

Clinical Policy: Intensity-Modulated Radiotherapy

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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 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 Pennsylvania Health and Wellness[®] (PHW) 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%;
- 9. Uterine neoplasms;
- 10. Pancreatic cancer;
- 11. Stage III non-small cell lung cancer.

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 2022, 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
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

Reviews, Revisions, and Approvals	Revision 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	6/7/2019
Coding updates: Removed deleted CPT 77418; updated ICD-10-CM codes per 02/19 criteria updates; ICD codes updated C00.0-C14.8 now C14.9 and description correction for C30. References reviewed and updated. Specialist reviewed. Annual Review performed.	2/26/2021	
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".	04/22/2022	
Annual review. Added note to policy to refer to MC.CP.MP.69 for Medicare criteria. Added "non-Medicare" to health plans in Policy/Criteria I. 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.	09/2023	

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