Medical Policy

BlueCross BlueShield of Kansas
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Title: Intensity Modulated Radiation Therapy (IMRT)

See also: Stereotactic Radiosurgery and Radiotherapy medical policy

PRE-DETERMINATION of services for FEP is required effective January 1, 2010.
http://www.bcbsks.com/CustomerService/Forms/pdf/15-17_predeterm_request_frm.pdf

Professional	**Institutional**
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Current Effective Date: October 15, 2012	Current Effective Date: October 15, 2012

State and Federal mandates and health plan member contract language, including specific provisions/exclusions, take precedence over Medical Policy and must be considered first in determining eligibility for coverage. To verify a member's benefits, contact Blue Cross and Blue Shield of Kansas Customer Service.

The BCBSKS Medical Policies contained herein are for informational purposes and apply only to members who have health insurance through BCBSKS or who are covered by a self-insured group plan administered by BCBSKS. Medical Policy for FEP members is subject to FEP medical policy which may differ from BCBSKS Medical Policy.

The medical policies do not constitute medical advice or medical care. Treating health care providers are independent contractors and are neither employees nor agents of Blue Cross and Blue Shield of Kansas and are solely responsible for diagnosis, treatment and medical advice.

If your patient is covered under a different Blue Cross and Blue Shield plan, please refer to the Medical Policies of that plan.

DESCRIPTION

Intensity modulated radiation therapy (IMRT) has been proposed as a method of radiation therapy that allows adequate radiation therapy to the tumor while minimizing the radiation dose to surrounding normal tissues and critical structures.

Radiation Techniques

Conventional external-beam radiation therapy.

Over the past several decades, methods to plan and deliver radiation therapy have evolved in ways that permit more precise targeting of tumors with complex geometries. Most early trials used 2-dimensional treatment planning, based on flat images and radiation beams with cross-sections of uniform intensity that were sequentially aimed at the tumor along 2 or 3 intersecting axes. Collectively, these methods are termed "conventional external beam radiation therapy".

3-dimensional conformal radiation (3D-CRT).

Treatment planning evolved by using 3-dimensional images, usually from computed tomography (CT) scans, to delineate the boundaries of the tumor and discriminate tumor tissue from adjacent normal tissue and nearby organs at risk for radiation damage. Computer algorithms were developed to estimate cumulative radiation dose delivered to each volume of interest by summing the contribution from each shaped beam. Methods also were developed to position the patient and the radiation portal reproducibly for each fraction and immobilize the patient, thus maintaining consistent beam axes across treatment sessions. Collectively, these methods are termed 3-dimensional conformal radiation therapy (3D-CRT).

Intensity-modulated radiation therapy (IMRT).

IMRT, which uses computer software, CT images, and magnetic resonance imaging (MRI), offers better conformality than 3D-CRT as it is able to modulate the intensity of the overlapping radiation beams projected on the target and to use multiple-shaped treatment fields. It uses a device (a multileaf collimator, MLC) which, coupled to a computer algorithm, allows for "inverse" treatment planning. The radiation oncologist delineates the target on each slice of a CT scan and specifies the target's prescribed radiation dose, acceptable limits of dose heterogeneity within the target volume, adjacent normal tissue volumes to avoid, and acceptable dose limits within the normal tissues. Based on these parameters and a digitally reconstructed radiographic image of the tumor and surrounding tissues and organs at risk, computer software optimizes the location, shape, and intensities of the beams ports, to achieve the treatment plan's goals.

Increased conformality may permit escalated tumor doses without increasing normal tissue toxicity and thus may improve local tumor control, with decreased exposure to surrounding normal tissues, potentially reducing acute and late radiation toxicities. Better dose homogeneity within the target may also improve local tumor control by avoiding underdosing within the tumor and may decrease toxicity by avoiding overdosing.

Since most tumors move as patients breathe, dosimetry with stationary targets may not accurately reflect doses delivered within target volumes and adjacent tissues in patients. Furthermore, treatment planning and delivery are more complex, time-consuming, and labor-intensive for IMRT than for 3D-CRT. Thus, clinical studies must test whether IMRT improves tumor control or reduces acute and late toxicities when compared with 3D-CRT.

Methodologic issues with IMRT studies

Multiple-dose planning studies have generated 3D-CRT and IMRT treatment plans from the same scans, then compared predicted dose distributions within the target and in adjacent organs at risk. Results of such planning studies show that IMRT improves on 3D-CRT with respect to conformality to, and dose homogeneity within, the target. Dosimetry using stationary targets generally confirms these predictions. Thus, radiation oncologists hypothesized that IMRT may improve treatment outcomes compared with those of 3D-CRT. However, these types of studies offer indirect evidence

on treatment benefit from IMRT, and it is difficult to relate results of dosing studies to actual effects on health outcomes.

Comparative studies of radiation-induced side effects from IMRT versus alternative radiation delivery are probably the most important type of evidence in establishing the benefit of IMRT. Such studies would answer the question of whether the theoretical benefit of IMRT in sparing normal tissue translates into real health outcomes. Single-arm series of IMRT can give some insights into the potential for benefit, particularly if an adverse effect that is expected to occur at high rates is shown to decrease by a large amount. Studies of treatment benefit are also important to establish that IMRT is at least as good as other types of delivery, but in the absence of such comparative trials, it is likely that benefit from IMRT is at least as good as with other types of delivery.

POLICY

IMRT is considered **medically necessary** for the following indications:

A. Prostate cancer for dose escalation>75 Gy of the prostate and for post operative radiation of the prostate to a dose of at least 6300 cGy.

B. Head and neck cancer, with the exception of patients with early stage larynx cancer (stage I and II).

C. Cancer involving the CNS.

D. Carcinoma of the anus or vulva.

E. Anaplastic thyroid cancer.

F. Carcinoma of the cervix

G. Whole pelvic radiotherapy for gynecologic malignancies.

H. Pediatric tumors (e.g., Ewing Sarcoma, Wilms' Tumor).

I. Breast cancer, when at least one of the following is met:
   1. Heart—3D results in ≥ 25 % of heart receiving ≥ 30Gy;
      OR
   2. Lung—3D results in ≥ 30% of ipsilateral lung receiving ≥20 Gy,
      OR
      3D results in ≥20% of combined lung volume receiving ≥20Gy;
      OR
   3. Skin / Soft Tissue—3D results in ≥ 5% of intended breast receiving ≥7% of prescribed dose
      OR
      Medial lesion where 3D results in ≥ 10% of contralateral breast receiving ≥ 10Gy.

J. Esophagus, Stomach, Pancreas, Hepatobiliary Tract, Rectum, Colon, Small Bowel, when at least one of the following is met:
   1. Heart—3D result in ≥50% of heart receiving ≥30 Gy,
      OR
   2. Lung—3D results in ≥30 % of combined lung volume receiving ≥ 20% Gy,
      OR
      Mean lung dose≥ 20 Gy;
      OR
   3. Spinal Cord—3D result in any portion of the spinal cord receiving a dose above 45 Gy;
      OR
   4. Liver—3D results in ≥60% of liver volume receiving ≥ 30 Gy,
      OR
      Mean liver dose ≥32 Gy;
      OR
   5. Kidney—3D results in ≥33% of combined kidney volume receiving ≥ 20 Gy (two functional kidneys are present);
      OR
      For one functioning kidney or kidney transplant, IMRT provides a lower dose than achievable with 3D;
      OR
   6. Small Intestine—3D results in ≥ 195cc of small intestine receiving ≥ 45 Gy;
      OR
   7. Stomach—3D results in ≥ 10% of stomach receiving ≥45 Gy
      OR
      5% receiving ≥50 Gy;
      OR
   8. Femoral head—3D results in a femoral head receiving ≥ 45 Gy.

K. Lung, when at least one of the following is met:
   1. Heart—3D results in ≥ 50% of heart receiving ≥30 Gy;
      OR
   2. Lung—3D result in ≥ 30% of non-cancerous combined lung volume receiving ≥ 20 Gy

L. Lymphomas or Sarcomas of Retroperitoneum, Chest Wall and Thorax, when at least one of the following is met:
   1. Heart—3D results in ≥ 50% of heart receiving ≥30 Gy;
      OR
   2. Lung—3D results in ≥ 30% of combined lung volume receiving ≥ 20Gy
      OR

Mean lung dose of ≥ 20 Gy;
OR

3. Spinal cord—3D results in any portion of the spinal cord receiving a dose above 45 Gy
OR
4. Liver—3D results in 60% of liver volume receiving ≥ 30 Gy
OR
Mean liver dose ≥32 Gy;
OR
5. Femoral head—3D results in a femoral head receiving ≥ 45 Gy;
OR
6. Small intestine—3D results in ≥ 195cc of small intestine receiving ≥ 45 Gy;
OR
7. Stomach—3D results in ≥ 10% of stomach receiving ≥ 45 Gy
OR
5% receiving ≥ 50 Gy;
OR
8. Rectosigmoid—3D results in ≥ 60% of rectosigmoid area receiving ≥ 30 Gy;
OR
9. Bladder—3D results in ≥ 35% of bladder receiving ≥ 45 Gy;
OR
10. Kidney—3D results in 33% of combined kidney volume receiving ≥ 20 Gy (two functional kidneys are present)
OR
For one functioning kidney or kidney transplant IMRT provides a lower dose than achievable with 3D.

M. Sarcomas of the Extremities, when at least one of the following is met:
1. Head / Neck—IMRT covered if head and neck structures would receive any radiation via 3D;
OR
2. Femur—3D results in ≥ 50% of contiguous femur cortex receiving ≥ 50 Gy

N. Individuals who require repeat irradiation of a field that has received prior irradiation.

O. Radiosensitive tumors where critical structures cannot be adequately protected with standard 3D conformal radiotherapy. Medical necessity for the use of IMRT for these other indications will be considered individually and will require supporting records from the treating radiation oncologist including the 3-D dose volume histogram documenting the need for IMRT.

The American Society for Therapeutic Radiology and Oncology (ASTRO) has a model policy which describes the indications for IMRT:

"IMRT is not a replacement therapy for conventional or three-dimensional conformal radiation therapy methods. IMRT is considered reasonable and necessary in instances where sparing the surrounding normal tissue is of added benefit and at least one of the following conditions is met:

1. The target volume is in close proximity to critical structures that must be protected.
2. The volume of interest must be covered with narrow margins to adequately protect immediately adjacent structures.
3. An immediately adjacent area has been previously irradiated and abutting portals must be established with high precision.
4. The target volume is concave or convex, and critical normal tissues are within or around that convexity or concavity.
5. Dose escalation is planned to deliver radiation doses in excess of those commonly utilized for similar tumor with conventional treatments."

P. Other applications of IMRT are considered **not medically necessary.**

DOCUMENTATION

As recommended by ASTRO, the IMRT treatment record must include:

1. The reasonable and necessary requirements as outlined in the Policy section.
2. The prescription defining the dose to the target and the dose constraints to the nearby critical structures.
3. A note of medical necessity for IMRT, by the treating physician.
4. Signed IMRT inverse plan that meets prescribed dose constraints for the planning target volume (PTV) and surrounding normal tissue.
5. The target verification methodology including the following:
   a. Documentation of the clinical treatment volume (CTV) and the planning target volume (PTV).
   b. Documentation of immobilization and patient positioning.
6. Independent basic dose calculations of monitor units performed for each beam before the patient's first treatment.
7. Documentation of fluence distributions (re-computed and measured in a phantom or dosimetry measuring device.
8. Identification of structures that transverse high-and low-dose regions created by respiration. Voluntary breath-holding alone is not a satisfactory solution for accounting for organ motion.

CODING

The following codes for treatment and procedures applicable to this policy are included below for informational purposes. Inclusion or exclusion of a procedure, diagnosis 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.

CPT/HCPCS

77300	Basic radiation dosimetry calculation, central axis depth dose calculation, TDF, NSD, gap calculation, off axis factor, tissue inhomogeneity factors, calculation of non- ionizing radiation surface and depth dose, as required during course of treatment, only when prescribed by the treating physician
77301	Intensity modulated radiotherapy plan, including dose-volume histograms for target and critical structure partial tolerance specifications
77332	Treatment devices, design and construction; simple (simple block, simple bolus)
77333	Treatment devices, design and construction; intermediate (multiple blocks, stents, bite blocks, special bolus)
77334	Treatment devices, design and construction; complex (irregular blocks, special shields, compensators, wedges, molds or casts)
77338	Multi-leaf collimator (MLC) device(s) for intensity modulated radiation therapy (IMRT), design and construction per IMRT plan
77418	Intensity modulated treatment delivery, single or multiple fields/arcs, via narrow spatially and temporally modulated beams, binary, dynamic MLC, per treatment session
0073T	Compensator-based beam modulation treatment delivery of inverse planned treatment using three or more high resolution (milled or cast) compensator convergent beam modulated fields, per treatment session

DIAGNOSIS

140.0-149.9	Malignant neoplasm of lip, oral cavity, and pharynx
154.2-154.3	Malignant neoplasm of anus
160.0-160.9	Malignant neoplasm of nasal cavities, middle ear, and accessory sinuses
161.0-161.9	Malignant neoplasm of larynx
170.0-170.1	Malignant neoplasm of bones of skull and face, mandible
171.0	Malignant neoplasm of connective and other soft tissue of head, face, and neck
172.0-172.4	Malignant melanoma of lip, eyelid, ear and external auditory canal, other and unspecified parts of face, scalp and neck
173.0-173.4	Other malignant neoplasm of skin of lip, eyelid, ear and external auditory canal, other and unspecified parts of face, scalp and neck
174.0-174.9	Malignant neoplasm of female breast
180.-0 180.9	Malignant neoplasm of cervix uteri, code range

182.0-182.8 Malignant neoplasm of body of uterus, code range
185 Malignant neoplasm of prostate
190.0-190.9 Malignant neoplasm of eye
191.0-191.9 Malignant neoplasm of brain
192.0-192.9 Malignant neoplasm of other and unspecified parts of nervous system
193 Malignant neoplasm of thyroid gland
194.1-194.5 Malignant neoplasm of parathyroid, pituitary, pineal gland, carotid body
195.0 Malignant neoplasm of other and ill-defined sites-head, face, neck
196.0 Malignant neoplasm of lymph nodes of head, face and neck
198.3 Secondary malignant neoplasm of brain and spinal cord
200.01 Reticulosarcoma involving lymph nodes of head, face, and neck
200.11 Lymphosarcoma involving lymph nodes of head, face, and neck
225.0-225.9 Benign neoplasm of brain and other parts of nervous system
227.1-227.6 Benign neoplasm of parathyroid gland, pituitary gland and craniopharyngeal duct (pouch), pineal gland, carotid body, aortic body and other paraganglia
236.5 Neoplasm of uncertain behavior of genitourinary organs-prostate
237.0 Neoplasm of uncertain behavior of pituitary gland and craniopharyngeal duct
237.1 Neoplasm of uncertain behavior of pineal gland
237.5 Neoplasm of uncertain behavior of endocrine glands and nervous system-brain and spinal cord
237.6 Neoplasm of uncertain behavior of meninges
V10.40 Personal history of malignant neoplasm of genital organs; female genital organ. unspecified
V10.41 Personal history of malignant neoplasm of genital organs; cervix uteri

ICD-10 Diagnosis *(Effective October 1, 2014)*
C00.0 Malignant neoplasm of external upper lip
C00.1 Malignant neoplasm of external lower lip
C00.3 Malignant neoplasm of upper lip, inner aspect
C00.4 Malignant neoplasm of lower lip, inner aspect
C00.8 Malignant neoplasm of overlapping sites of lip
C01 Malignant neoplasm of base of tongue
C02.0 Malignant neoplasm of dorsal surface of tongue
C02.1 Malignant neoplasm of border of tongue
C02.2 Malignant neoplasm of ventral surface of tongue
C02.3 Malignant neoplasm of anterior two-thirds of tongue, part unspecified
C02.4 Malignant neoplasm of lingual tonsil
C02.8 Malignant neoplasm of overlapping sites of tongue
C03.0 Malignant neoplasm of upper gum
C03.1 Malignant neoplasm of lower gum
C04.0 Malignant neoplasm of anterior floor of mouth
C04.1 Malignant neoplasm of lateral floor of mouth
C04.8 Malignant neoplasm of overlapping sites of floor of mouth
C05.0 Malignant neoplasm of hard palate

C05.1 Malignant neoplasm of soft palate
C05.2 Malignant neoplasm of uvula
C05.8 Malignant neoplasm of overlapping sites of palate
C06.0 Malignant neoplasm of cheek mucosa
C06.1 Malignant neoplasm of vestibule of mouth
C06.2 Malignant neoplasm of retromolar area
C06.89 Malignant neoplasm of overlapping sites of other parts of mouth
C07 Malignant neoplasm of parotid gland
C08.0 Malignant neoplasm of submandibular gland
C08.1 Malignant neoplasm of sublingual gland
C08.9 Malignant neoplasm of major salivary gland, unspecified
C09.0 Malignant neoplasm of tonsillar fossa
C09.1 Malignant neoplasm of tonsillar pillar (anterior) (posterior)
C09.8 Malignant neoplasm of overlapping sites of tonsil
C10.0 Malignant neoplasm of vallecula
C10.1 Malignant neoplasm of anterior surface of epiglottis
C10.2 Malignant neoplasm of lateral wall of oropharynx
C10.3 Malignant neoplasm of posterior wall of oropharynx
C10.4 Malignant neoplasm of branchial cleft
C10.8 Malignant neoplasm of overlapping sites of oropharynx
C11.0 Malignant neoplasm of superior wall of nasopharynx
C11.1 Malignant neoplasm of posterior wall of nasopharynx
C11.2 Malignant neoplasm of lateral wall of nasopharynx
C11.3 Malignant neoplasm of anterior wall of nasopharynx
C11.8 Malignant neoplasm of overlapping sites of nasopharynx
C12 Malignant neoplasm of pyriform sinus
C13.0 Malignant neoplasm of postcricoid region
C13.1 Malignant neoplasm of aryepiglottic fold, hypopharyngeal aspect
C13.2 Malignant neoplasm of posterior wall of hypopharynx
C13.8 Malignant neoplasm of overlapping sites of hypopharynx
C14.0 Malignant neoplasm of pharynx, unspecified
C14.2 Malignant neoplasm of Waldeyer's ring
C14.8 Malignant neoplasm of overlapping sites of lip, oral cavity and pharynx
C21.0 Malignant neoplasm of anus, unspecified
C21.1 Malignant neoplasm of anal canal
C30.0 Malignant neoplasm of nasal cavity
C30.1 Malignant neoplasm of middle ear
C31.0 Malignant neoplasm of maxillary sinus
C31.1 Malignant neoplasm of ethmoidal sinus
C31.2 Malignant neoplasm of frontal sinus
C31.3 Malignant neoplasm of sphenoid sinus
C31.8 Malignant neoplasm of overlapping sites of accessory sinuses
C32.0 Malignant neoplasm of glottis
C32.1 Malignant neoplasm of supraglottis
C32.2 Malignant neoplasm of subglottis
C32.3 Malignant neoplasm of laryngeal cartilage
C32.8 Malignant neoplasm of overlapping sites of larynx
C41.0 Malignant neoplasm of bones of skull and face
C41.1 Malignant neoplasm of mandible

C43.0 Malignant melanoma of lip
C43.11 Malignant melanoma of right eyelid, including canthus
C43.12 Malignant melanoma of left eyelid, including canthus
C43.21 Malignant melanoma of right ear and external auricular canal
C43.22 Malignant melanoma of left ear and external auricular canal
C43.31 Malignant melanoma of nose
C43.39 Malignant melanoma of other parts of face
C43.4 Malignant melanoma of scalp and neck
C47.0 Malignant neoplasm of peripheral nerves of head, face and neck
C49.0 Malignant neoplasm of connective and soft tissue of head, face and neck
D03.0 Melanoma in situ of lip
D03.11 Melanoma in situ of right eyelid, including canthus
D03.12 Melanoma in situ of left eyelid, including canthus
D03.21 Melanoma in situ of right ear and external auricular canal
D03.22 Melanoma in situ of left ear and external auricular canal
D03.39 Melanoma in situ of other parts of face
D03.4 Melanoma in situ of scalp and neck
C44.00 Unspecified malignant neoplasm of skin of lip
C44.01 Basal cell carcinoma of skin of lip
C44.02 Squamous cell carcinoma of skin of lip
C44.09 Other specified malignant neoplasm of skin of lip
C44.102 Unspecified malignant neoplasm of skin of right eyelid, including canthus
C44.109 Unspecified malignant neoplasm of skin of left eyelid, including canthus
C44.112 Basal cell carcinoma of skin of right eyelid, including canthus
C44.119 Basal cell carcinoma of skin of left eyelid, including canthus
C44.122 Squamous cell carcinoma of skin of right eyelid, including canthus
C44.129 Squamous cell carcinoma of skin of left eyelid, including canthus
C44.191 Other specified malignant neoplasm of skin of unspecified eyelid, including canthus
C44.192 Other specified malignant neoplasm of skin of right eyelid, including canthus
C44.199 Other specified malignant neoplasm of skin of left eyelid, including canthus
C44.202 Unspecified malignant neoplasm of skin of right ear and external auricular canal
C44.209 Unspecified malignant neoplasm of skin of left ear and external auricular canal
C44.212 Basal cell carcinoma of skin of right ear and external auricular canal
C44.219 Basal cell carcinoma of skin of left ear and external auricular canal
C44.222 Squamous cell carcinoma of skin of right ear and external auricular canal
C44.229 Squamous cell carcinoma of skin of left ear and external auricular canal
C44.292 Other specified malignant neoplasm of skin of right ear and external auricular canal
C44.299 Other specified malignant neoplasm of skin of left ear and external auricular canal
C44.301 Unspecified malignant neoplasm of skin of nose
C44.309 Unspecified malignant neoplasm of skin of other parts of face
C44.311 Basal cell carcinoma of skin of nose
C44.319 Basal cell carcinoma of skin of other parts of face
C44.321 Squamous cell carcinoma of skin of nose
C44.329 Squamous cell carcinoma of skin of other parts of face
C44.391 Other specified malignant neoplasm of skin of nose
C44.399 Other specified malignant neoplasm of skin of other parts of face
C44.40 Unspecified malignant neoplasm of skin of scalp and neck
C44.41 Basal cell carcinoma of skin of scalp and neck
C44.42 Squamous cell carcinoma of skin of scalp and neck

C44.49 Other specified malignant neoplasm of skin of scalp and neck
C61 Malignant neoplasm of prostate
C69.01 Malignant neoplasm of right conjunctiva
C69.02 Malignant neoplasm of left conjunctiva
C69.11 Malignant neoplasm of right cornea
C69.12 Malignant neoplasm of left cornea
C69.21 Malignant neoplasm of right retina
C69.22 Malignant neoplasm of left retina
C69.31 Malignant neoplasm of right choroid
C69.32 Malignant neoplasm of left choroid
C69.41 Malignant neoplasm of right ciliary body
C69.42 Malignant neoplasm of left ciliary body
C69.51 Malignant neoplasm of right lacrimal gland and duct
C69.52 Malignant neoplasm of left lacrimal gland and duct
C69.61 Malignant neoplasm of right orbit
C69.62 Malignant neoplasm of left orbit
C69.81 Malignant neoplasm of overlapping sites of right eye and adnexa
C69.82 Malignant neoplasm of overlapping sites of left eye and adnexa
C69.91 Malignant neoplasm of unspecified site of right eye
C69.92 Malignant neoplasm of unspecified site of left eye
C70.0 Malignant neoplasm of cerebral meninges
C70.1 Malignant neoplasm of spinal meninges
C70.9 Malignant neoplasm of meninges, unspecified
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
C71.8 Malignant neoplasm of overlapping sites of brain
C72.0 Malignant neoplasm of spinal cord
C72.1 Malignant neoplasm of cauda equina
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 right acoustic nerve
C72.42 Malignant neoplasm of left acoustic nerve
C72.59 Malignant neoplasm of other cranial nerves
C73 Malignant neoplasm of thyroid gland
C75.0 Malignant neoplasm of parathyroid gland
C75.1 Malignant neoplasm of pituitary gland
C75.2 Malignant neoplasm of craniopharyngeal duct
C75.3 Malignant neoplasm of pineal gland
C75.4 Malignant neoplasm of carotid body
C76.0 Malignant neoplasm of head, face and neck
C77.0 Secondary and unspecified malignant neoplasm of lymph nodes of head, face and neck

C79.31 Secondary malignant neoplasm of brain
C83.31 Diffuse large B-cell lymphoma, lymph nodes of head, face, and neck
C83.51 Lymphoblastic (diffuse) lymphoma, lymph nodes of head, face, and neck
D32.0 Benign neoplasm of cerebral meninges
D32.1 Benign neoplasm of spinal meninges
D32.9 Benign neoplasm of meninges, unspecified
D33.0 Benign neoplasm of brain, supratentorial
D33.1 Benign neoplasm of brain, infratentorial
D33.3 Benign neoplasm of cranial nerves
D33.4 Benign neoplasm of spinal cord
D33.7 Benign neoplasm of other specified parts of central nervous system
D35.1 Benign neoplasm of parathyroid gland
D35.2 Benign neoplasm of pituitary gland
D35.3 Benign neoplasm of craniopharyngeal duct
D35.4 Benign neoplasm of pineal gland
D35.5 Benign neoplasm of carotid body
D35.6 Benign neoplasm of aortic body and other paraganglia
D40.0 Neoplasm of uncertain behavior of prostate
D42.0 Neoplasm of uncertain behavior of cerebral meninges
D42.1 Neoplasm of uncertain behavior of spinal meninges
D43.0 Neoplasm of uncertain behavior of brain, supratentorial
D43.1 Neoplasm of uncertain behavior of brain, infratentorial
D43.4 Neoplasm of uncertain behavior of spinal cord
D44.3 Neoplasm of uncertain behavior of pituitary gland
D44.4 Neoplasm of uncertain behavior of craniopharyngeal duct
D44.5 Neoplasm of uncertain behavior of pineal gland

REVISIONS

01-30-2009	Policy first published on www.bcbsks.com.
	In policy section: ▪ Added the following indications: D. IMRT is considered **medically necessary** for treatment of anal cancers. E. IMRT may also be **medically necessary** for other radiosensitive tumors where critical structures cannot be adequately protected with standard 3D conformal radiotherapy. Medical necessity for the use of IMRT for these other indications will be considered individually and will require supporting records from the treating radiation oncologist including the dose volume histograms documenting the need for IMRT as opposed to conventional radiation therapy. The American Society for Therapeutic Radiology and Oncology (ASTRO) has a model policy which describes the indications for IMRT:
	"IMRT is not a replacement therapy for conventional or three-dimensional conformal radiation therapy methods. IMRT is considered reasonable and necessary in instances where sparing the surrounding normal tissue is of added benefit and at least one of the following conditions is met: 1. The target volume is in close proximity to critical structures that must be protected. 2. The volume of interest must be covered with narrow margins to adequately protect immediately adjacent structures.

	3. An immediately adjacent area has been previously irradiated and abutting portals must be established with high precision. 4. The target volume is concave or convex, and critical normal tissues are within or around that convexity or concavity. 5. Dose escalation is planned to deliver radiation doses in excess of those commonly utilized for similar tumor with conventional treatments." F. Other applications of IMRT are considered **not medically necessary.**
	▪ Added the following documentation information: DOCUMENTATION As recommended by ASTRO, documentation in the patient's medical records must support: 1. The reasonable and necessary requirements as outlined in the Policy section. 2. The prescription must define the dose to the target and the dose constraints to the nearby critical structures. 3. A note of medical necessity for IMRT, by the treating physician. 4. Signed IMRT inverse plan that meets prescribed dose constraints for the planning target volume (PTV) and surrounding normal tissue. 5. The target verification methodology must include the following: a. Documentation of the clinical treatment volume (CTV) and the planning target volume (PTV). b. Documentation of immobilization and patient positioning. 6. Independent basic dose calculations of monitor units have been performed for
	each beam before the patient's first treatment. 7. Documentation of fluence distributions (re-computed and measured in a phantom or dosimetry measuring device) is required. 8. Identification of structures that transverse high-and low-dose regions created by respiration is indicated. Voluntary breath-holding alone is not a satisfactory solution for accounting for organ motion.
	In Coding section: ▪ Reflected the applicable CPT codes 77300, 77301, 77332, 77333, 77334, 77418, 0073T
01-01-2010	In Coding Section: ▪ Added CPT Code: 77388
10-11-2011	In the Policy section: ▪ Item D, removed "anal cancers" and added "squamous cell carcinoma of the anus." ▪ Added Item " E. IMRT is considered medically necessary in the treatment of individuals with anaplastic thyroid cancer." ▪ Added Item "F. IMRT is considered medically necessary in individuals with pediatric tumors (e.g., Ewing Sarcoma, Wilms' Tumor)." ▪ Added Item "G. IMRT is considered medically necessary in individuals who require repeat irradiation of a field that has received prior irradiation."
	Updated the Reference section.
07-13-2012	Updated the Description section.
	In the Policy section: ▪ Added the following indication: "F. Carcinoma of the cervix." ▪ Added the following indication: "G. Whole pelvic radiotherapy for gynecologic malignancies." ▪ In Item J, inserted "3-D" to read "radiation oncologist including the 3-D dose

	volume..." ▪ In Item J, changed "histograms" to "histogram" ▪ In Item J, removed "as opposed to conventional radiation therapy" from the end of paragraph.
	In the Documentation section: ▪ Revised the following language: "As recommended by ASTRO, documentation in the patient's medical records must support: 1. The reasonable and necessary requirements as outlined in the Policy section. 2. The prescription must define the dose to the target and the dose constraints to the nearby critical structures. 3. A note of medical necessity for IMRT, by the treating physician. 4. Signed IMRT inverse plan that meets prescribed dose constraints for the planning target volume (PTV) and surrounding normal tissue. 5. The target verification methodology must include the following: a. Documentation of the clinical treatment volume (CTV) and the planning target volume (PTV). b. Documentation of immobilization and patient positioning. 6. Independent basic dose calculations of monitor units have been performed for each beam before the patient's first treatment. 7. Documentation of fluence distributions (re-computed and measured in a phantom or dosimetry measuring device) is required. 8. Identification of structures that transverse high-and low-dose regions created by respiration is indicated. Voluntary breath-holding alone is not a satisfactory solutionfor accounting for organ motion."
	In the Coding section: ▪ Added the following Diagnosis codes: 180.0-180.9, 182.0-182.8, V10.40, V10.41
	Updated Reference section.
10-15-2012	In the Policy section: ▪ Added statement, "IMRT is considered **medically necessary** for the following indications:" to the beginning of the policy section. ▪ In Item A, removed "IMRT of the prostate is considered medically necessary in patients with non-metastatic..." and added "of the prostate" to read "Prostate cancer for dose escalation >75Gy of the prostate and for..." ▪ In Item B, removed, "IMRT is considered medically necessary in the treatment of patients with" to read "head and neck cancer, with the exception..." ▪ In item C, removed "IMRT is considered medically necessary in patients with CNS lesions" and added "Cancer involving the CNS" ▪ In Item D, removed IMRT is considered medically necessary for patients of squamous cell" and added "or vulva" to read "Carcinoma of the anus and vulva." ▪ In Item E, removed "IMRT is considered medically necessary in the treatment of individuals with" to read "Anaplastic thyroid cancer." ▪ In Item H, removed "IMRT is considered medically necessary in individuals with" to read "Pediatric tumors (e.g., Ewing Sarcoma, Wilms' Tumor)." ▪ Added Item I, "Breast cancer when at least one of the following is met: 1. Heart—3D results in ≥ 25 % of heart receiving ≥ 30Gy; OR

2. Lung—3D results in ≥ 30% of ipsilateral lung receiving ≥20 Gy,
   OR
   3D results in ≥20% of combined lung volume receiving ≥20Gy;
   OR
3. Skin / Soft Tissue—3D results in ≥ 5% of intended breast receiving ≥7% of prescribed dose
   OR
   Medial lesion where 3D results in ≥ 10% of contralateral breast receiving ≥ 10Gy."

- Added Item J, "Esophagus, Stomach, Pancreas, Hepatobiliary Tract, Rectum, Colon, Small Bowel, when at least one of the following is met:
  1. Heart—3D result in ≥50% of heart receiving ≥30 Gy,
     OR
  2. Lung—3D results in ≥30 % of combined lung volume receiving ≥ 20% Gy,
     OR
     Mean lung dose≥ 20 Gy;
     OR
  3. Spinal Cord—3D result in any portion of the spinal cord receiving a dose above 45 Gy;
     OR
  4. Liver—3D results in ≥60% of liver volume receiving ≥ 30 Gy,
     OR
     Mean liver dose ≥32 Gy;
     OR
  5. Kidney—3D results in ≥33% of combined kidney volume receiving ≥ 20 Gy (two functional kidneys are present);
     OR
     For one functioning kidney or kidney transplant, IMRT provides a lower dose than achievable with 3D;
     OR
  6. Small Intestine—3D results in ≥ 195cc of small intestine receiving ≥ 45 Gy;
     OR
  7. Stomach—3D results in ≥ 10% of stomach receiving ≥45 Gy
     OR
     5% receiving ≥50 Gy;
     OR
  8. Femoral head—3D results in a femoral head receiving ≥ 45 Gy."
- Added Item K, "Lung, when at least one of the following is met:
  1. Heart—3D results in ≥ 50% of heart receiving ≥30 Gy;
     OR
  2. Lung—3D result in ≥ 30% of non-cancerous combined lung volume receiving ≥ 20 Gy"
- Added Item L, "Lymphomas or Sarcomas of Retroperitoneum, Chest Wall and Thorax, when at least one of the following is met:
  1. Heart—3D results in ≥ 50% of heart receiving ≥30 Gy;
     OR
  2. Lung—3D results in ≥ 30% of combined lung volume receiving ≥

	20Gy OR Mean lung dose of ≥ 20 Gy; OR 3. Spinal cord—3D results in any portion of the spinal cord receiving a dose above 45 Gy OR 4. Liver—3D results in 60% of liver volume receiving ≥ 30 Gy OR Mean liver dose ≥32 Gy; OR 5. Femoral head—3D results in a femoral head receiving ≥ 45 Gy; OR 6. Small intestine—3D results in ≥ 195cc of small intestine receiving ≥ 45 Gy; OR 7. Stomach—3D results in ≥ 10% of stomach receiving ≥ 45 Gy OR 5% receiving ≥ 50 Gy; OR 8. Rectosigmoid—3D results in ≥ 60% of rectosigmoid area receiving ≥ 30 Gy; OR 9. Bladder—3D results in ≥ 35% of bladder receiving ≥ 45 Gy; OR 10. Kidney—3D results in 33% of combined kidney volume receiving ≥ 20 Gy (two functional kidneys are present) OR For one functioning kidney or kidney transplant IMRT provides a lower dose than achievable with 3D." ▪ Added Item M, "Sarcomas of the Extremities, when at least one of the following is met: 1. Head / Neck—IMRT covered if head and neck structures would receive any radiation via 3D; OR 2. Femur—3D results in ≥ 50% of contiguous femur cortex receiving ≥ 50 Gy" ▪ In Item N, removed "IMRT is considered medically necessary in" to read "Individuals who require repeat irradiation…" ▪ In Item O, removed "IMRT may also be medically necessary for" to read "Other radiosensitive tumors where critical structures…"
	In the Coding section: ▪ Added Diagnosis codes: 174.0-174.9
12-11-2013	Policy reviewed.
	In Coding section: ▪ Added ICD-10 Diagnosis codes. *(Effective October 1, 2014)*
	Updated Reference section.

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