



# Proton Beam Radiation Therapy

## Alternative Forms of Recognition

The purpose of ARRT's alternative forms of recognition (AFR) programs is to provide a mechanism for individuals to document completion of activities that are prerequisite to the professional performance of a role in areas for which ARRT does not currently offer certification and registration, but which are within ARRT's scope of interest as described by its mission. The proton beam radiation therapy (PBRT) recognition program is the first AFR offered by ARRT.

## Related Documents

The practice analysis process and resulting task inventory that serve as the foundation for the recognition program is described in the *Proton Beam Radiation Therapy Task Inventory* document. The *Proton Beam Radiation Therapy Body of Knowledge Standard and Requirements* is described in a separate document by that name.

## Clinical Standard

The purpose of the Clinical Standard is to identify a comprehensive listing of the clinical procedures performed by radiation therapists in proton beam radiation therapy. The task inventory developed from the practice analysis lists the job responsibilities typically required of a radiation therapist working in proton beam radiation therapy. An advisory committee composed of subject matter experts and working under the guidance of ARRT organized the clinical procedures on the task inventory into categories. Every clinical procedure in the categories can be linked to the task inventory.

## Eligibility Requirements

The following requirements are necessary for all candidates applying for the PBRT AFR:

- Current certification and registration in radiation therapy
- Experience working in PBRT as a radiation therapist either previously or currently
- Submission of the application for recognition along with the appropriate fee
- Submission of documentation from employer(s) verifying the number of years the candidate has been employed full-time performing proton beam radiation therapy
- Renewal of PBRT AFR every seven years as new technologies in PBRT emerge

## Pathways to Achieve AFR

Candidates pursuing recognition in PBRT have varying backgrounds in the field of proton beam radiation therapy. For this reason, there are two pathways available for individuals to earn the PBRT AFR. The first pathway is for those currently performing PBRT full-time for 24 months or less at the time of submitting their application. The second pathway is for those currently working full-time in the field of PBRT for more than 24 months at the time of submitting their application. This pathway is also for those who had worked full-time in PBRT but are no longer working in PBRT within the past 24 months from the time of submitting their application. The individuals who qualify for pathway two have the choice of utilizing either pathway. These pathways are detailed in the *Proton Beam Radiation Therapy Body of Knowledge Standard and Requirements*.



## **Clinical Requirements**

The purpose of the Clinical Requirements is to document that candidates have performed a subset of the proton beam radiation therapy clinical procedures in the Standard. Whereas the Clinical Standard represents a comprehensive listing of all clinical procedures performed by radiation therapists in proton beam radiation therapy, the Clinical Requirements represent evidence that the individual has had the opportunity to perform many of the procedures. Due to practice pattern variations, it is not expected that all procedures will be performed in all facilities. Requiring that radiation therapists document experience in all procedures included on the task inventory would not be practical. Nor would it be necessary since experience in related procedures provide a sound basis for learning other procedures that are based upon similar principles.

## **Specific Procedural Requirements**

The clinical requirements for proton beam radiation therapy consist of 37 procedures in the following categories:

1. Patient Immobilization Devices
  - A. Thermoplastic Mold
  - B. Custom Immobilization
2. Treatments
  - A. CNS
  - B. Head and Neck
  - C. Thorax
  - D. Breast
  - E. Abdomen, Pelvis, GI, and GU
  - F. Reproductive
  - G. Skeletal
  - H. Miscellaneous

Candidates must document the completion of these procedures according to the following requirements:

- All procedures must be performed on patients (simulated procedures do not qualify).
- The activities and documentation of the activities must be completed in the immediate 24 months prior to application.



### Mandatory Procedures

Fabrication of the following patient immobilization devices according to the table below for a total of 10. One patient may have one or two immobilization devices fabricated.

Immobilization Device	Minimum Number of Fabrications
thermoplastic mold	5
custom immobilization (e.g., vacuum bag, neck support cushion)	5

### Elective Procedures

Candidates must perform a minimum of 18 *different* treatment procedures out of the 35 procedures listed on the following pages.

- For each chosen treatment procedure, complete and document a minimum of two and a maximum of five repetitions; fewer than two will not be counted toward the total.
- A total of 72 repetitions (overall) is required.
- No more than one procedure may be documented on one patient per fraction treated. For example, if treating the brain and lung on one patient, only one of these sites may be used for clinical requirements documentation for one fraction treated and the next fraction the other site may be used for documentation.

### Examples

Candidate A: This person performed 18 different treatment procedures. To complete 72 total repetitions, 12 procedures were performed five times and 6 procedures were performed twice.

Candidate B: This person performed 30 different treatment procedures. Although most of these procedures were performed two times, several of them were performed three, four, or five times each until the candidate reached 72 total procedures

### General Guidelines

To qualify as a proton beam radiation therapy patient immobilization procedure, the candidate must be able to demonstrate:

- preparation of simulation room
- verification of patient consent prior to simulation
- identification of patient using two patient-specific identifiers
- verification of simulation site
- patient assessment and education concerning the procedure
- creation of a customized immobilization device that will allow minimal interference with the beam and reproducibility of patient positioning while taking into account patient-specific considerations
- documentation of simulation and treatment device in simulation record



To qualify as a proton beam radiation therapy treatment procedure, the candidate must demonstrate appropriate:

- preparation of treatment room
- time out procedure to verify the identification of the patient using two patient-specific identifiers and verification of the treatment site(s)
- patient assessment (\*e.g., pregnancy status, emotional and physical wellbeing)
- patient education concerning the procedure
- patient positioning and immobilization
- utilization of IGRT protocols in order to reduce unnecessary radiation dose to patients
- place within beam queue
- communication with patient, staff, and main control room if faults arise
- verification of treatment delivery parameters against the approved prescription and plan
- documentation of treatment and patient data in treatment record
- radiation safety
- infection control awareness and adherence to policy and procedures in order to minimize the spread of disease
- preparedness for patient-related emergencies (e.g., falls, cardiac events, anesthesia events)

\* The abbreviation "e.g.," is used to indicate that examples are listed in parenthesis, but that it is not a complete list of all possibilities.



## Procedures

1. Patient Immobilization Devices
  - A. Thermoplastic Mold
  - B. Custom Immobilization (e.g., vacuum bag, neck support cushion)
2. Treatments
  - A. CNS
    1. primary brain
    2. craniospinal
  - B. Head and Neck
  - C. Thorax
    1. lung
    2. mediastinum
    3. thymus
  - D. Breast
  - E. Abdomen, pelvis, GI, and GU
    1. esophagus
    2. stomach
    3. small bowel
    4. large bowel
    5. rectum
    6. anus
    7. pancreas
    8. adrenals
    9. liver
    10. gallbladder
    11. ureters
    12. kidneys
    13. bladder
    14. urethra
  - F. Reproductive
    1. prostate
    2. testicles
    3. endometrium
    4. cervix
    5. ovaries
    6. uterus
    7. vagina
    8. vulva
  - G. Skeletal
    1. spine
    2. extremity
  - H. Miscellaneous
    1. lymphoma (Hodgkin and non-Hodgkin)
    2. sarcoma (bone and soft tissue)
    3. ocular
    4. metastases



### Grid summarizing the PBRT Body of Knowledge Standard and Requirements and Clinical Standard and Requirements

**PBRT Body of Knowledge Standard and Requirements:** All applicants must meet the Body of Knowledge Standard and Requirements. See chart below for details on the evidence accepted to satisfy this requirement.

**PBRT Clinical Standard and Requirements:** All applicants must meet the Clinical Standard and Requirements. See chart below for details on the evidence accepted to satisfy this requirement.

	Time in PBRT	Evidence Accepted		Time Frame
<b>Eligibility Pathway One</b>	Those with 24 months of full-time experience or less in PBRT must satisfy the Body of Knowledge Standard and Requirements and Clinical Standard and Requirements.	Body of Knowledge Standard and Requirements  Completion of 16 hours of structured education through one or more of the activities listed on pages 5-6 of the Body of Knowledge Standard and Requirements.	Clinical Standard and Requirements  Completion of a minimum of 18 different treatment procedures out of the 35 procedures listed on the page 5 of this document.	The Body of Knowledge Standard and Requirements and Clinical Standards and Requirements must be completed within the 24 months immediately preceding the submission of the application.
<b>Eligibility Pathway Two</b>	*Those with more than 24 months of full-time experience in PBRT have two options to satisfy the the Body of Knowledge Standard and Requirements and Clinical Standard and Requirements.	Completion of 16 hours of structured education through one or more of the activities listed on pages 5-6 of the Body of Knowledge Standard and Requirements	Completion of two types of immobilization devices and minimum of 18 different treatment procedures out of the 35 procedures listed on page 5 of this document	The Body of Knowledge Standard and Requirements and Clinical Standard and Requirements must be completed within the 24 months immediately preceding the submission of the application.
	<b>or</b>	Provide attestations for each section of the Body of Knowledge Standard and Requirements (i.e., Patient Care) from a radiation oncologist, physicist, supervisor, and radiation therapist that work in PBRT.	Provide attestations for each section of the Clinical Standard and Requirements (i.e., Specific Procedural Requirements) from a radiation oncologist, physicist, supervisor, and radiation therapist that work in PBRT.	

\*Candidates with more than 24 months of experience may submit either type of evidence for the *PBRT Body of Knowledge Standard and Requirements*, and they may submit either type of evidence for the *PBRT Clinical Standard and Requirements*. **Pathway Two will be in effect until Dec. 31, 2020. After that, all applicants will have to satisfy requirements through Pathway One.**