

Corporate Medical Policy

Radiosurgery, Stereotactic Approach

File Name: radiosurgery_stereotactic_approach
Origination: 6/1984
Last Review: 5/2023

Description of Procedure or Service

Stereotactic radiosurgery (SRS) and stereotactic body radiation therapy (SBRT) are radiation therapy techniques that use highly focused, conformal radiation beams to treat both neoplastic and non-neoplastic conditions with 3-dimensional imaging techniques, sparing adjacent structures. SRS refers to such radiation therapy applied to intracranial lesions, while SBRT refers to therapy applied to other areas of the body. The technique differs from conventional radiotherapy, which involves exposing large areas of tissue to relatively broad fields of radiation over multiple sessions. It may offer a non-invasive alternative to invasive surgery, particularly for patients unable to undergo surgery or for lesions that are difficult to access surgically or are adjacent to vital organs.

Platforms available for SRS and SBRT are distinguished by their source of radiation; they include gamma radiation from cobalt 60 sources; high energy photons from LINAC systems; and particle beams (protons). Stereotactic radiosurgery and stereotactic body radiotherapy have been used for a range of malignant and nonmalignant conditions. The most commonly used gamma ray device is the Gamma Knife® (Elekta, Inc, Stockholm), which is a fixed device used for intracranial lesions, typically for smaller lesions. Several brands of LINAC devices are available, including the Novalis Tx® (Novalis, Westchester, IL), the TrueBeamSTx (Varian Medical Systems, Palo Alto, CA), and the Cyberknife® system (Accuray, Sunnyvale, CA).

SRS and SBRT have been used for a range of malignant and non-malignant conditions. A complete review of all indications is beyond the scope of this policy, but a brief discussion of common applications of SRS and SBRT is outlined below.

Non-Neoplastic Conditions Treated with SRS

Arteriovenous malformations consist of a tangled network of vessels in which blood passes from arteries to veins without intervening capillaries. They range in size from small, barely detectable lesions to huge lesions that can occupy an entire hemisphere. SRS incites an inflammatory response in the vessels, which results in ongoing fibrosis with eventual complete obliteration of the lesion over a course of months to years. This latency period is variable, depending on the size of the AVM and the dose distribution of the radiosurgery. During this latency period, there is an ongoing but declining risk of hemorrhage. In contrast, surgical excision provides an immediate effect on the risk of hemorrhage. Total surgical extirpation of the lesion, if possible, is the desired form of therapy to avoid future hemorrhage. However, a small subset of AVMs because of their size or location cannot be excised without serious neurologic sequelae. SRS is an important alternative in these patients.

Trigeminal neuralgia is a disorder of the fifth cranial (ie, trigeminal) nerve that causes episodes of intense, stabbing pain in the face. Although trigeminal neuralgia is initially treated medically, in a substantial number of cases, drug treatment is either ineffective or the adverse effects become intolerable. Neurosurgical options include microvascular decompression, balloon compression, and rhizotomy. SRS has been investigated as an alternative to these neurosurgical treatments. Seizure disorders are initially treated medically. Surgical treatment is only considered in those rare instances when the seizures have proven refractory to all attempts at aggressive medical management, when the seizures are very frequent and severe as to significantly diminish quality of life, and when the

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seizure focus can be localized to a focal lesion in a region of the brain that is amenable to resection. SRS has been investigated as an alternative to neurosurgical resection. For chronic pain that is refractory to a variety of medical and psychological treatments, there are a variety of surgical alternatives. Neurodestructive procedures include cordotomy, myelotomy, dorsal root entry zone (DREZ) lesions, and stereotactic radiofrequency thalamotomy. SRS targeting the thalamus has been considered an investigative alternative to these neurodestructive procedures.

SRS, for the destruction of the thalamic nuclei (thalamotomy) has been proposed for a treatment of essential tremor and other forms of tremor (ie, secondary to Parkinson disease, multiple sclerosis, or other neurologic conditions), as an alternative to medical therapy or surgical therapy in extreme cases.

Neoplastic Conditions Treated with SRS

SRS is used for primary intracranial tumors and tumors that have metastasized to the central nervous system.

Primary Intracranial Tumors

Acoustic neuromas, also called vestibular schwannomas, are benign tumors originating on the eighth cranial nerve, sometimes seen in association with neurofibromatosis, which can be associated with significant morbidity and even death if their growth compresses vital structures. Treatment options include complete surgical excision using microsurgical techniques, but radiosurgery has also been used extensively, either as a primary treatment or as a treatment of recurrence after incomplete surgical resection.

Pituitary adenomas are benign tumors with symptoms that are related to hormone production (i.e., functioning adenomas) or to neurologic symptoms due to their impingement on surrounding neural structures. Treatment options for pituitary adenomas include surgical excision, conventional radiation therapy, or SRS. Surgical excision is typically offered to patients with functioning adenomas, since complete removal of the adenoma leads to more rapid control of autonomous hormone production. The effects of SRS on hormone production are delayed or incomplete. In patients with nonfunctioning adenomas, the treatment goal is to control growth; complete removal of the adenoma is not necessary. Conventional radiation therapy has been used in this setting with an approximate 90% success rate with few complications.

Craniopharyngiomas are benign, however, because of proximity to the optic pathways, pituitary gland, and hypothalamus, may cause severe and permanent damage to such critical structures and can even be life threatening. Total surgical resection is often difficult.

Because of the rarity of glomus jugulare tumors, a variety of treatment paradigms are currently used. There is no consensus regarding the optimal management to control tumor burden while minimizing treatment-related morbidity.

SRS has been used for the treatment of other primary brain tumors, including gliomas, meningiomas, and primitive neuroectodermal tumors (ie, medulloblastoma, pineoblastoma). The treatment of primary brain tumors such as gliomas is more challenging, due to their generally larger size and infiltrative borders.

Melanoma of the uvea (choroid, ciliary body, and iris) is the most common primary malignant intraocular tumor in adults. Established treatment modalities include enucleation, local resection, brachytherapy, and proton beam radiotherapy. The main objectives of treating the tumor are to reduce the risk of metastatic spread and to salvage the eye with useful vision if feasible. Treatment selection depends on tumor size and location, associated ocular findings, the status of the other eye, as well as other individual factors including age, life expectancy, quality of life issues, concurrent systemic disease and patient expectations.

Intracranial metastatic disease

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Intracranial metastases have been considered ideal targets for radiosurgery due to their small spherical size and non-infiltrative borders. Brain metastases are a frequent occurrence, seen in 25–30% of all patients with cancer, particularly in those with lung, breast, or colon cancer or melanoma. Whole brain radiation treatment (WBRT) is considered the standard of care in the treatment of brain metastases, and the addition of SRS to WBRT has been shown to improve survival and local tumor control in selected patients. Stereotactic radiosurgery (SRS) offers the additional ability to treat tumors with relative sparing of normal brain tissue in a single fraction. Ongoing research addresses whether using SRS alone to avoid the adverse effects of WBRT on normal tissues.

SBRT

Studies are being conducted to evaluate SBRT for extracranial sites. This approach is being studied to better target lesions (sparing surrounding normal structures) and to shorten the length of time needed to complete the treatments.

Extracranial primary tumors treated with SBRT

SBRT has been studied for the treatment of lung cancers—specifically non-small cell lung cancer (NSCLC), with the greatest focus on inoperable, stage I NSCLC. Without the use of SBRT, local NSCLC would be treated with surgical resection, if possible, or conventional radiation therapy.

Surgical resection is the preferred treatment of hepatocellular carcinoma, although at the time of diagnosis less than 20% of patients are amenable to definitive surgical management due to advanced local disease or comorbidities. These patients may be candidates for local ablative therapies, including radiofrequency ablation and chemoembolization. Radiation may be considered as an alternative to local ablative/embolization therapies or if these therapies fail.

Radiation may be a part of the treatment plan for pancreatic cancer, resectable or unresectable disease, and may be used in the adjuvant or neoadjuvant setting.

Localized renal cell carcinoma is conventionally treated surgically; local ablative methods may also be an option. Preoperative and adjuvant external radiation have not improved survival. However, because renal cell cancer brain metastases, although radioresistant to conventional external radiation, have been responsive to radiosurgery, there is interest in the possibility of treating primary kidney cancer with SBRT.

Extracranial metastatic tumors treated with SBRT

Oligometastases are defined as isolated sites of metastasis, with the entire burden of disease being recognized as a finite number of discrete lesions that can be potentially cured with local therapies.

In general, the indications for SBRT for oligometastases are the same as for metastasectomy. Recently proposed specific criteria for the use of SBRT in patients with oligometastases include: a controlled primary, favorable histology, limited metastatic disease, metachronous appearance of metastases, young age and good performance status.

The management of metastatic solid tumors has historically focused on systemic treatment with palliative intent. However, surgical treatment of oligometastatic disease is now common practice in some clinical settings. Although cure may be possible in some patients with oligometastatic disease, the aim of SBRT in this setting is mainly to achieve local control and delay progression, which also may postpone the need for further treatment.

Metastases from NSCLC to the adrenal gland are common, and systemic treatment is the most frequent therapeutic option. Nevertheless, in patients suffering from an isolated adrenal metastasis, a survival benefit could be achieved after surgical resection.

Spinal Primary and Metastatic Tumors Treated With SBRT

Metastatic tumors to the spine have historically been treated with conventional radiotherapy. The need for retreatment is high due to morbidity from metastatic disease (eg, pain, myelopathy, spinal cord

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compression), but radiotherapy to the spine is often limited due to concern for radiation myelopathy and other adverse radiation effects. SBRT to the spine has been most widely studied in patients requiring re-irradiation, but interest has also developed in the use of SBRT for the initial treatment of spinal tumors

Related Policies:

Charged Particle Radiotherapy
Intensity Modulated Radiation Therapy (IMRT) of the Chest
Epiretinal Radiation Therapy for Age Related Macular Degeneration
Radiation Therapy Services (Reimbursement Policy)

******Note: This Medical Policy is complex and technical. For questions concerning the technical language and/or specific clinical indications for its use, please consult your physician.***

Policy

BCBSNC will provide coverage for Stereotactic radiosurgery or radiotherapy when it is determined to be medically necessary because the medical criteria and guidelines shown below are met.

Benefits Application

This medical policy relates only to the services or supplies described herein. Please refer to the Member's Benefit Booklet for availability of benefits. Member's benefits may vary according to benefit design; therefore member benefit language should be reviewed before applying the terms of this medical policy.

When Stereotactic Radiosurgery is covered

- A. Stereotactic radiosurgery using a gamma ray or linear accelerator (LINAC) unit may be considered medically necessary for the following indications:
1. Arteriovenous malformations;
 2. Acoustic neuromas;
 3. Pituitary adenomas;
 4. Nonresectable, residual, or recurrent meningiomas;
 5. Craniopharyngiomas;
 6. Glomus jugulare tumors;
 7. Solitary or multiple brain metastases in patients having good performance status and no active systemic disease (defined as extracranial disease that is stable or in remission; (see Policy Guidelines);
 8. Primary malignancies of the CNS, including but not limited to high-grade gliomas (initial treatment or treatment of recurrence);
 9. Uveal melanoma, for tumors with largest diameter >18 mm or thickness >10 mm or thickness >8 mm with optic nerve involvement;
 10. Trigeminal neuralgia refractory to medical management or in cases where the patient is unable to tolerate the side effects of medications;
 11. Mesial temporal lobe epilepsy refractory to medical management, when standard alternative surgery is not an option.

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- B. Stereotactic Body Radiotherapy (SBRT) may be considered medically necessary for the following indications:
1. Patients with stage IA-IIA non-small cell lung cancer when:
 - a. Lesion(s) are not larger than 5 cm; **and**
 - b. There is no nodal or distant disease; **and**
 - c. The patient is not a candidate for surgical resection or has refused surgical resection after informed consent.
 2. Prostate adenocarcinoma when:
 - a. It is low- or intermediate-risk based on NCCN risk grouping, N0, M0; **and**
 - b. Life expectancy is at least 5 years; **and**
 - c. No prior treatments to the prostate of the following types: prostatectomy, cryotherapy, high-intensity focused ultrasound (HIFU) treatment, pelvic radiation; and techniques are employed to consider and address intra-fraction motion during radiation delivery. (See policy guidelines); **and**
 3. Hepatocellular Carcinoma when:
 - a. Disease is non-metastatic; **and**
 - b. Disease is limited to (1-3 lesions) with each lesion less than or equal to 100 cc (approximately 6 cm diameter); **and**
 - c. Child-Turcotte-Pugh liver function score is A or B; **and**
 - d. The patient is not a candidate for surgical resection or has refused surgical resection after informed consent.
 4. Primary renal cell carcinoma when the tumor is inoperable; or in patients who are not good surgical candidates or have refused surgical resection after informed consent.
 5. Pancreatic adenocarcinoma as definitive treatment for inoperable disease without evidence of distant metastases.
 6. Spinal or vertebral body tumors (metastatic or primary) in patients who have received prior radiation therapy.
 7. Spinal or vertebral metastases.
 8. Oligometastases, with all of the following characteristics:
 - Six or fewer radiographically apparent lesions, none of which are greater than 6 cm; **and**
 - Karnofsky Performance Status (KPS) of at least 70; **and**
 - Life expectancy of at least 6 months.
- C. When stereotactic radiosurgery or stereotactic body radiation therapy is performed using fractionation for the medically necessary indications described above, it is considered medically necessary.

When Stereotactic Radiosurgery is not covered

Stereotactic radiosurgery is considered investigational for applications other than those addressed above as covered, including, but not limited to functional disorders other than trigeminal neuralgia, including chronic pain, and tremor.

Stereotactic body radiation therapy (SBRT) is considered investigational for any indications other than those addressed above as covered.

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Stereotactic body radiation therapy (SBRT) for oligometastases is considered not medically necessary when criteria listed above in section B. #8 are not met.

Policy Guidelines

Refer to the individual member's benefit booklet for prior review requirements.

Fractionation

Fractionated stereotactic radiotherapy refers to when SRS or SBRT is performed more than one time on a specific site. SRS is most often single-fraction treatment; however, multiple fractions may be necessary when lesions are near critical structures.

SRS for Solitary or Multiple Brain Metastases

For the initial or recurrent SRS treatment of solitary or multiple brain metastases in patients **without** extracranial disease, the patient should have a KPS of 70 or greater.

For the initial SRS treatment of solitary or multiple brain metastases **with** extracranial disease, patients should have good performance status **AND** one of the following:

- a. be newly diagnosed,
- b. have stable disease, **or**
- c. have reasonable systemic treatment options.

For **recurrent** SRS treatment of brain metastases patients should have good performance status **AND** have one of the following:

- a. stable extracranial disease, **or**
- b. reasonable systemic treatment options.

Many patients with brain metastases can either receive whole-brain radiation therapy (WBRT) along with SRS or the WBRT may be delayed for use as salvage therapy for recurrent intracranial disease.

SRS is a multistep procedure which may involve the following:

- localization of the target (responsibility of the radiation oncologist)
- radiation dose planning (responsibility of the radiation oncologist)
- attachment of the stereotactic head frame to the patient (responsibility of the neurosurgeon when performed)
- actual radiosurgery (may be done by either the radiation oncologist or the neurosurgeon)
- removal of the head frame (responsibility of the neurosurgeon when performed)

SBRT

Improved outcomes using stereotactic body radiation therapy have also been demonstrated in patients with early-stage non-small cell lung cancer who are not considered to be candidates for resection.

Although no direct comparative evidence is available, evidence does suggest that survival rates may be similar for SBRT and surgical resection for patients with stage IA-IIA NSCLC not >5 cm in diameter who are not candidates for surgical resection because of comorbid conditions.

Members or patients who are not candidates for surgical resection may include those who opt not to have surgery after informed consent or shared decision making. Clinical factors, such as cardiopulmonary status and surgical risk may be considered along with the feasibility of surgical options. The member or patient's choice does not preclude future surgical intervention.

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The literature and input from clinical vetting support its use in spinal tumors that have been previously irradiated and in radioresistant metastases to the spine.

SBRT has also been shown to have a role for select patients with inoperable hepatocellular carcinoma. While surgery remains the treatment of choice for hepatocellular carcinoma, less than 20% of patients are amenable to definitive surgical management at the time of diagnosis due to advanced local disease and/or co-morbidities. These patients may be candidates for local ablative therapies, including radiofrequency ablation or chemoembolization. SBRT should be considered as a non-invasive alternative to these other procedures or if these other therapies fail.

SBRT has become an acceptable community standard for the management of patients with limited metastatic disease who are not candidate for metastatectomy. SBRT has been explored in patients with oligometastatic disease involving the lung, liver, adrenal gland, bones, and retroperitoneal lymph nodes. Other investigators have not restricted the site of involvement, but rather focused on overall disease burden, allowing patients with up to a certain number of individual sites of metastatic disease to participate in prospective trials of SBRT for oligometastatic disease. These trials have demonstrated that appropriately selected patients may enjoy long term local control of their isolated metastases, and have the potential to experience long term overall survival.

Data on SBRT in prostate cancer continues to develop, with multiple prospective single-arm trials and institutional series and randomized phase III trials now reported. Based on the biologic response of prostate cancer to radiation (low α/β ratio), SBRT (high dose per treatment) is potentially more effective than long-course IMRT at 1.8-2 Gy per fraction. SBRT is a less costly treatment, and available data suggest that SBRT is at least as effective as IMRT with no worse side effects at up to 5-6 years. Regarding SBRT for prostate cancer, the 2013 ASTRO model policy states: "It is ASTRO's opinion that data supporting the use of SBRT for prostate cancer have matured to a point where SBRT could be considered an appropriate alternative for select patients with low to intermediate risk disease."

SBRT delivery for prostate cancers that move during therapy can lead to dosimetric uncertainties, and care thus must be taken to assess the degree of motion and consider the risk for dosimetric uncertainties.

Combined chemo-radiotherapy plays a significant role in the treatment of locally advanced pancreatic cancer. The role of SBRT as a radiation technique for pancreatic tumors has not been established. It is not clear which patients benefit from SBRT for pancreatic cancer given the high propensity for regional and distant disease. Although studies have shown promising local control rates, there have been no significant changes in patient survival compared to historical data, and some studies have shown unacceptable toxicity and questionable palliative effect.

The literature on the use of SBRT for primary renal cell carcinoma consists of institutional series and systematic reviews/meta-analyses and have reported good rates of local control and acceptable toxicity.

Karnofsky Performance Status Scale

Value	Level of functional capacity	Definition
100	Normal, no complaints, no evidence of disease	Able to carry on normal activity and to work; no special care needed
90	Able to carry on normal activity, minor signs or symptoms of disease	
80	Normal activity with effort, some signs or symptoms of disease	
70	Cares for self, unable to carry on normal activity or to do active work	Unable to work; able to live at home and care for most personal needs; various degrees of assistance needed
60	Requires occasional assistance, but is able to care for most needs	

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50	Requires considerable assistance and frequent medical care	
40	Disabled, requires special care and assistance	Unable to care for self; requires equivalent of institutional or hospital care; disease may be progressing rapidly
30	Severely disabled, hospitalization is indicated although death is not imminent	
20	Hospitalization is necessary, very sick, active supportive treatment necessary	
10	Moribound, fatal processes progressing rapidly	
0	Dead	

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Stereotactic Radiosurgery for cranial lesions (simple or complex) is reported once per course of treatment and is limited to once per two weeks. Additional cranial lesions should not be reported more than four times for an entire course of treatment (two weeks) regardless of the number of lesions treated.

Stereotactic body radiation treatment (CPT® 77371-77373) and, stereotactic radiosurgery treatment (G0339, G0340) should not be reported more than five sessions for an entire course of treatment regardless of number of lesions treated. Since a treatment course is typically defined as two weeks, this combination of codes should only be reported up to five times per two weeks.

Additionally, stereotactic radiation treatment delivery (CPT® 77371, 77372) and stereotactic radiosurgery (G0339) represent a complete course of stereotactic radiosurgery treatment and should not be reported more than once for a single two-week course of treatment.

Radiation therapy management with complete course of therapy consisting of 1 or 2 fractions only will be limited to 1 session per 60 days.

Stereotactic radiation treatment management of cranial lesion[s], complete course of treatment consisting of 1 session should not be reported more than once in a two-week treatment course.

Treatment management for SBRT is limited to one visit per two-week treatment course.

Special treatment procedures (77470) should only be reported once per two-week treatment course.

PLEASE REFER TO RADIATION THERAPY SERVICES REIMBURSEMENT POLICY.

Billing/Coding/Physician Documentation Information

This policy may apply to the following codes. Inclusion of a code in this section does not guarantee that it will be reimbursed. For further information on reimbursement guidelines, please see Administrative Policies on the Blue Cross Blue Shield of North Carolina web site at www.bcbsnc.com. They are listed in the Category Search on the Medical Policy search page.

Applicable codes: 20660, 61781, 61782, 61783, 61796, 61797, 61798, 61799, 61800, 63620, 63621, 77295, 77301, 77331, 77332, 77333, 77334, 77338, 77370, 77371, 77372, 77373, 77402, 77407, 77412, 77431, 77432, 77435, 77470, G0339, G0340, G6003, G6004, G6005, G6006, G6007, G6008, G6009, G6010, G6011, G6012, G6013, G6014

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BCBSNC may request medical records for determination of medical necessity. When medical records are requested, letters of support and/or explanation are often useful, but are not sufficient documentation unless all specific information needed to make a medical necessity determination is included.

Scientific Background and Reference Sources

BCBSA Medical Policy Reference Manual - 12/95

BCBSA Medical Policy Reference Manual - 1/30/98

BCBSA Medical Policy Reference Manual - 11/98

Medical Policy Advisory Group - 12/99

Specialty Matched Consultant Advisory Panel - 8/01

BCBSA Medical Policy Reference Manual, 6.01.10; 12/18/02

Specialty Matched Consultant Advisory Panel - 7/03

BCBSA Medical Policy Reference Manual [Electronic Version]. 6.01.10, 4/16/2004

Specialty Matched Consultant Advisory Panel - 6/2005

BCBSA Medical Policy Reference Manual [Electronic Version]. 6.01.10, 7/20/2006

Specialty Matched Consultant Advisory Panel - 5/2007

Specialty Matched Consultant Review - 8/2008

National Comprehensive Cancer Network. NCCN Clinical Practice Guidelines in Oncology, Non-small cell lung cancer. V.2.2009. Retrieved 10/22/2008 from http://www.nccn.org/professionals/physician_gls/PDF/nscl.pdf

BCBSA Medical Policy Reference Manual [Electronic Version]. 6.01.10, 12/11/08

Specialty Matched Consultant Advisory Panel - 5/2009

BCBSA Medical Policy Reference Manual [Electronic Version] 6.01.10, 02/2010

Specialty Matched Consultant Advisory Panel- 5/2010

BCBSA Medical Policy Reference Manual [Electronic Version]. 6.01.10, 9/16/2010

Senior Medical Director – 5/2011

BCBSA Medical Policy Reference Manual [Electronic Version]. 6.01.10, 6/14/12

Specialty Matched Consultant Advisory Panel- 8/2012

Oxford Textbook of Palliative Medicine, Oxford University Press. 1993; 109.

BCBSA Medical Policy Reference Manual [Electronic Version]. 6.01.10, 5/9/13

Specialty Matched Consultant Advisory Panel 5/2013

Discovery Medicine. Retrieved 5/30/13 from:

<http://www.discoverymedicine.com/Simon-S-Lo/2010/05/06/stereotactic-body-radiation-therapy-for-hepatocellular-carcinoma/>

Milano MT, Katz AW, et al. Oligometastases Treated With Stereotactic Body Radiotherapy: Long-Term Follow-Up of Prospective Study. International Journal of Radiation Oncology Biol Phys. 2011; 1-9.

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- Hodge JC, et al. Cost-effectiveness analysis of stereotactic body radiation therapy versus intensity-modulated radiation therapy: an emerging initial radiation treatment option for organ-confined prostate cancer. *J Oncol Pract.* 8(3 suppl): e31s-7s, 2012.
- Katz AJ, et al. Stereotactic body radiotherapy for localized prostate cancer: disease control and quality of life at 6 years. *Radiat Oncol*, 2013. (Epub)
- King CR, et al. Long-term outcomes from a prospective trial of stereotactic body radiotherapy for low-risk prostate cancer. *Int J Radiation Oncology Biol Phys*, 82(2):877-82, 2012.
- Loblaw A, et al. Prostate stereotactic ablative body radiotherapy using a standard linear accelerator: toxicity, biochemical, and pathological outcomes. *Radiother Oncol*, 2013. (Epub)
- McBride SM, et al. Hypofractionated stereotactic body radiotherapy in low-risk prostate adenocarcinoma. *Cancer*, 118(15):3681-90, 2012.
- Katz A, et al. Comparison of quality of life after stereotactic body radiotherapy and surgery for early-stage prostate cancer. *Radiat Oncol*, 2012. (Epub)
- Chen LN, et al. Stereotactic body radiation therapy (SBRT) for clinically localized prostate cancer: the Georgetown University experience. *Radiat Oncol*, 2013. (Epub)
- Katz A, et al. Five-year biochemical control rates for stereotactic body radiation therapy for organ-confined prostate cancer: a multi-institutional pooled analysis. *Int J Radiation Oncology Biol Phys*, 84(3, suppl): S147-148, 2012.
- Oken, M.M., Creech, R.H., Tormey, D.C., Horton, J., Davis, T.E., McFadden, E.T., Carbone, P.P.: Toxicity And Response Criteria Of The Eastern Cooperative Oncology Group. *Am J Clin Oncol* 5:649-655, 1982.
- Patel, Pretesh, Yoo, David, Niibe, Yuzuru, Urbanic, James, Salama, Joseph: A Call for the Aggressive Treatment of Oligometastatic and Oligo-Recurrent Non-Small Cell Lung Cancer. Hindawi Publishing Corporation. *Pulmonary Medicine*. Volume 2012, Article ID 480961, 7 pages.
- BCBSA Medical Policy Reference Manual [Electronic Version]. 6.01.10, 9/12/13
- Specialty Matched Consultant Advisory Panel review 6/2014
- BCBSA Medical Policy Reference Manual [Electronic Version]. 6.01.10, 9/11/14
- Specialty Matched Consultant Advisory Panel review 5/2015
- BCBSA Medical Policy Reference Manual [Electronic Version]. 6.01.10, 8/13/15
- Specialty Matched Consultant Advisory Panel review 5/2016
- Specialty Matched Consultant Advisory Panel review 5/2017
- BCBSA Medical Policy Reference Manual [Electronic Version]. 6.01.10, 10/12/17
- Specialty Matched Consultant Advisory Panel review 5/2018
- Medical Director review 5/2018
- BCBSA Medical Policy Reference Manual [Electronic Version]. 6.01.10, 12/13/18

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BCBSA Medical Policy Reference Manual [Electronic Version]. 6.01.10, 1/17/19

Medical Director review 4/2019

Specialty Matched Consultant Advisory Panel review 5/2019

Medical Director review 9/2019

BCBSA Medical Policy Reference Manual [Electronic Version]. 6.01.10, 12/12/19

Specialty Matched Consultant Advisory Panel review 5/2020

Medical Director review 5/2020

BCBSA Medical Policy Reference Manual [Electronic Version]. 6.01.10, 12/10/20

Specialty Matched Consultant Advisory Panel review 5/2021

Medical Director review 5/2021

Medical Director review 3/2022

Specialty Matched Consultant Advisory Panel review 5/2022

Specialty Matched Consultant Advisory Panel review 5/2023

Medical Director review 5/2023

Policy Implementation/Update Information

6/84	Original policy: proton beam radiotherapy generally accepted medical practice for arteriovenous malformations. Issued as Advice to plans 9/84 Newsletter. Evaluated and reversed 3/88.
3/88	Evaluated: gamma beam radiosurgery eligible for coverage for selected patients with arteriovenous malformations. Proton beam radiosurgery eligible for coverage for second line treatment of pituitary microadenoma.
7/89	Evaluated: proton beam radiosurgery eligible for coverage for first line treatment of pituitary microadenoma. Gamma beam radiosurgery investigational for acoustic neuroma.
8/92	Evaluated and eligible for coverage: gamma beam radiosurgery for acoustic neuromas, helium ion radiosurgery for selected arteriovenous malformations and pituitary.
8/92	Evaluated and investigational: gamma beam radiosurgery for angiographically occult arteriovenous malformations, meningiomas, brain metastases and pituitary adenomas; helium ion radiosurgery for angiographically occult arteriovenous malformations; linear accelerator radiosurgery for arteriovenous malformations, meningiomas, brain metastases and pituitary adenomas; neutron beam radiosurgery for arteriovenous malformations.
9/93	Revised.
11/94	Evaluated: Gamma beam radiosurgery and linear accelerator radiosurgery are eligible for coverage for initial treatment of solitary brain metastasis.
6/96	Revised: National Association reviewed 12/95.
9/98	Reviewed: Adopted BCBSA's policy issued 1/30/98.
6/99	Reformatted, Medical term Definitions added.

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- 12/99 Medical Policy Advisory Group
- 10/00 System coding changes.
- 12/00 77520, 77522, 77523, 77525 added to coding section. System coding changes.
- 7/01 Policy name changed from Stereotactic Radiosurgery to Radiosurgery, Stereotactic Approach.
- 9/01 Specialty Matched Consultant Advisory Panel - 8/01. Approved. Format changes. Typos corrected.
- 10/01 Format changes.
- 08/03 Specialty Matched Consultant Advisory Panel review 7/15/2003. Benefits Application section revised. Under "When covered" section: 5th bullet - removed "up to three" and replaced with "multiple"...to indicate that stereotactic radiosurgery is no longer limited to 3 or fewer metastases; 6th bullet - added "primary malignancies of the CNS, including but not limited to..."; 7th bullet-added "or in cases where the patient is unable to tolerate the side effects of medications". Typos corrected. Added CPT codes 77402-77416 and HCPCS Level II codes G0173, G0242, G0243 to Billing/Coding section.
- 7/7/05 Specialty Matched Consultant Advisory Panel review 6/24/2005. No changes to policy intent. Removed the statement, "The most common applications of SRS include treatment of intracranial metastases, arteriovenous malformations, acoustic neuromas (benign tumors originating on the eight cranial nerves), or other benign intracranial tumors such as meningiomas or pituitary adenomas." from first paragraph of the "Description of Procedure or Service" because this is addressed later in the description. Added "functional disorders other than trigeminal neuralgia, such as" to the statement associated with the first bullet under "When not covered". Policy number added to "Key Words" section. References added.
- 1/19/06 Added "Cyberknife is a novel new technology of delivering radiation with a lightweight linear accelerator (LINAC) device utilizing a robotic manipulator to permit a wide range of beam orientations." to "Description of Procedure or Service" section. HCPCS codes G0339, G0340, 0082T, and 0083T added to "Billing/Coding" section. Deleted HCPCS G0242 from "Billing/Coding" section. Added "Cyberknife" to "Policy Key Words" section.
- 1/3/07 Added the following new 2007 CPT codes to the "Billing/Coding" section: 77371, 77372, 77373, 77435, 0169T. Deleted CPT codes 0082T and 0083T and HCPCS code G0243 from "Billing/Coding" section.
- 8/13/07 Specialty Matched Consultant Advisory Panel review 5/23/2007. Updated "Description" section regarding stereotactic radiotherapy and added information related to stereotactic radiosurgery of extracranial sites. Expanded the 5th bullet in the "When Covered" section to include; "solitary or multiple brain metastases (up to 3) in patients having good performance status and no active systemic disease or patients with active systemic disease when the treatment is likely to improve the functional status of the patient" Clarified "When not covered" section; first bullet, added "cluster headaches and chronic pain" as examples of functional disorders, and second bullet "Stereotactic radiosurgery for the treatment of extracranial sites (i.e., stereotactic body radiosurgery)." Removed reference to "fractionated stereotactic radiotherapy" from "When not covered" section. Removed CPT code 0169T from "Billing/Coding" section as it is not specific to this policy. References added.
- 7/6/09 Specialty Matched Consultant review 8/8/2008. Reviewed with Senior Medical Director 3/23/09. Specialty Matched Consultant Advisory Panel Review 5/28/09. "Description" section updated. Revised the following in the "When Covered" section to remove the statement: "5.) ...or patients with active systemic disease when the treatment is likely to improve the functional status of the patient;" and inserted "and no active systemic disease (defined as extracranial disease that is stable or in remission)". Added additional

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indications: "B. Stereotactic Body Radiotherapy (SBRT) with Gamma knife®, Cyberknife®, or linear accelerator (LINAC) may be considered medically necessary for the following indications: 1.) Patients with stage 1 non-small cell lung cancer showing no nodal or distant disease and who are not candidates for surgical resection; 2) Spinal or vertebral body tumors (metastatic or primary) in patients who have received prior radiation therapy." Added to the "When not covered" section: "3.) Stereotactic body radiosurgery therapy (SBRT) is considered investigational for the treatment of extracranial sites, except for the cases of spinal tumors after prior radiation therapy and stage 1 non-small cell lung cancer as noted above." Added the following statement to the "Policy Guidelines" section: "Refer to the individual certificate for prior review/precertification requirements." Added new CPT codes 61795, 61796, 61797, 61798, 61799, 61800, 63620, 63621 and new HCPCS code, G0251 to the "Billing/Coding" section. Removed deleted CPT code 61793. Removed the following CPT codes: 77520, 77522, 77523 and 77525, as they no longer relate to this policy. References added. (btw)

- 6/22/10 Specialty Matched Consultant Advisory Panel review 5/24/10. Under "When covered" section: 5th bullet - removed "up to three" to indicate that stereotactic radiosurgery is no longer limited to 3 or fewer metastases. Medical Policy number removed. References added.(lpr)
- 11/23/10 Reordered CPT code 77435 so that it appears in the proper numerical sequence in the Billing/Coding section. (lpr)
- 1/4/2011 Added new CPT codes 61781, 61782, 61783 to Billing/Coding section. Removed deleted CPT code 61795. (lpr)
- 5/24/11 "Description" section revised. Added "T1 or T2a" and "(not larger than 5 cm) to B.1. under the "When Covered" section. Specified "chronic" pain in statement 2 under the "When Not Covered" section. Added the following statement to the "Policy Guidelines" section: For the initial or recurrent SRS treatment of solitary or multiple brain metastases in patients without extracranial disease, the patient should have good performance status. For the initial SRS treatment of solitary or multiple brain metastases with extracranial disease, patients should have good performance status AND one of the following: a. be newly diagnosed, b. have stable disease, or c. have reasonable systemic treatment options. For recurrent SRS treatment of brain metastases patients should have good performance status AND have one of the following: a. stable extracranial disease, or b. reasonable systemic treatment options. Reviewed with Senior Medical Director 5/2/2010. References added. (btw)
- 9/4/12 Specialty matched consultant advisory panel review meeting 8/15/12. (lpr)
- 7/1/13 Entire policy extensively revised. Under When Covered section: added policy statement that craniopharyngiomas, glomus jugulare tumors, and spinal or vertebral metastases that are radioresistant are medically necessary indications and fractionation is medically necessary if all indications under When Covered section are met. Under "When Covered" also added B.2. a-d Prostate indications, B.3. a-d Hepatocellular indications and B.6 oligometastases indications. Added CPT codes 77301, 77338, 77295 to Billing/Coding section. Specialty Matched Consultant Advisory Panel meeting 5/15/2013. Added Karnofsky performance status scale (KPS) under Policy Guidelines section. Medical director review 5/2013. (lpr)
- 10/29/13 Reference updated. No change to policy statement. (lpr)
- 7/29/14 Specialty matched consultant advisory panel review meeting 6/24/2014. No change to policy statement.(lpr)

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- 10/28/14 Extensive updates to Description section. Added tremor as investigational indication under “When Not Covered” section. Reference added. (lpr)
- 12/30/14 Under Related Policies, changed title of IMRT Breast and Lung to IMRT Chest. To Billing/Coding section: added HCPCS codes G6003-G6014 and deleted G0173 and G0251; and deleted CPT codes 77403, 77404, 77406, 77408, 77409, 77411, 77413, 77414, 77416 effective 1/1/2015. (lpr)
- 7/1/15 Specialty Matched Consultant Advisory Panel review 5/27/2015. No change to policy statement. (lpr)
- 10/30/15 Updated Description section. Reference added. No change to policy intent. (lpr)
- 7/1/16 Specialty Matched Consultant Advisory Panel review 5/25/2016. No change to policy statement. (lpr)
- 6/30/17 Specialty Matched Consultant Advisory Panel review 5/31/2017. No change to policy statement. (lpr)
- 2/23/18 Reference added. (lpr)
- 6/8/18 Specialty Matched Consultant Advisory Panel review 5/2018. No changes to policy statements. Medical Director review 5/2018. (mco)
- 4/16/19 Updated Description and Policy Guidelines sections. Under “When Covered” section A: added bullet #9: Uveal melanoma, for tumors with largest diameter >18 mm or thickness >10 mm or thickness >8 mm with optic nerve involvement; and bullet #11: Mesial temporal lobe epilepsy refractory to medical management, when standard alternative surgery is not an option. Under B.1: changed T1 or T2 to IA-IIA. Added B.4: Primary renal cell carcinoma when the tumor is inoperable or in patients who are not good surgical candidates. Under “When Not Covered” section: removed “the treatment of seizures and uveal melanoma” from the statement. References added. Medical Director review 4/2019. (lpr)
- 5/28/19 Specialty Matched Consultant Advisory Panel review 5/15/2019. No changes to policy statements. (lpr)
- 9/10/19 Under “When Covered” section, added bullet #5 to section B: Pancreatic adenocarcinoma as definitive treatment for inoperable disease without evidence of distant metastases.” Medical Director review 9/2019. (lpr)
- 2/25/20 Corrected typo under When Not Covered section regarding numerical reference for oligometastases. Statement should read “Stereotactic body radiation therapy (SBRT) for oligometastases is considered not medically necessary when criteria listed above in section B #8 are not met”. No changes to policy intent. (lpr)
- 6/9/20 Specialty Matched Consultant Advisory Panel review 5/20/2020. Reference added. No change to policy statement. (lpr)
- 6/15/21 Specialty Matched Consultant Advisory Panel review 5/19/2021. Reference added. No change to policy statement. Updated Policy Guidelines section. (lpr)
- 3/22/22 Under Policy Guidelines section, added Radiology Maximum Units guidelines for SBRT treatment course. Under Billing/Coding section, added CPT codes 77431 and 77470. Added Radiation Therapy Services Reimbursement Policy to Related Policies section. Medical Director review 3/2022. Notification given 3/22/22 for effective date 6/1/22. (lpr)
- 5/31/22 Specialty Matched Consultant Advisory Panel review 5/18/22. No change to policy statement. (lpr)
- 6/13/23 Specialty Matched Consultant Advisory Panel review 5/17/2023. Under “When covered” section: removed bullet (d) under Section B #2 which stated patient is not currently anticoagulated. No change to policy statement. (lpr)

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