Clinical Policy: Stereotactic Body Radiation Therapy

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 health plans affiliated with Centene Corporation® 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;
   E. Hepatocellular carcinoma, as an alternative to ablation/embolization techniques or when these therapies have failed or are contraindicated;
   F. Low to intermediated risk localized prostate cancer.

II. It is the policy of health plans affiliated with Centene Corporation® 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
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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 health plans affiliated with Centene Corporate 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.4

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.4

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. 411
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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 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/extremely hypofractionated image-guided intensity-modulated radiation therapy (IMRT) regimens (6.5 Gy per fraction or greater) can be considered as an alternative to conventionally fractionated regimens in the treatment of prostate cancer at clinics with appropriate technology, physics, and clinical expertise. Longer follow-up and prospective multi-institutional data are required to evaluate longer-term results, especially because late toxicity theoretically could be worse in hypofractionated regimens compared to conventional fractionation (1.8 Gy-2.0 Gy).

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.

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

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.

SBRT in the treatment of pancreatic adenocarcinoma should be used preferably in the context of a clinical trial or at experienced high-volume centers with technology that allows for image-guided radiation, since the data regarding the appropriate use of SBRT for this indication is evolving. Most recent guidelines from NCCN include SBRT as an “option” in select patients with pancreatic adenocarcinoma with good performance status and locally advanced disease without systemic metastasis. Chemoradiation or SBRT may be also be an option in select patients who are not candidates for combination therapy, an option in disease progression when SBRT had not been previously given, as an option for local recurrence after resection or for palliation. SBRT should be avoided if direct invasion of the bowel or stomach is observed on imaging and/or endoscopy.

SBRT can be considered in patients with hepatocellular carcinoma, as an alternative to ablation/embolization techniques or when these therapies have failed or are contraindicated. SBRT (1-5 fractions) is often used for patients with 1-3 tumors. SBRT could be considered for larger lesions or more extensive disease, if there is sufficient uninvolved liver and liver radiation tolerance can be respected. There should be no extrahepatic disease or it should be minimal and addressed in a comprehensive management plan. (Category 2B recommendation)

There is currently insufficient evidence to recommend SBRT for treatment of head and neck cancers, however, it might be beneficial for palliation or for older adults. When using SBRT
techniques in reirradiation, selection of patients who do not have circumferential carotid involvement is advised.\textsuperscript{34}

\textit{American Academy of Neurology}

There is insufficient evidence to make recommendations regarding the use of gamma knife thalamotomy in the treatment of essential tremor. Per UpToDate, “Gamma knife thalamotomy has not generally been adopted for essential tremor due to concerns about delayed radiation side effects, including risk of radiation necrosis and a theoretical risk of secondary tumor formation.”\textsuperscript{31}

Per UpToDate on seizures and epilepsy in children, “Stereotactic radiosurgery may be helpful for selected cases when the lesion is located where a conventional surgical approach is technically difficult or excessively risky. More information is needed on long-term outcome before wider application of this procedure.”\textsuperscript{37}

\textit{American Society for Radiation Oncology (ASTRO), the American Society of Clinical Oncology (ASCO), and the American Urological Association (AUA)}

Per a recent new guideline on hypofractionated radiation therapy for localized prostate cancer from ASTRO, ASCO, and the AUA, “Based on high-quality evidence, strong consensus was reached for offering moderate hypofractionation across risk groups to patients choosing external beam radiation therapy. The task force reached a weaker consensus for ultrahypofractionated radiation therapy. Extremely hypofractionated radiation therapy, also known as ultrahypofractionation, SBRT or stereotactic ablative radiation therapy (SABR) may be offered for low and intermediate risk prostate cancer, but strongly encourages treatment of intermediate-risk patients on a clinical trial or multi-institutional registry. For high-risk disease, the panel does not suggest offering ultrahypofractionation outside of a trial or registry.”\textsuperscript{33} Recommendations for ultrahypofractionation were graded by the panel as conditional, reflecting the limited base of current evidence on this approach. The guideline recommends large-scale randomized clinical trials and stresses the importance of shared decision making between clinicians and patients.\textsuperscript{33}

\textbf{Coding Implications}

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<thead>
<tr>
<th>CPT\textsuperscript{®} Codes</th>
<th>Description</th>
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<tbody>
<tr>
<td>61796 Stereotactic radiosurgery (particle beam, gamma ray, or linear accelerator); 1 simple cranial lesion</td>
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<tr>
<td>61797 Stereotactic radiosurgery (particle beam, gamma ray, or linear accelerator; each additional cranial lesion, simple</td>
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<thead>
<tr>
<th>CPT® Codes</th>
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<tbody>
<tr>
<td>61798</td>
<td>Stereotactic radiosurgery (particle beam, gamma ray, or linear accelerator; 1 complex cranial lesion)</td>
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<tr>
<td>61799</td>
<td>Stereotactic radiosurgery (particle beam, gamma ray, or linear accelerator; each additional cranial lesion, complex)</td>
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<tr>
<td>63620</td>
<td>Stereotactic radiosurgery (particle beam, gamma ray, or linear accelerator); 1 spinal lesion</td>
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<tr>
<td>63621</td>
<td>Stereotactic radiosurgery (particle beam, gamma ray, or linear accelerator); each additional spinal lesion</td>
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<tr>
<td>77371</td>
<td>Radiation treatment delivery, stereotactic radiosurgery (SRS), complete course of treatment of cranial lesion(s) consisting of 1 session; multi-source cobalt 60 based</td>
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<tr>
<td>77372</td>
<td>Radiation treatment delivery, stereotactic radiosurgery (SRS), complete course of treatment of cranial lesion(s) consisting of 1 session; linear accelerator based</td>
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<tr>
<td>77373</td>
<td>Stereotactic body radiation therapy, treatment delivery, per fraction to 1 or more lesions, including image guidance, entire course not to exceed 5 fractions</td>
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<tr>
<td>77432</td>
<td>Stereotactic radiation treatment management of cranial lesion(s) (complete course of treatment consisting of one session)</td>
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<tr>
<td>77435</td>
<td>Stereotactic body radiation therapy, treatment management, per treatment course, to 1 or more lesions, including image guidance, entire course not to exceed 5 fractions</td>
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<tr>
<td>G0339</td>
<td>Image-guided robotic linear accelerator-based stereotactic radiosurgery, complete course of therapy in one session or first session of fractionated treatment</td>
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<tr>
<td>G0340</td>
<td>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</td>
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ICD-10-CM Diagnosis Codes that Support Coverage Criteria

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<thead>
<tr>
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<th>Description</th>
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<tbody>
<tr>
<td>C22.0-C22.9</td>
<td>Malignant neoplasm of liver and intrahepatic bile ducts</td>
</tr>
<tr>
<td>C34.00-C34.921</td>
<td>Malignant neoplasm of bronchus and lung</td>
</tr>
<tr>
<td>C61</td>
<td>Malignant neoplasm of prostate</td>
</tr>
<tr>
<td>C70.0-C70.9</td>
<td>Malignant neoplasm of meninges</td>
</tr>
<tr>
<td>C71.0-C71.9</td>
<td>Malignant neoplasm of brain</td>
</tr>
<tr>
<td>C72.0-C72.59</td>
<td>Malignant neoplasm of spinal cord, cranial nerves</td>
</tr>
<tr>
<td>C78.00-C78.02</td>
<td>Secondary malignant neoplasm of lung</td>
</tr>
<tr>
<td>C78.7</td>
<td>Secondary malignant neoplasm of liver and intrahepatic bile duct</td>
</tr>
<tr>
<td>C79.31-C79.32</td>
<td>Secondary malignant neoplasm of brain and cerebral meninges</td>
</tr>
<tr>
<td>D18.02</td>
<td>Hemangiomia of intracranial structures</td>
</tr>
<tr>
<td>D32.0-D32.9</td>
<td>Benign neoplasm of meninges</td>
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**ICD-10-CM Code** | **Description**  
---|---  
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  
D35.3 | Benign neoplasm of craniohypophyseal duct  
D35.4 | Benign neoplasm of pineal gland  
D42.0-D42.9 | Neoplasm of uncertain behavior of meninges  
D43.0-D43.9 | Neoplasm of uncertain behavior of brain and central nervous system  
D44.3 | Neoplasm of uncertain behavior of pituitary gland  
D44.4 | Neoplasm of uncertain behavior of craniohypophyseal duct  
D49.6 | Neoplasm of unspecified behavior of brain  
G50.0 | Trigeminal neuralgia  
Q28.2 | Arteriovenous malformations of cerebral vessels  
Z51.0 | Encounter for antineoplastic radiation therapy  

**Reviews, Revisions, and Approvals**

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<tr>
<th>Details</th>
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<tr>
<td>Updated codes and disclaimers for HIX products</td>
<td>05/13</td>
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<tr>
<td>Clarified language in Policy/Criteria section</td>
<td>12/13</td>
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| Removed Authorization Criteria section  
Added indication for patients who refuse surgery and with more tumors arising in or near previous irradiated regions  
Clarified differences in SBRT and SRS and split Policy/Criteria appropriately  
Specialist review (radiation oncology) | 03/14 | 03/14 |
| Bibliography reviewed and updated  
Procedure codes updated per 2015 code updates for deleted codes | 02/15 | 03/15 |
| References reviewed and updated; added acoustic neuroma as an indication for SBRT; for SRS, removed acoustic neuroma from cranial indications and added a requirement that it be small or enlarging if not a candidate for surgery. | 03/16 | 03/16 |
| Added stage I-II, NO as indication to define non-small cell lung cancer per NCCN; added SBRT as indication for recurrences of metastatic spine cancer after previous radiation, per NCCN; added CyberKnife to the background information; added to background from NCCN that SBRT needs longer follow-up before used on prostate cancer; added additional information from NCCN to support SBRT to background section. | 02/17 | 03/17 |
| Added hepatocellular cancer as an indication for SBRT per NCCN; updated background section from NCCN that SBRT for pancreatic adenocarcinoma be used preferably in a clinical trial; added to background from AAN that there is insufficient evidence to make recommendations regarding the use of gamma knife thalamotomy in the treatment of essential tremor.  
codes reviewed and updated. | 01/18 | 01/18 |
Added low to intermediate risk localized prostate cancer to section I as medically necessary. Updated background. Revised coding section, combining ICD 10 codes into applicable categories. References reviewed and updated.

**References**

11. Loeffler JS, Shih HA. Radiation therapy of pituitary adenomas. In: UpToDate, Snyder PJ (Ed), UpToDate, Waltham, MA. Accessed 2/26/16. 1/18/17. 12/27/2017, 01/08/19
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19. Synderman C, Lin D. Chordoma and chondrosarcoma of the skull base. In: UpToDate, Loeffer JS, Wen PY, Fried MP (Ed), UpToDate, Waltham, MA. Accessed 2/26/2016. 1/19/17. 12/27/17, 01/08/19
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Important reminder
This clinical policy has been developed by appropriately experienced and licensed health care professionals based on a review and consideration of currently available generally accepted standards of medical practice; peer-reviewed medical literature; government agency/program approval status; evidence-based guidelines and positions of leading national health professional organizations; views of physicians practicing in relevant clinical areas affected by this clinical policy; and other available clinical information. The Health Plan makes no representations and accepts no liability with respect to the content of any external information used or relied upon in developing this clinical policy. This clinical policy is consistent with standards of medical practice current at the time that this clinical policy was approved. “Health Plan” means a health plan that has adopted this clinical policy and that is operated or administered, in whole or in part, by Centene Management Company, LLC, or any of such health plan’s affiliates, as applicable.

The purpose of this clinical policy is to provide a guide to medical necessity, which is a component of the guidelines used to assist in making coverage decisions and administering benefits. It does not constitute a contract or guarantee regarding payment or results. Coverage decisions and the administration of benefits are subject to all terms, conditions, exclusions and limitations of the coverage documents (e.g., evidence of coverage, certificate of coverage, policy, contract of insurance, etc.), as well as to state and federal requirements and applicable Health Plan-level administrative policies and procedures.

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**Note: For Medicare members**, to ensure consistency with the Medicare National Coverage Determinations (NCD) and Local Coverage Determinations (LCD), all applicable NCDs, LCDs and Medicare Coverage Articles should be reviewed prior to applying the criteria set forth in this clinical policy. Refer to the CMS website at [http://www.cms.gov](http://www.cms.gov) for additional information.

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