Public Statement:

1) Stereotactic radiosurgery uses multiple beams of focused radiation to destroy deep tumors that cannot be treated by standard surgery.
2) Stereotactic radiosurgery is covered for patients who meet the specific criteria listed in this policy.

Medical Policy Statement:

1. Cranial stereotactic radiosurgery with a gamma knife, Cyberknife, or linear accelerator (LINAC) is considered medically necessary for any of the following indications:
   A. For treatment of members with symptomatic, small (less than 3 cm) arterio-venous (AV) malformations, aneurysms, and benign tumors such as: acoustic neuromas (vestibular schwannomas), meningiomas, hemangiomas, pituitary adenomas, craniopharyngiomas, and neoplasms of the pineal gland when the lesion is considered unresectable due to its deep intracranial location or if the member is unable to tolerate conventional operative intervention HAYES B; or
   B. For the palliative treatment of initial or recurrent brain metastases in members with good performance status (Karnofsky 80 or higher).
have fewer than four MRI-confirmed metastases. The lesions must each be less than 3 cm in greatest dimension and either:
   A. the member has no demonstrable extracranial tumor or stable extracranial tumor activity at the time of treatment, or
   B. the member has localized primary disease for which a definitive approach to the primary site is planned, e.g., lobectomy; or
   C. For treatment of primary brain malignancies either initial or recurrent that are less than 5 cm in diameter and the member is otherwise in relatively good health (Karnofsky status 80 or higher); or
   D. For treatment of non-operable primary central nervous system (CNS) tumors invading the spine. or
   E. Localized malignant conditions within the body where highly precise application of high-dose radiotherapy is required.

2. Fractionated cranial stereotactic radiotherapy is considered medically necessary for treatment of intracranial tumors in hard-to-reach locations, tumors with very unusual shapes, or for tumors located in such close proximity to a vital structure (e.g., optic nerve or hypothalamus) that even a very accurate high-dose single fraction of stereotactic radiosurgery could not be tolerated.

3. Stereotactic Proton beam radiotherapy. See proton beam radiotherapy (ARB0302).

4. The Karnofsky performance status scale is widely used to evaluate the functional status of cancer patients to determine their eligibility for clinical trials and their prognosis.
   80 = normal activity with effort, some signs or symptoms of disease
   90 = Able to carry on normal activity; minor signs or symptoms of disease
   100 = Normal; no complaints; no evidence of disease.

5. Stereotactic body radiation is eligible for coverage for members with the following:
   A. Stage 1 non-small cell lung cancer (not larger than 5 cm) showing no nodal or distant disease and who are not candidates for surgical resection;
   B. Primary or metastatic malignant lesions of the spine or paraspinal regions.

6. Stereotactic radiosurgery with a gamma knife or Cyberknife is considered medically necessary for trigeminal neuralgia when:
   A. Condition has been present for greater than 6 months; and
   B. Treatment with medication such as Baclofen or Tegretol has failed.

Limits:

1. Stereotactic radiosurgery is considered experimental and investigational for treatment of Parkinson’s disease and epilepsy (except when associated with treatment of AV malformations or brain tumors) HAYES C.

2. Stereotactic radiosurgery for the treatment of cluster headaches is considered experimental and investigational.

3. Stereotactic body radiosurgery: Stereotactic administration of radiosurgery to extracranial sites (e.g., liver, lung, kidney, and prostate), other than inoperable
primary CNS tumors of the spine, is considered as experimental and investigational.

Background:

With any external beam radiation therapy, the highest dose of radiation develops where multiple beams intersect. Thus, the fewer beams there are, the greater the dose reaching other areas traversed by the beams. For example, if only two beams are used, the highest dose would develop at the site where the beams intersect, but a significant portion of the dose would be distributed to fields anterior and posterior to the intersection.

Stereotactic radiosurgery (SRS) uses the above principle to deliver a highly focused ionizing beam so that the desired target is obliterated, leaving adjacent structures nearly unaffected. Guidance is provided by a variety of imaging techniques, including angiography, computerized tomography (CT), and magnetic resonance imaging (MRI). The key to SRS is immobilization of the patient so that targeting can be accurate and precise. SRS has been attempted in extracranial sites; however, it is considered experimental and investigational for extracranial indications because of unresolved difficulties in immobilizing the patient, since merely breathing can move a pulmonary or abdominal tumor by more than 1cm. A body frame has been designed to immobilize patients for such treatment, but there are few reports of its effectiveness.

The radioactive particles used in SRS may come from various sources. The Gamma Knife uses Cobalt-60. Over 200 finely focused beams of gamma radiation simultaneously intersect at the precise location of the brain disorder. Proton beam radiosurgery derives its advantage from the so-called "Bragg peak", a term that describes the pattern of deposition of proton beam radiation. Protons decelerate as they travel through tissue, depositing disproportionately more radiation at greater depths. The protons deposit most of their energy at their depth of maximal penetration, resulting in a "peak" of radiation at that tissue depth. The depth of peak radiation can be precisely defined by the energy the cyclotron imparts to the proton beam.

References:

1) Hayes, Medical Technology Directory; Stereotactic Radiosurgery for Trigeminal Neuralgia and Movement Disorders, Jul. 25, 2002
2) Hayes, Medical Technology Directory; Stereotactic Radiosurgery for Arteriovenous Malformations and Intracranial Tumors; Aug. 16, 2002.

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Application to Products

This policy applies to ARBenefits. Consult ARBenefits Summary Plan Description (SPD) for additional information.

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