Clinical Policy: Intensity-Modulated Radiotherapy

Reference Number: CP.MP.69
Date of Last Revision: 04/24

Coding Implications
Revision Log

See Important Reminder at the end of this policy for important regulatory and legal information.

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.[1] 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 Louisiana Healthcare Connections 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;
        b. Left-sided breast cancers when treating the internal mammary lymph nodes;

   c. When using external beam accelerated partial breast irradiation (APBI);
9. Uterine neoplasms;
10. Pancreatic cancer;
11. Stage III non-small cell lung cancer;
12. Esophageal cancer;
13. Mediastinal tumors (e.g.; lymphomas and thymomas);
14. Endometrial cancer;
15. Select rectal cancer cases where there is lymph node involvement or require treatment of the inguinal lymph nodes;
16. Soft tissue sarcoma when organ at risk dose constraints cannot be met.

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 intensity-modulated radiotherapy (IMRT) allows 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.[1]

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 quality assurance (QA) verification, and exposure of larger volumes of normal tissues to a lower dose of radiation.[2-3]

There were numerous studies done, including a multicenter, randomized, double-blind trial that indicated IMRT improved the homogeneity of the radiation dose distribution and decreased acute toxicity, when used for breast cancer.[4-8]

The National Comprehensive Cancer Network (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 2023, 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 and may not support medical necessity. 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.

NOTE: Coverage is subject to each requested code's inclusion on the corresponding LDH fee schedule. Non-covered codes are denoted (*) and are reviewed for Medical Necessity for members under 21 years of age on a per case basis.

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
77385	Intensity modulated radiation treatment delivery (IMRT), includes guidance and tracking, when performed; simple
77386	Intensity modulated radiation 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 three or more high resolution (milled or cast) compensator, convergent beam modulated fields, per treatment session

Reviews, Revisions, and Approvals	Revision Date	Approval Date
Converted corporate to local policy.	12/1/2020	
Annual review. References reviewed and updated. Reviewed by specialist. Changed "Last Review Date" in the header to "Date of Last Revision" and "Date" in revision log to "Revision Date". Added "and may not support medical necessity" to coding implications	2/22	
Background updated. ICD-10 code table removed.	1/23	4/10/23
Annual review. Added Criteria I.G.9. uterine neoplasms. Added Criteria I.G.10. pancreatic cancer. Added Criteria I.G.11. stage III non-small cell lung cancer. Background updated with no impact on criteria. References reviewed and updated. Reviewed by external specialist. Note for non-covered codes added.	09/23	11/27/23
Annual review. Removed I.G.8.a.i-iii regarding "maximum dose volume", "volume of breast tissue", and "hot spots in inframammary fold", leaving I.G.8.a. regarding "homogeneity of dose". Changed I.G.8.b. to "Left-sided breast cancers when treating the internal mammary lymph nodes", and I.G.8.c. to "When using external beam accelerated partial breast irradiation (APBI)". Added additional indications to criteria I.G.12 Esophageal cancer, I.G.13. Mediastinal tumors (e.g., lymphomas and thymomas); I.G.14. Endometrial cancer;	05/24	7/16/24

Reviews, Revisions, and Approvals	Revision Date	Approval Date
I.G.15. Select rectal cancer cases where there is lymph node involvement or require treatment of the inguinal lymph nodes; I.G.16. Soft tissue sarcoma when organ at risk dose constraints cannot be met. References reviewed and updated.		

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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. LHCC 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.

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