed. The specific items documented in the OIS or EHR may be facility- or vendor-specific and therefore the sample list below will need to be adjusted accordingly.*

* OIS/EHR access established
* OIS/EHR training and documentation
  + Plan setup/fields (e.g., special IGRT consideration, fiducials, stents)
  + Dose coefficients SIB patients
  + DRRs/IGRT CBCT field setup
  + Entering shifts and SSDs
  + Confirming isocenter in TPS matches OIS
  + Prior treatments (e.g., pdf of isodose lines/field, dose DICOMs on CT, composite checklists/clinical goals, EQD2Gy calculations)
  + Treatment
  + Adaptive treatment
* Sending and receiving dose files
* Billing process, code familiarity and documentation requirements

**QUALITY AND SAFETY**

*New hires require radiation-specific training related to quality and safety activities. They should also be encouraged to be involved in quality improvement initiatives, such as incident learning.*

* Radiation Basics
* Radiation Safety
  + Radiation Safety Training
  + Radiation Dosimetry Badge
  + Brachytherapy/Health Protection
* Error Reporting (e.g., RO-ILS)

**RESOURCES**

* [AAMD Curriculum Guidelines](https://medicaldosimetry.site-ym.com/page/CurriculumGuidelines)
* [AAMD Practice Standards](https://pubs.medicaldosimetry.org/pub/0D4F14CE-F3FE-DC5B-3329-9A7658229EEB)
* [AAMD Scope of Practice](https://pubs.medicaldosimetry.org/pub/0D422D93-A306-DC24-3BB8-CF7E046B1779)

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