# PROTON BEAM THERAPY (PBT)

This Model Policy* addresses coverage for Proton Beam Therapy.

## DESCRIPTION

Proton Beam Therapy (PBT) is a technology for delivering conformal external beam radiation with positively charged subatomic particles to a well-defined treatment volume. PBT is approved by the U.S. Food and Drug Administration.

PBT has unique dose deposition characteristics and can deliver radiation to specified anatomic targets while giving less collateral dose to surrounding normal tissues in comparison to photon/X-ray-based forms of external beam radiotherapy.

Photon/X-ray beams deliver most of their energy in tissues just beneath the patient's surface, with the remainder deposited along the beams' path as photons/X-ray pass through the target and exit the body. In contrast, the physical profile of proton beams allows delivery of dose over a narrow range of depth in the body with no exit dose. Compared to photon beams, proton beams deposit less dose upon entering the body, with subsequent dose deposition then rapidly increasing over a narrow range of tissue at a desired depth to produce an intense dose distribution pattern called the Bragg peak. Beyond the Bragg peak, energy and dose deposition rapidly decrease, resulting in small, insignificant amounts of dose to normal tissues that lay beyond the target. A single proton beam can offer uniform dose to target volume. Multiple beams can be combined and optimized to achieve highly conformal dose distributions.

## TREATMENT

### PBT Treatment Planning

PBT can allow for radiation treatment plans that are highly conformal to anatomic targets and minimize dose to normal tissues. Specifics of PBT planning include appropriate determination of device configuration (e.g., necessary field sizes, number of beams, gantry angles, beam energy selection, robust optimization) needed to achieve the desired radiation dose distribution.

An assessment of patient suitability for PBT is an important step in the process of care. Anatomical changes, such as patient weight, or alterations in the density and composition of tissues in the path of the beam can have a much greater impact on the delivered dose and plan integrity for protons than photons/X-ray.

PBT treatment planning is a multi-step process like other forms of external beam radiation therapy planning:

1. **Simulation and Imaging:** Three-dimensional capture of relevant anatomy employing CT, CT/ PET and/or MR imaging is an essential prerequisite to PBT treatment planning. If respiratory or other normal organ motion is expected to produce significant movement of the target region during radiation therapy delivery, the radiation oncologist may request multi-phasic treatment planning image sets to account for target and/or normal tissue motion. Supportive motion management strategies such as abdominal compression and/or breath hold can also be employed, like their routine use in photon radiation therapy. As in other forms of external beam radiation, immobilization is critical. Patient immobilization devices must be carefully designed to minimize impacting the dose distribution.

*ASTRO Model Policies were developed as a means to efficiently communicate what ASTRO believes to be correct coverage policies for radiation oncology services. The ASTRO Model Policies do not serve as clinical guidelines and they are subject to periodic review and revision without notice. The ASTRO Model Policies may be reproduced and distributed, without modification, for noncommercial purposes.

2. **Contouring:** Defining the target and avoidance structures is a multi-step process:
    a. The radiation oncologist reviews the three-dimensional images and delineates the treatment target on each slice of the image set. The summation of these contours defines the Gross Tumor Volume (GTV). The physician may outline separate GTVs on multiple image sets to account for the effect of respiratory motion upon target location and shape, commonly termed the Internal Target Volume (ITV). Some patients may not have GTVs if they have had previous treatment with surgery or chemotherapy, in which case treatment planning is based on CTVs as described below.
    b. The radiation oncologist creates a margin around the GTV or delineates other key anatomic areas to generate Clinical Target Volumes (CTV) which defines region areas at risk for harboring microscopic disease (i.e., not visible on imaging studies).
    c. In photon therapy, an additional margin is added to create a Planning Target Volume (PTV), a volume expanded to account for set up uncertainties. In PBT planning, the geometric PTV approach is insufficient to generate robust plans due to more complex sources of uncertainty along each beam direction. Instead of a uniform expansion, separate margins are adopted perpendicular to and along the beam direction. Rather, planning must be specifically optimized to ensure robustness of CTV coverage while incorporating sources of uncertainty such as set up and proton range uncertainty.
    d. Nearby normal structures that could potentially be harmed by radiation (i.e., "organs at risk," or OARs) are also contoured.

3. **Radiation Dose Prescription:** As is done with photon planning, the radiation oncologist assigns specific dose objectives for the target, which for proton planning is the CTV, and directs that these goals be met even in the presence of set up and range uncertainties. Target coverage with proton planning is evaluated by assessing a "band of DVH's," each of which corresponds to a pre-specified positional shift or assumed range perturbation or both. Additionally, proton planning must routinely account for respecting dose constraints for OARs on both the nominal plan and in the presence of setup and range uncertainties. A treatment plan that satisfies such requirements should maximize the potential for disease control and minimize the risk of radiation injury to normal tissue. The degree to which the dose deviation to the target and OARs are weighed in plan evaluation is at the discretion of the treating physician.

4. **Dosimetric Planning and Calculations:** The qualified clinical medical physicist or dosimetrist calculates a treatment plan to deliver the prescribed radiation dose to the CTV and simultaneously satisfy the normal tissue dose constraints by delivering significantly lower doses to nearby organs. Delivery mechanisms vary but using scanning magnets or scattering devices PBT plans spread protons laterally over the extent of a target volume. In some cases, the lateral spread of the protons is shaped and conformed using an aperture. Additionally, multiple proton energies are combined, through the use of mechanical absorbers or accelerator (i.e., synchrotron) energy changes, to deliver the planned dose distribution over the longitudinal extent of the target, called spread-out Bragg peak (SOBP). For passive scattering PBT delivery, beam-specific range compensation devices are often used to shape the range of the proton beam to the distal edge of the target. Regardless of the delivery technique, all delivery parameters and/or field specific hardware are developed by a medical physicist or dosimetrist during the treatment planning stage. An expected dose distribution is calculated based on these parameters and devices. For PBT plans, nominal treatment plans should be evaluated for robustness considering both positional and range uncertainties to ensure that the planned CTV coverage and normal tissue sparing meet prespecified metrics in the presence of uncertainties.

5. **Patient Specific Dose Verification:** An independent dose calculation and/or measurement should confirm that the intended dose distribution for the patient is physically verified and feasible for delivery.

Documentation of all aspects of the treatment planning process is essential.

### PBT Treatment Delivery

Proton delivery methods can be described in one of two forms: scattering or scanning.

In scattered deliveries, the beam is broadened laterally by scattering devices, beam energies are combined by mechanical absorbers, and the beam is shaped by placing devices such as collimators and compensators into the proton beam path.

In scanning deliveries, the beam is swept laterally over the target with scanning magnets instead of scatter devices. Collimators are still sometimes used for lateral beam shaping, but field shaping hardware is not generally required for spot scanning beam delivery because the scanning magnets allow the lateral extent of the beam to be varied with each energy level, a technique sometimes called intensity-modulated proton therapy (IMPT).

The basic requirement for all forms of PBT treatment delivery is that the technology must accurately produce the calculated dose distribution described by the PBT plan.

Precise delivery is vital for high-quality treatment. Therefore, imaging techniques such as stereoscopic X-ray, Cone Beam CT scan, or CT-on-rails scan (collectively referred to as Image Guided Radiation Therapy or IGRT) should be utilized to verify accurate and consistent patient and target setup for every treatment fraction. Especially, volumetric images should be considered to confirm the consistent beam path and anatomic positions.

### Documentation Requirements

Documentation in the patient medical record must:

1. Support one or more medical necessity requirement(s) as provided under the "Indications and Limitations of Coverage and/or Medical Necessity" section of this policy, if not enrolled on a clinical protocol or registry.

2. Include a treatment prescription that defines the goals of the treatment plan – including specific dose-volume parameters for the target and nearby critical structures – as well as pertinent details of beam delivery, such as the method of beam modulation, field arrangement, and expected positional and range uncertainties.

3. Include a treatment plan, signed by a physician, which meets the prescribed dose-volume parameters for the clinical target volume (CTV) and surrounding organs at risk (OARs) in the presence of expected uncertainties.

4. Describe the target setup verification methodology, including patient positioning, immobilization, image guidance and frequencies.

5. Include verification of planned dose distribution via independent dose calculation or physical measurement.

## INDICATIONS AND LIMITATIONS OF COVERAGE AND/OR MEDICAL NECESSITY

### Indications for Coverage

PBT is considered reasonable in instances where sparing the surrounding normal tissue is of added clinical benefit to the patient and cannot be adequately achieved with photon-based radiation therapy. Examples of such an advantage include, but are not limited to:

1. The target volume is near one or more critical structures and a steep dose gradient outside the target must be achieved to avoid exceeding the tolerance dose to the critical structure(s), which would portend a higher risk of toxicity.

2. A proton-based technique would decrease the probability of clinically meaningful normal tissue toxicity by lowering an integral dose-based metric and/or organ at risk dose volume constraint associated with toxicity.

3. The same or an immediately adjacent area has been previously irradiated, and the dose distribution within the patient must be sculpted to avoid exceeding the cumulative tolerance dose of nearby normal tissue.

In addition to satisfying at least one of the three selection criteria noted above, the radiation oncologist's decision to employ PBT requires an informed assessment of the benefits and risks including:

- Determination of patient suitability for PBT allowing for reproducible treatment delivery.
- Adequate definition of the target volumes and OARs.
- Equipment capability, including ability to account for organ motion when relevant.
- Physician, physicist and staff training.
- Adequate quality assurance and safety procedures.

Coverage decisions may extend beyond ICD-10 codes to incorporate additional considerations of clinical scenario and medical necessity with appropriate documentation, which in certain circumstances may include comparative dose volume histograms.

**Group 1**
Based on the medical necessity requirements and published clinical data that meets the selection criteria above, disease sites that frequently support the use of PBT include the following:

| GENERAL |
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| **Benign or malignant tumors or hematologic malignancies in children aged 21 years and younger treated with curative intent and occasionally palliative intent treatment of childhood tumors when at least one of the three criteria noted above under "indications for coverage" apply** |
| **Benign or malignant tumors or hematologic malignancies in the adolescent/young adult (AYA) population aged 22 years to 39 years treated with curative intent when at least one of the three criteria noted above under "indications for coverage" apply** |
| **Patients with genetic syndromes making total volume of radiation minimization crucial, such as but not limited to NF-1 patients, deleterious ATM mutations, Li-Fraumeni, retinoblastoma patients, and patients with known or suspected genetic mutations. In addition, patients with other genetic mutations who are at increased risk of developing second cancers at or near the same body location such as but not limited to BRCA 1/2, Lynch syndrome, etc.** |
| **Medically inoperable patients with a diagnosis of cancer typically treated with surgery where dose escalation is required due to the inability to receive surgery** |
| **Re-irradiation cases (where cumulative critical structure dose would exceed tolerance dose)** |
| **Primary malignant or benign bone tumors** |

| CENTRAL NERVOUS SYSTEM |
|---|
| **Ocular tumors, including intraocular melanomas** |
| **Tumors that approach or are located at the base of skull, including but not limited to:**<br>• **Chordoma**<br>• **Chondrosarcomas**<br>• **Other histologies arising in this site** |
| **Malignant and benign primary CNS tumors excluding IDH wild-type GBM, that are treated with curative intent and with potential for long term prognosis** |
| **Primary spine or spinal cord tumors or metastatic tumors to the spine or spinal cord where organ at risk tolerance may be exceeded with photon treatments** |
| **Primary and metastatic tumors requiring craniospinal irradiation** |

| HEAD AND NECK |
|---|
| **Cancers of the nasopharynx, nasal cavity, paranasal sinuses and other accessory sinuses** |
| **Advanced stage and unresectable head and neck cancers** |

| THORACIC |
|---|
| **Primary cancers of the esophagus** |
| **Primary tumors of the mediastinum, including thymic tumors, mediastinal tumors, mediastinal lymphomas and thoracic sarcomas** |
| **Malignant pleural mesothelioma** |

| ABDOMINAL |
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| **Hepatocellular cancer and intra-hepatic biliary cancers** |
| **Non-metastatic retroperitoneal sarcomas** |

| PELVIC |
| --- |
| **Advanced and unresectable pelvic tumors with significant pelvic and/or peri-aortic nodal disease** |
| **Patient with a single kidney or transplanted pelvic kidney with treatment of an adjacent target volume and in whom maximal avoidance of the organ is critical** |

PBT is one of the acceptable forms of external beam radiation therapy that may be used to administer Stereotactic Body Radiation Therapy (SBRT) or Stereotactic Radiosurgery (SRS). Separate ASTRO Model Policies for SBRT and SRS include technology descriptions and a list of indications for which SBRT or SRS should be covered. When PBT is used to administer SBRT or SRS, the delivery and management codes relevant for SBRT or SRS apply, and the same clinical indications apply as for those treatment strategies.

**Group 2**

While PBT is not a new technology, there is a need for continued clinical evidence development and comparative effectiveness analyses for the appropriate use of PBT for various disease sites. All other indications not listed in Group 1 are suitable for Coverage with Evidence Development (CED). Radiation therapy for patients treated under the CED paradigm should be covered by the insurance carrier as long as the patient is enrolled in either an IRB-approved clinical trial or in a multi-institutional patient registry adhering to Medicare requirements for CED2. At this time, no indications are deemed inappropriate for CED and therefore Group 2 includes various systems such as, but not limited to, the following:

| HEAD AND NECK |
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| **All other head and neck cancers not included in Group 1 i.e., Periorbital tumors, primary tumors of the salivary glands, Head and neck cancers with indications for concurrent systemic therapy** |
| **Cutaneous tumors with cranial nerve invasion to the base of skull, cavernous sinus and/or brainstem** |
| **Head and neck cancers requiring ipsilateral radiation treatment (e.g., oral cavity, salivary gland)** |
| **Mucosal melanoma** |
| **Occult primary of head and neck** |

| BREAST |
| --- |
| **Bilateral breast cancers requiring nodal treatment on at least one side** |
| **Locally advanced breast cancer requiring comprehensive nodal irradiation inclusive of the internal mammary lymph node chain** |
| **Breast cancer patients being treated with definitive intent and who have unfavorable anatomy (e.g., pectus excavatum) that would deliver unacceptably high doses to organs-at-risk** |
| **Breast cancer patients who have limited ipsilateral arm range of motion and require treatment in the arms down position** |
| **Early stage left sided breast cancer in which dose to the heart is unacceptably high with conventional photon or photon/electron using cardiac sparing techniques** |
| **Patients with clinically involved or suspicious internal mammary lymph nodes in whom dose escalation to the internal mammary chain is clinically indicated** |

| THORACIC |
| --- |
| **Early-stage lung cancer in which a photon-based plan cannot meet the prespecified constraints or is associated with higher risk of toxicity** |
| **Locally advanced lung cancer** |

| ABDOMINAL |
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| **Abdominal malignancies, including non-metastatic primary pancreatic, kidney and adrenal cancers** |
| **Oligometastatic liver lesions being treated with curative intent in which a photon based plan cannot meet constraints** |

| GENITOURINARY |
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| **Prostate cancer, not fitting pelvic and/or para-aortic lymph node coverage as per Group 1** |

| PELVIC |
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| **Pelvic malignancies, including non-metastatic rectal, bladder and cervical cancers** |
| **Tumors of the pelvis, such as anal cancer, or proximal thigh where use of protons results in significant dose reduction to genitalia or reproductive organs** |

Coverage under CED requirements will help expedite more permanent coverage decisions for all indications. Due to the numerous studies under way, proton coverage policies need to be reviewed on a frequent basis. As additional clinical data is published, this policy will be revised to reflect appropriate coverage.

## ICD-10-CM Codes that may be Associated with Medical Necessity

Note: Diagnosis codes are based on the current ICD-10-CM codes that are effective at the time of the Model Policy publication. Any updates to ICD-10-CM codes will be reviewed by ASTRO, and coverage should not be presumed until the results of such review have been published/posted. These ICD diagnosis codes support medical necessity under this Model Policy.

**Group 1:** Medically Necessary

| SITE | ICD-10 | DESCRIPTION |
|---|---|---|
| **Central Nervous System** | | |
| Ocular tumors, including intraocular melanomas | C69.00 - C69.82 | Malignant neoplasm of ocular structures |
| Tumors that approach or are located at the base of skull, including but not limited to:<br>• Chordoma<br>• Chondrosarcomas<br>• Other histologies arising in this site | C41.0 - C41.2<br>C75.1, C75.2,<br>C75.4, C75.5<br>D16.4, D16.6<br>D35.3 | Malignant neoplasm of bones of skull and face, mandible, vertebral column;<br>Malignant neoplasm of other endocrine glands and related structures;<br>Benign neoplasm of bone;<br>Benign neoplasm of craniopharyngeal duct |
| Malignant and benign primary CNS tumors excluding GBM, that are treated with curative intent and with potential for long term prognosis | C70.0 - C72.59,<br>C75.3<br>D32.0 - D33.7 | Malignant neoplasm of meninges, brain, cranial nerves, spinal cord, pineal gland;<br>Benign neoplasm of meninges, brain, cranial nerves, spinal cord |
| Primary spine or spinal cord tumors or metastatic tumors to the spine or spinal cord where organ at risk tolerance may be exceeded with conventional photon treatments | C41.2, C41.4<br>C70.1<br>C72.0, C72.1<br>D16.6, D16.8,<br>D32.1, D33.4 | Malignant neoplasm of bones of vertebral column, sacrum, and coccyx;<br>Malignant neoplasm of spinal meninges;<br>Malignant neoplasm of spinal cord and cauda equina;<br>Benign neoplasm of vertebral column, sacrum, coccyx, spinal meninges, spinal cord |
| Primary and metastatic tumors requiring craniospinal irradiation | C70.0 - C72.59,<br>C75.3 | Malignant neoplasm of meninges, brain, cranial nerves, spinal cord, pineal gland |

| | | |
|---|---|---|
| **Head and Neck** | | |
| Cancers of the nasopharynx, nasal cavity, paranasal sinuses, and other accessory sinuses | C11.0 - C11.8<br>C30.0, C30.1<br>C31.0 - C31.8 | Malignant neoplasm of nasopharynx;<br>Malignant neoplasm of nasal cavity and middle ear;<br>Malignant neoplasm of accessory sinuses |
| Advanced stage and unresectable head and neck cancers | C00.0 - C14.8 | Malignant neoplasm of head and neck sites |
| **Thoracic** | | |
| Primary cancers of the esophagus | C15.3 - C15.8 | Malignant neoplasm of esophagus |
| Primary tumors of the mediastinum, including thymic tumors, mediastinal tumors, mediastinal lymphomas and thoracic sarcomas | C33<br>C38.0 - C38.8<br>C81.02<br>C81.12<br>C81.22<br>C81.32<br>C81.42<br>C81.72<br>C82.32<br>C82.42<br>C83.02<br>C83.12<br>C83.32<br>C83.52<br>C83.72<br>C83.82 | Malignant neoplasm of trachea;<br>Malignant neoplasm of heart, mediastinum, and pleura;<br>Nodular lymphocyte predominant Hodgkin lymphoma, intrathoracic lymph nodes;<br>Nodular sclerosis Hodgkin lymphoma, intrathoracic lymph nodes;<br>Mixed cellularity Hodgkin lymphoma, intrathoracic lymph nodes;<br>Lymphocyte depleted Hodgkin lymphoma, intrathoracic lymph nodes;<br>Lymphocyte-rich Hodgkin lymphoma, intrathoracic lymph nodes;<br>Other Hodgkin lymphoma, intrathoracic lymph nodes;<br>Follicular lymphoma grade IIIa, intrathoracic lymph nodes;<br>Follicular lymphoma grade IIIb, intrathoracic lymph nodes;<br>Small cell B-cell lymphoma, intrathoracic lymph nodes;<br>Mantle cell lymphoma, intrathoracic lymph nodes;<br>Diffuse large B-cell lymphoma, intrathoracic lymph nodes;<br>Lymphoblastic (diffuse) lymphoma, intrathoracic lymph nodes;<br>Burkitt lymphoma, intrathoracic lymph nodes;<br>Other non-follicular lymphoma, intrathoracic lymph nodes |
| Malignant pleural mesothelioma | C45.0 | Mesothelioma of pleura |
| **Abdominal** | | |
| Hepatocellular cancer and intra-hepatic biliary cancers | C22.0 - C22.7 | Malignant neoplasm of liver and intrahepatic bile ducts |
| Non-metastatic retroperitoneal sarcomas | C48.0 - C48.8 | Malignant neoplasm of retroperitoneum and peritoneum |
| **Pelvic** | | |
| Advanced and unresectable pelvic tumors with significant pelvic and/or peri-aortic nodal disease | various | |
| Patient with a single kidney or transplanted pelvic kidney with treatment of an adjacent target volume and in whom maximal avoidance of the organ is critical | various | |

| Skeletal | | |
|---|---|---|
| Primary malignant or benign bone tumors | C40.0 - C40.8;<br>C41.0 - C41.8<br>D16.0 - D16.8 | Malignant neoplasm of bone and articular cartilage;<br>Benign neoplasm of bone and articular cartilage |
| **Reirradiation** | | |
| Various regions | Z92.3<br>T66.XXXA* | Personal history of irradiation |

*ICD-10-CM T66.XXXA (Effects of Radiation, Unspecified) may only be used where prior radiation therapy to the site is the governing factor necessitating PBT in lieu of other radiotherapy. An ICD diagnosis code for the anatomic diagnosis must also be used with appropriate documentation.

**Group 2:** The remaining ICD-10-CM (C00-D49) Neoplasm codes should be considered suitable for CED, so long as at least one of the criteria listed in the "Indications of Coverage" section of this policy is present.

## PHYSICIANS' CURRENT PROCEDURAL TERMINOLOGY (CPT®)/HCPCS

Note: CPT is a trademark of the American Medical Association (AMA)

### Preparing for Treatment

Due to the complexity of this treatment technology and the cases commonly appropriate for it, all PBT cases satisfy the criteria for complex clinical treatment planning. The clinical treatment plan is the initial process in preparing the patient for treatment.

**CPT® Code for Clinical Treatment Planning**

| | |
|---|---|
| **77263** | Therapeutic Radiology Treatment Planning; complex<br>*This code is typically reported only once per course of PBT.* |

Following clinical treatment planning and a decision to proceed with PBT, treatment simulation is performed. By definition, the simulation process is complex for protons since it involves particle therapy. CT guidance is now packaged into 77290 and is no longer separately billable.

**CPT Code for Simulation**

| | |
|---|---|
| **77290** | Therapeutic radiology simulation-aided field setting; complex<br>*This code is typically reported only once per course of PBT.* |
| **+77293** | Respiratory motion management simulation (List separately in addition to code for primary procedure)<br>*This is an add-on code and cannot be billed on its own. It should be billed with either CPT code 77295 or 77301.* |

The add-on code +77293 would be used in situations where respiratory motion may cause significant changes in target definition and localization for proton treatment delivery, most commonly in patients with lung or upper gastrointestinal malignancies.

### Medical Radiation Physics, Dosimetry and Treatment Devices

In addition, when planning for any special beam such as particles (i.e., protons), a special teletherapy port plan may be necessary. The special teletherapy port plan must be reviewed, signed and dated by the radiation oncologist and physicist. The radiation oncologist must document involvement in the planning and selection of special beam parameters used for treatment.

**CPT® Code for Special Teletherapy Port Plan**

| | |
|---|---|
| **77321** | Special teletherapy port plan, particles, hemibody, total body<br>*Use for particle beam isodose planning. Use for electrons, protons and neutron therapy; half body or total body therapy.* |

Isodose planning typically involves 3-dimensional dosimetry. For cases in which there is a need to optimize the dose distribution by modulating the beam energy and/or fluence across the field, an intensity modulated treatment plan may be indicated and should be reported using CPT 77301.

**CPT Codes for Isodose Planning**

| | |
|---|---|
| **77295** | Therapeutic radiology simulation-aided field setting; 3-dimensional<br>*Use for particle beam isodose planning. Use for electrons, protons and neutron therapy; half body or total body therapy. This code has been moved to the medical physics and dosimetry section, since it represents the work of physics and dosimetry planning rather than the work performed in simulation.* |
| **77301** | Intensity Modulated Radiation Therapy (IMRT) plan, including dose-volume histograms for target and critical structure partial tolerance specifications.<br>This code may be reported for isodose plans in which beam intensity is modulated using pencil beam scanning. This code is typically reported only once per course of IMRT. |
| **77338** | Multi-leaf collimator (MLC) device(s) for intensity modulated radiation therapy (IMRT), design and construction per IMRT plan. Some proton beam systems use an MLC device to modulate beam intensity, and 77338 may be reported. Report once per IMRT plan. |

Compensation of the beams may be performed with specific physical compensating devices (custom fabricated lucite or wax compensators) or with compensation using electromagnetic alterations of the beam (pencil-beam scanning or spot scanning).

### Image-Guided Radiation Therapy

Image-Guided Radiation Therapy (IGRT) allows for modification of treatment delivery to increase precision. The following codes may be billed with PBT.

**CPT® Codes for IGRT**

| | |
|---|---|
| **77014** | Computed tomography guidance for placement of radiation fields<br>*Used with CT-based systems (i.e., integrated cone beam CT, CT/linear accelerator on rails).* |
| **77387** | Guidance for localization of target volume for delivery of radiation treatment delivery, includes intrafraction tracking, when performed |
| **G6001** | Ultrasonic guidance for placement of radiation therapy fields |
| **G6002** | KV imaging- Stereoscopic X-ray guidance for localization of target volume for the delivery of radiation therapy |
| **G6017** | Intra-fraction localization and tracking of target or patient motion during delivery of radiation therapy (e.g., 3-D positional tracking, gating, 3-D surface tracking), each fraction of treatment |

## ADDITIONAL INFORMATION

### Coding Guidelines

As a reminder, for Medicare claims, the HCPC/CPT® code(s) may be subject to Correct Coding Initiatives (CCI) edits. This policy does not take precedence over CCI edits. Please refer to the CCI for correct coding guidelines and specific applicable code combinations prior to billing Medicare.

## REFERENCES

The following is only a sample of the available literature that meets certain criteria and should not be utilized as an exhaustive list. Included articles were published within the last 10 years and report patient outcome data. For disease sites recommended for CED, dosimetry and technical feasibility publications were accepted.


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