

# Clinical Policy: Stereotactic Body Radiation Therapy

Reference Number: PA.CP.MP.22

Effective Date: 01/18

Last Review Date: 03/17

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## Description

Stereotactic body radiation therapy (SBRT) and stereotactic radiosurgery (SRS) are radiation therapies delivered via stereotactic guidance to a small, precise target. It largely spares the surrounding tissue by multiple non-parallel radiation beams converging into one sharply defined target. It greatly reduces the amount of radiation to which the surrounding tissue is exposed. SBRT is used to treat extra-cranial sites and can be performed in one to five sessions (fractions). SRS is used to treat intra-cranial and spinal targets. SRS is typically performed in a single session but can be performed in a limited number of sessions, up to a maximum of five. Gamma-ray photons, X-ray photons, protons, helium ions, and neutrons have all been used for SBRT and SRS.

## Policy/Criteria

- I. It is the policy of Pennsylvania Health and Wellness<sup>®</sup> (PHW) that up to 5 sessions of SBRT is **medically necessary** for any of the following indications:
  - A. Early stage non-small cell lung cancer (i.e., stage I-II, NO) in patients who are not surgical candidates;
  - B. Acoustic neuroma;
  - C. Localized malignant conditions in the body where highly precise application of high-dose radiotherapy is required, including tumors of any type arising in or near previously irradiated regions;
  - D. Recurrences of metastatic spine cancer after previous radiation.<sup>23</sup>
  
- II. It is the policy of PHW that up to 5 sessions of SRS are **medically necessary** for any one of the following indications:
  - A. Cranial indications when unresectable due to its deep intracranial location or member is unable to tolerate conventional operative intervention:
    1. Inoperable, small (< 3 cm) arteriovenous (AV) malformations, or
    2. Benign tumors including meningiomas, pituitary adenomas, craniopharyngiomas, hemangiomas, and neoplasms of the pineal gland; or
  - B. Small acoustic neuromas (< 3 cm) or enlarging neuromas in patients who are not candidates for surgery; or
  - C. Brain malignancies, primary and/or metastatic lesions; or
  - D. Intracranial lesions where the patient refuses surgery; or
  - E. Severe, sustained trigeminal neuralgia not responsive to other treatments, or
  - F. A booster treatment for larger cranial or spinal lesions that have been treated initially with external beam radiation therapy or surgery. Avoid SBRT when in close proximity to cranial nerves II and VIII if the maximal dose delivered exceeds 10 Gy; or
  - G. Relapse in previously irradiated cranial or spinal field where additional stereotactic precision is required to avoid unacceptable vital tissue radiation; or
  - H. Inoperable spinal tumors causing compression or intractable pain.

**III.** It is the policy of PHW that more than 5 sessions of SBRT or SRS or for indications other than listed above, is considered **not medically necessary**.

### **Background**

Stereotactic ablative radiotherapy is also known as SBRT. SRS and SBRT both pair a high degree of anatomic targeting accuracy and reproducibility with very high doses of extremely precise, externally generated, ionizing radiation to inactivate or eradicate a defined target(s). The target is defined by high resolution stereotactic imaging. The procedure involves a multidisciplinary team often consisting of a surgeon, radiation oncologist, radiologist, medical radiation physicist, dosimetrist, radiation therapist, radiation therapy nurse and a specialist of the disease site such as a neurologist.

Stereotactic describes a procedure during which a target lesion is localized relative to a fixed 3-D reference system, such as a rigid head frame affixed to a patient, fixed bony landmarks, a system of implanted fiducial markers, or other similar system. This localization procedure allows physicians to perform image-guided procedures with a high degree of accuracy and precision.

The risk of developing permanent damage following SRS varies by the location of the lesion in the brain. Lesions located deep in the gray matter (thalamus, basal ganglia) or brainstem (pons, midbrain) carry the maximum risk of neurologic complications. Complications are less likely with lesions in the frontal and temporal lobes. Fractionated radiation therapy is often preferred to SRS for the treatment of lesions in the deep gray matter or the brainstem.

Technologies that are used to perform SBRT and SRS include Gamma Knife, LINAC, CyberKnife and proton beam or heavy-charged-particle radiosurgery. In order to enhance precision, various devices may incorporate robotics and real time imaging.<sup>4</sup>

#### *Gamma Knife*

Standard gamma knife uses 192 or 201 beams of highly focused gamma rays all aiming at the target region. The Gamma Knife is ideal for treating small to medium size lesions.

#### *Linear accelerator- (LINAC)*

LINAC machines deliver high-energy x-rays, also known as photons. It can provide treatment on larger tumors in a single session or during multiple sessions (fractionated SRT). The principles of LINAC are identical to GammaKnife.<sup>4</sup>

#### *CyberKnife*

This device combines a mobile LINAC machine with an image guided robotic system that delivers either a single large dose or fractionated radiation therapy. The overall length of time of treatment on a CyberKnife is typically longer than with other radiation therapy modalities.<sup>4 11</sup>

#### *Proton Beam*

There is limited use of this in North America; however the number of centers has dramatically increased in the last several years. Protons are atoms that carry a positive charge. Compared to the use of photons (x-rays), the energy from protons conforms to the tumor better and causes less

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damage to the surrounding tissue. This allows a greater dose of radiation to be used due to minimizing the effects to normal tissue.

#### *National Comprehensive Cancer Network*

SBRT should have longer follow-up and prospective multi-institutional data to evaluate longer-term results for prostate cancer, especially since late toxicity theoretically could be worse in hypofractionated regimens compared to conventional fractionation.<sup>13</sup>

The World Health Organization notes the following information regarding Grade I meningiomas: stereotactic or image guided therapy is recommended when using tight margins or when close to critical structures.<sup>23</sup>

A revision to the metastatic spine guideline notes that in selected cases or recurrences after previous radiation, SBRT is appropriate.<sup>23</sup>

Definitive radiation therapy, particularly SBRT, is recommended for individuals with early stage non-small cell lung cancer (i.e., stage I-II, NO) who are medically inoperable or those who refuse surgery.<sup>22</sup>

#### **Coding Implications**

This clinical policy references Current Procedural Terminology (CPT®). CPT® is a registered trademark of the American Medical Association. All CPT codes and descriptions are copyrighted 2015, American Medical Association. All rights reserved. CPT codes and CPT descriptions are from the current manuals and those included herein are not intended to be all-inclusive and are included for informational purposes only. Codes referenced in this clinical policy are for informational purposes only. Inclusion or exclusion of any codes does not guarantee coverage. Providers should reference the most up-to-date sources of professional coding guidance prior to the submission of claims for reimbursement of covered services.

CPT® Codes	Description
61796	Stereotactic radiosurgery (particle beam, gamma ray, or linear accelerator); 1 simple cranial lesion
61797	Each additional cranial lesion, simple
61798	1 complex cranial lesion
61799	Each additional cranial lesion, complex
63620	Stereotactic radiosurgery (particle beam, gamma ray, or linear accelerator); 1 spinal lesion
63621	Each additional spinal lesion
63621	Each additional spinal lesion
77371	Radiation treatment delivery, stereotactic radiosurgery (SRS), complete course of treatment of cranial lesion(s) consisting of 1 session; multi-source cobalt 60 based
77372	Linear accelerator based
77373	Stereotactic body radiation therapy, treatment delivery, per fraction to 1 or more lesions, including image guidance, entire course not to exceed 5 fractions

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<b>CPT® Codes</b>	<b>Description</b>
77432	Stereotactic radiation treatment management of cranial lesion(s) (complete course of treatment consisting of one session)
77435	Stereotactic body radiation therapy, treatment management, per treatment course, to one or more lesions, including image guidance, entire course not to exceed 5 fractions

<b>HCPS</b>	<b>Description</b>
G0339	Image-guided robotic linear accelerator-based stereotactic radiosurgery, complete course of therapy in one session or first session of fractionated treatment
G0340	Image-guided robotic linear accelerator-based stereotactic radiosurgery, delivery including collimator changes and custom plugging, fractionated treatment, all lesions, per session, second through fifth sessions, maximum five sessions per course of treatment

**ICD-10-CM Diagnosis Codes that Support Coverage Criteria**

<b>ICD-10-CM Code</b>	<b>Description</b>
C34.11	Malignant neoplasm of upper lobe, right bronchus or lung
C34.12	Malignant neoplasm of upper lobe, left bronchus or lung
C34.2	Malignant neoplasm of middle lobe, bronchus or lung
C34.31	Malignant neoplasm of lower lobe, right bronchus or lung
C34.32	Malignant neoplasm of lower lobe, left bronchus or lung
C34.81	Malignant neoplasm of overlapping sites of right bronchus and lung
C34.82	Malignant neoplasm of overlapping sites of left bronchus and lung
C71.0	Malignant neoplasm of cerebrum, except lobes and ventricles
C71.1	Malignant neoplasm of frontal lobe
C71.2	Malignant neoplasm of temporal lobe
C71.3	Malignant neoplasm of parietal lobe
C71.4	Malignant neoplasm of occipital lobe
C71.5	Malignant neoplasm of cerebral ventricle
C71.6	Malignant neoplasm of cerebellum
C71.7	Malignant neoplasm of brain stem
C17.8	Malignant neoplasm of overlapping sites of brain
C72.0	Malignant neoplasm of spinal cord
C72.1	Malignant neoplasm of cauda equine
C72.21	Malignant neoplasm of right olfactory nerve
C72.22	Malignant neoplasm of left olfactory nerve
C72.31	Malignant neoplasm of right optic nerve
C72.32	Malignant neoplasm of left optic nerve
C72.41	Malignant neoplasm of left acoustic nerve
C72.42	Malignant neoplasm of right acoustic nerve
C72.59	Malignant neoplasm of other cranial nerve

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ICD-10-CM Code	Description
D18.02	Hemangioma of intracranial structures
D32.0	Benign neoplasm of cerebral meninges
D33.0	Benign neoplasm of brain, supratentorial
D33.1	Benign neoplasm of brain, infratentorial
D33.3	Benign neoplasm of cranial nerves
D35.2	Benign neoplasm of pituitary gland
D35.4	Benign neoplasm of pineal gland
D43.0	Neoplasm of uncertain behavior of brain, supratentorial
D43.1	Neoplasm of uncertain behavior of brain, infratentorial
D43.3	Neoplasm of uncertain behavior of cranial nerves
D43.4	Neoplasm of uncertain behavior of spinal cord
D43.8	Neoplasm of uncertain behavior of other specified parts of central nervous system
D44.4	Neoplasm of uncertain behavior of craniopharyngeal duct
G50.0	Trigeminal neuralgia
Q28.2	Arteriovenous malformations of cerebral vessels
Z51.0	Encounter for antineoplastic radiation therapy

Reviews, Revisions, and Approvals	Date	Approval Date

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