Clinical Policy: Intensity-modulated Radiotherapy

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Effective Date: 01/18
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Coding Implications
Revision Log

Description
Medical necessity criteria for intensity-modulated radiotherapy (IMRT). IMRT is an advanced form of 3-dimensional (3-D) conformal radiation therapy. It delivers a more precise radiation dose to the tumor while sparing healthy surrounding tissue. While IMRT empirically offers advances over other radiation therapies, an understanding of accepted practices and the risks and benefits over conventional or 3-D conformal radiation must be considered..

Policy/Criteria

I. It is the policy of Pennsylvania Health and Wellness® that IMRT is **medically necessary** for any of the following indications:

A. Age ≤ 18 years;
B. Target volume is in close proximity to critical structures that must be protected;
C. The volume of interest must be covered with narrow margins to adequately protect immediately adjacent structures;
D. An immediately adjacent area has been previously irradiated and abutting portals must be established with high precision;
E. The target volume is concave or convex, and critical normal tissues are within or around that convexity or concavity;
F. Dose escalation is planned to deliver radiation doses in excess of those commonly utilized for similar tumors with conventional treatment:
G. Indications by cancer site include any of the following:
   1. Primary or benign tumor(s) of the central nervous system, including brain, brain stem, and spinal cord;
   2. Primary tumor(s) of the spine where spinal cord tolerance may be exceeded by conventional treatment;
   3. Primary or benign lesion(s) of the head and neck area including orbits, sinuses, skull base, aerodigestive tract (lips, mouth, tongue, tonsils, nose, throat, vocal cords and part of the trachea and esophagus), salivary glands, and thyroid;
   4. Anal or perianal cancer, excluding locally recurrent perianal cancer;
   5. Prostate cancer, definitive (curative) treatment;
   6. Vulvar cancer, definitive (curative) treatment;
   7. Cervical cancer, curative treatment, any of the following:
      a. Post-hysterectomy;
      b. For treatment that includes para-aortic nodes;
      c. For high doses of radiation in the presence of gross disease in regional lymph nodes;
   8. Select breast cancer cases, any of the following:
      a. Homogeneity of dose cannot be achieved with conventional three dimensional planning techniques, demonstrated by any of the following:

i. A maximum dose of greater than 110% is given to a volume of at least 0.3 cc;
ii. The volume of breast tissue receiving 105% of the prescribed dose exceeds 10% (or 20% for a large volume breast defined as greater than 800 cc);
iii. Hot spots in the inframammary fold are 105% or greater;

b. The volume of lung tissue receiving 20 Gy exceeds 20%;
c. The volume of heart tissue receiving 25 Gy exceeds 2%.

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Background

A major goal of radiation therapy is the delivery of an appropriate dose of radiation to the targeted tissue while minimizing radiation exposure to the surrounding healthy tissue. The introduction of IMRT allowed for significant improvement of dose distributions by irradiating sub-regions of the target to different levels**.** It uses a computer-based planning method called inverse planning that allows the delivery of generally narrow, patient specific spatially and often temporally modulated beams of radiation to solid tumors within a patient.

IMRT changes the intensity of radiation in different parts of a single radiation beam while treatment is delivered. The dose of radiation given by each beam can also vary, enabling IMRT to simultaneously treat multiple areas within the target to different dose levels. Theoretical concerns about IMRT include dose inhomogeneity, additional time required for planning computation and QA verification, and exposure of larger volumes of normal tissues to a lower dose of radiation.

There were a number of studies done, including a multicenter, randomized, double-blind trial that have noted IMRT improved the homogeneity of the radiation dose distribution and decreased acute toxicity, when used for breast cancer. [23,24,25,26,27]

NCCN

NCCN recommends IMRT in a number of cancer types, including cancers whose radiation treatment may affect organs or other critical structures at risk.

Coding Implications

This clinical policy references Current Procedural Terminology (CPT®). CPT® is a registered trademark of the American Medical Association. All CPT codes and descriptions are copyrighted 2019, American Medical Association. All rights reserved. CPT codes and CPT descriptions are from the current manuals and those included herein are not intended to be all-inclusive and are included for informational purposes only. Codes referenced in this clinical policy are for informational purposes only. Inclusion or exclusion of any codes does not guarantee coverage. Providers should reference the most up-to-date sources of professional coding guidance prior to the submission of claims for reimbursement of covered services.

CPT® Codes	Description
77301	Intensity modulated radiotherapy plan, including dose-volume histograms for target and critical structure partial tolerance specifications

CPT® Codes	Description
77338	Multi-leaf collimator (MLC) device(s) for intensity modulated radiation therapy (IMRT), design and construction per IMRT plan
77385	Intensity modulated radiation treatment delivery (IMRT), includes guidance and tracking, when performed; simple
77386	Intensity modulated treatment delivery (IMRT) includes guidance and tracking, when performed; complex
77418	Intensity modulated treatment delivery, single or multiple fields/arcs, via narrow spatially and temporally modulated beams, binary, dynamic MLC, per treatment session

HCPCS Codes	Description
G6015	Intensity modulated treatment delivery, single or multiple fields/arcs, via narrow spatially and temporally modulated beams, binary, dynamic MLC, per treatment session
G6016	Compensator-based beam modulation treatment delivery of inverse planned treatment using 3 or more high resolution (milled or cast) compensator, convergent beam modulated fields, per treatment session

ICD-10-CM Diagnosis Codes that Support Coverage Criteria

ICD-10-CM Code	Description
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
C14.8	Malignant neoplasm of overlapping sites of lip, oral cavity and pharynx
C21.1	Malignant neoplasm of anal canal
C26.9	Malignant neoplasm of ill-defined sites within the digestive system
C30.0	Malignant neoplasm of overlapping sites of larynx
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
C32.3	Malignant neoplasm of laryngeal cartilage
C32.8	Malignant neoplasm of overlapping sites of larynx
C33	Malignant neoplasm of trachea
C41.2	Malignant neoplasm of vertebral column
C48.0	Malignant neoplasm of retroperitoneum
C48.1	Malignant neoplasm of specified parts of peritoneum

ICD-10-CM Code	Description
C48.8	Malignant neoplasm of overlapping sites of retroperitoneum and peritoneum
C50.012	Malignant neoplasm of nipple and areola, left female breast
C50.022	Malignant neoplasm of nipple and areola, left male breast
C50.112	Malignant neoplasm of central portion of left female breast
C50.122	Malignant neoplasm of central portion of left male breast
C50.212	Malignant neoplasm of upper-inner quadrant of left female breast
C50.222	Malignant neoplasm of upper-inner quadrant of left male breast
C50.312	Malignant neoplasm of lower-inner quadrant of left female breast
C50.322	Malignant neoplasm of lower-inner quadrant of left male breast
C50.412	Malignant neoplasm of upper-outer quadrant of left female breast
C50.422	Malignant neoplasm of upper-outer quadrant of left male breast
C50.512	Malignant neoplasm of lower-outer quadrant of left female breast
C50.522	Malignant neoplasm of lower-outer quadrant of left male breast
C50.612	Malignant neoplasm of axillary tail of left female breast
C50.622	Malignant neoplasm of axillary tail of left male breast
C50.812	Malignant neoplasm of overlapping sites of left female breast
C50.822	Malignant neoplasm of overlapping sites of left male breast
C61	Malignant neoplasm of prostate
C69.61	Malignant neoplasm of right orbit
C69.62	Malignant neoplasm of left orbit
C76.1	Malignant neoplasm of thorax
C76.2	Malignant neoplasm of abdomen
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
C71.8	Malignant neoplasm of overlapping sites of brain
C72.0	Malignant neoplasm of spinal cord
C76.3	Malignant neoplasm of pelvis
D10.0	Benign neoplasm of lip
D10.1	Benign neoplasm of tongue
D10.2	Benign neoplasm of floor of mouth
D10.39	Benign neoplasm of other parts of mouth
D11.0	Benign neoplasm of parotid gland
D11.7	Benign neoplasm of other major salivary gland
D13.0	Benign neoplasm of esophagus
D33.0	Benign neoplasm of brain, supratentorial
D33.1	Benign neoplasm of brain, infratentorial
D33.3	Benign neoplasm of cranial nerves

ICD-10-CM Code	Description
D33.4	Benign neoplasm of spinal cord
D33.7	Benign neoplasm of other specified parts of central nervous system
N62	Hypertrophy of breast
Z85.01	Personal history of malignant neoplasm of esophagus
Z85.02X	Personal history of malignant neoplasm of stomach
Z85.07	Personal history of malignant neoplasm of pancreas
Z85.12	Personal history of malignant neoplasm of trachea
Z85.21	Personal history of malignant neoplasm of larynx
Z85.22	Personal history of malignant neoplasm of nasal cavities, middle ear, and accessory sinuses
Z85.3	Personal history of malignant neoplasm of breast
Z85.46	Personal history of malignant neoplasm of prostate
Z85.81X	Personal history of malignant neoplasm of lip, oral cavity, and pharynx
Z85.840	Personal history of malignant neoplasm of eye
Z85.841	Personal history of malignant neoplasm of brain
Z86.011	Personal history of benign neoplasm of brain

Reviews, Revisions, and Approvals	Date	Approval Date
Added thyroid and tonsils as subtypes to head and neck cancer list; added cervical, vulvar, perianal cancer indications per NCCN. Updated background. Removed option for CNS, spinal, and head and neck tumors to be metastatic. Replaced descriptive breast cancer indication criteria with specific radiation parameters. Removed deleted CPT code 0073T and added HCPCS G6016. Specialist reviewed. References reviewed and updated.	03/19	

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