

# Proton Beam Radiation Therapy (PBRT), Medical 101

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**Member-specific benefits take precedence over medical policy and benefits may vary across plans. Refer to the individual's benefit plan for details [\\*](#).**

## Description & Definitions:

Proton beam radiation therapy (PBRT) is a type of external radiation treatment in which protons are targeted to specific tissue mass by using a stereotactic delivery system. Focused radiation is then delivered to the targeted area.

## Criteria:

**Proton Beam Radiation Therapy (PBRT)** is considered medically necessary for **ALL** of the following:

- Specific cases where adjacent critical structures cannot be adequately spared with Intensity-modulated radiation therapy (IMRT) or stereotactic radiosurgery (SRS)
- Not amenable to surgical excision or other conventional forms of treatment
- Diagnoses with **one or more** of the following tumors:
  - Advanced and unresectable pelvic tumors with significant pelvic and/or peri-aortic nodal disease
  - Advanced stage and unresectable head and neck cancers (Malignant neoplasm of head and neck sites)
  - Cancers of the nasopharynx, nasal cavity, paranasal sinuses, and other accessory sinuses for **One or more** of the following:
    - Malignant neoplasm of nasopharynx;
    - Malignant neoplasm of nasal cavity and middle ear;
    - Malignant neoplasm of accessory sinuses
  - Malignant and benign primary CNS tumors (excluding Glioblastoma (GBM)), that are treated with curative intent and with potential for long term prognosis for **One or more** of the following:
    - Malignant neoplasm of meninges, brain, cranial nerves, spinal cord, pineal gland
    - Benign neoplasm of meninges, brain, cranial nerves, spinal cord
  - Malignant pleural mesothelioma (Mesothelioma of pleura)
  - Melanoma of the uveal tract (Ocular melanoma-iris, choroid or ciliary body)
  - Non-metastatic retroperitoneal sarcomas for **One or more** of the following:

- Malignant neoplasm of retroperitoneum
  - Malignant neoplasm of peritoneum
- Ocular tumors, including intraocular melanomas (Malignant neoplasm of ocular structures)
- 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
- Pediatric patients (age less than 21) for **ALL of the** following:
  - To treat all pediatric tumors in which radiation therapy is required
- Primary and metastatic tumors requiring craniospinal irradiation for **ALL** of the following:
  - Malignant neoplasm of meninges, brain, cranial nerves, spinal cord, pineal gland
- Primary cancers of the esophagus (Malignant neoplasm of esophagus)
- Primary malignant or benign bone tumors for **One or more** of the following:
  - Malignant neoplasm of bone and articular cartilage;
  - Benign neoplasm of bone and articular cartilage
- 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 for **One or more** of the following:
  - Malignant neoplasm of bones of vertebral column, sacrum, and coccyx;
  - Malignant neoplasm of spinal meninges;
  - Malignant neoplasm of spinal cord and cauda equina;
  - Benign neoplasm of vertebral column, sacrum, coccyx, spinal meninges, spinal cord
- Primary tumors of the mediastinum, including thymic tumors, mediastinal tumors, mediastinal lymphomas and thoracic sarcomas for **One or more** of the following:
  - Burkitt lymphoma, intrathoracic lymph nodes;
  - Diffuse large B-cell lymphoma, intrathoracic lymph nodes;
  - Follicular lymphoma grade IIIa, intrathoracic lymph nodes;
  - Follicular lymphoma grade IIIb, intrathoracic lymph nodes;
  - Lymphoblastic (diffuse) lymphoma, intrathoracic lymph nodes;
  - Lymphocyte depleted Hodgkin lymphoma, intrathoracic lymph nodes;
  - Lymphocyte-rich Hodgkin lymphoma, intrathoracic lymph nodes;
  - Malignant neoplasm of heart, mediastinum, and pleura;
  - Malignant neoplasm of trachea;
  - Mantle cell lymphoma, intrathoracic lymph nodes;
  - Mixed cellularity Hodgkin lymphoma, intrathoracic lymph nodes;
  - Nodular lymphocyte predominant Hodgkin lymphoma, intrathoracic lymph nodes;
  - Nodular sclerosis Hodgkin lymphoma, intrathoracic lymph nodes;
  - Other Hodgkin lymphoma, intrathoracic lymph nodes;
  - Small cell B-cell lymphoma, intrathoracic lymph nodes;
  - Other non-follicular lymphoma, intrathoracic lymph nodes
- Tumors base of skull, including but not limited to (Chordoma, Chondrosarcomas, Other histologies) arising in this site for **One or more** of the following:
  - Malignant neoplasm of bones of skull and face, mandible, vertebral column;
  - Malignant neoplasm of other endocrine glands and related structures;
  - Benign neoplasm of bone; Benign neoplasm of craniopharyngeal duct
- Various regions - Personal history of irradiation

Proton Beam Radiation Therapy (PBRT) is considered **not medically necessary** for any use other than those indicated in clinical criteria, to include but not limited to:

- Breast cancer
- Gastric cancer
- Glioblastoma (GBM)
- Gynecologic cancer
- Pancreatic cancer
- PBT used in conjunction with IMRT

## Document History:

### Revised Dates:

- 2024: February
- 2022: April
- 2021: April
- 2019: November
- 2016: March, April
- 2015: March
- 2014: April, October, November
- 2013: March, October
- 2012: March, November
- 2011: January, March, May, July
- 2010: August
- 2009: July
- 2008: July

### Reviewed Dates:

- 2025: March – no changes references updated
- 2023: March
- 2020: April
- 2018: October
- 2017: December
- 2014: March
- 2010: July, December

### Effective Date:

- October 2007

## Coding:

### Medically necessary with criteria:

Coding	Description
77520	Proton treatment delivery; simple, without compensation
77522	Proton treatment delivery; simple, with compensation
77523	Proton treatment delivery; intermediate
77525	Proton treatment delivery; complex

### Considered Not Medically Necessary:

Coding	Description
	None

U.S. Food and Drug Administration (FDA) - approved only products only.

The preceding codes are included above for informational purposes only and may not be all inclusive. Additionally, inclusion or exclusion of a treatment, procedure, or device code(s) does not constitute or

imply member coverage or provider reimbursement. Please refer to the member's contract benefits in effect at the time of service to determine coverage or non-coverage of these services as it applies to an individual member.

### Special Notes: \*

- Coverage:
  - See the appropriate benefit document for specific coverage determination. Member specific benefits take precedence over medical policy.
- Application to products:
  - Policy is applicable to Sentara Health Plan Commercial products.
- Authorization requirements:
  - Pre-certification by the Plan is required.
- Special Notes:
  - Commercial
    - Medical policies can be highly technical and complex and are provided here for informational purposes. These medical policies are intended for use by health care professionals. The medical policies do not constitute medical advice or medical care. Treating health care professionals are solely responsible for diagnosis, treatment, and medical advice. Sentara Health Plan members should discuss the information in the medical policies with their treating health care professionals. Medical technology is constantly evolving, and these medical policies are subject to change without notice, although Sentara Health Plan will notify providers as required in advance of changes that could have a negative impact on benefits.
    - Services mean both medical and behavioral health (mental health) services and supplies unless We specifically tell You otherwise. We do not cover any services that are not listed in the Covered Services section unless required to be covered under state or federal laws and regulations. We do not cover any services that are not Medically Necessary. We sometimes give examples of specific services that are not covered but that does not mean that other similar services are covered. Some services are covered only if We authorize them. When We say You or Your We mean You and any of Your family members covered under the Plan. Call Member Services if You have questions.

### References:

Specialty Association Guidelines; Government Regulations; Winifred S. Hayes, Inc; UpToDate; Literature Review; Specialty Advisors; National Coverage Determination (NCD); Local Coverage Determination (LCD).

§ 892.5050 Medical charged-particle radiation therapy system. (2008, Jun 23). Retrieved Feb 25, 2025, from Code of Federal Regulations: <https://www.ecfr.gov/current/title-21/section-892.5050>

(2024, Mar 14). Retrieved Feb 13, 2025, from MCG 28th Edition: <https://careweb.careguidelines.com/ed28/index.html>

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(2025). Retrieved Feb 14, 2025, from Virginia Department of Medical Assistance Services: <https://vamedicaid.dmas.virginia.gov/manuals/provider-manuals-library#gsc.tab=0&gsc.q=radiation%20oncology&gsc.sort=>

Chhabra, A., Amos, R., & Simone, C. (2025, Jan 05). Proton Beam Therapy for Pancreatic Tumors: A Consensus Statement from the Particle Therapy Cooperative Group Gastrointestinal Subcommittee. Retrieved Feb 17, 2025, from PubMed: <https://pubmed.ncbi.nlm.nih.gov/39761799/>

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