

Clinical Policy: Intensity-Modulated Radiotherapy

Reference Number: CP.MP.69

Last Review Date: 12/20

[Coding Implications](#)

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Description

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

Policy/Criteria

- I. It is the policy of health plans affiliated with Centene Corporation[®] that IMRT is **medically necessary** for any of the following indications:
 - A. Age \leq 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%.

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.²³⁻²⁷

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

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CPT® Codes	Description
77301	Intensity modulated radiotherapy plan, including dose-volume histograms for target and critical structure partial tolerance specifications
77338	Multi-leaf collimator (MLC) device(s) for intensity modulated radiation therapy (IMRT), design and construction per IMRT plan

CPT® Codes	Description
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

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-C14.9	Malignant neoplasm of lip, oral cavity, and pharynx
C15.3-C15.9	Malignant neoplasm of esophagus
C21.0-C21.8	Malignant neoplasm of anus and anal canal
C25.0-C25.9	Malignant neoplasm of pancreas
C26.9	Malignant neoplasm of ill-defined sites within the digestive system
C30.0	Malignant neoplasm of nasal cavity
C31.0-C31.9	Malignant neoplasm of accessory sinus
C32.0-C32.9	Malignant neoplasm of larynx
C33	Malignant neoplasm of trachea
C41.0	Malignant neoplasm of bones of skull and face
C41.2	Malignant neoplasm of vertebral column
C44.500	Unspecified malignant neoplasm of anal skin
C48.0	Malignant neoplasm of retroperitoneum
C48.1	Malignant neoplasm of specified parts of peritoneum
C48.8	Malignant neoplasm of overlapping sites of retroperitoneum and peritoneum
C50.011-C50.929	Malignant neoplasm of breast
C51.0-C51.9	Malignant neoplasm of vulva
C53.0-C53.9	Malignant neoplasm of cervix uteri
C61	Malignant neoplasm of prostate
C69.60-C69.62	Malignant neoplasm of orbit
C70.0-C70.9	Malignant neoplasm of meninges
C71.0-C71.9	Malignant neoplasm of brain

ICD-10-CM Code	Description
C72.0- C72.9	Malignant neoplasm of spinal cord, cranial nerves and other parts of central nervous system
C76.1	Malignant neoplasm of thorax
C76.2	Malignant neoplasm of abdomen
C73	Malignant neoplasm of thyroid gland
C76.3	Malignant neoplasm of pelvis
D10.0-D11.9	Benign neoplasm of mouth and pharynx
D13.0	Benign neoplasm of esophagus
D14.1	Benign neoplasm of larynx
D14.2	Benign neoplasm of trachea
D16.4	Benign neoplasm of bones of skull and face
D31.60- D31.62	Benign neoplasm of unspecified site of orbit
D33.0-D33.9	Benign neoplasm of brain, and other parts of central nervous system
D34	Benign neoplasm of thyroid gland
Z85.01	Personal history of malignant neoplasm of esophagus
Z85.020- Z85.028	Personal history of malignant neoplasm of stomach
Z85.040- Z85.048	Personal history of malignant neoplasm of rectum, rectosigmoid junction, and anus
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
Z85.41	Personal history of malignant neoplasm of cervix uteri
Z85.44	Personal history of malignant neoplasm of other female genital organs
Z85.46	Personal history of malignant neoplasm of prostate
Z85.810- Z85.819	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
Z85.850	Personal history of malignant neoplasm of thyroid
Z86.011	Personal history of benign neoplasm of brain
Z86.018	Personal history of other benign neoplasm

Reviews, Revisions, and Approvals	Date	Approval Date
Policy Developed and reviewed by Radiation Oncologist	02/14	03/14
References reviewed and updated	02/15	03/15
Template updated	02/16	03/16

Reviews, Revisions, and Approvals	Date	Approval Date
References reviewed and updated		
Policy updated. References reviewed. In the policy statement, added under ‘Select breast cancer cases: When homogeneity of dose is essential and the patient has at least one of the following conditions’. The two conditions were previously listed. Coding tables updated	02/17	03/17
References reviewed and updated.	02/18	02/18
Removed indications for “cases of thoracic and abdominal malignancies when target volume is in proximity to critical structures” and “other pelvic and retroperitoneal tumors that meet the requirements for medical necessity” as their meaning is contained in other existing criteria.	05/18	
Added 77385 to CPT code list	06/18	
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.	02/19	02/19
Coding updates: Removed deleted CPT 77418; updated ICD-10-CM codes per 02/19 criteria updates.	04/19	
References reviewed and updated. ICD codes updated C00.0-C14.8 now C14.9 and description correction for C30.	01/20	01/20
References reviewed and updated. Replaced “members” with “members/enrollees” in all instances.	12/20	12/20

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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.

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Note: For Medicaid members/enrollees, when state Medicaid coverage provisions conflict with the coverage provisions in this clinical policy, state Medicaid coverage provisions take precedence. Please refer to the state Medicaid manual for any coverage provisions pertaining to this clinical policy.

Note: For Medicare members/enrollees, to ensure consistency with the Medicare National Coverage Determinations (NCD) and Local Coverage Determinations (LCD), all applicable NCDs and 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> for additional information.

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