

# **Clinical Policy: Intensity-Modulated Radiotherapy**

Reference Number: PA.CP.MP.69 Plan Effective Date: 01/2018 Date of Last Revision: 03/2025 Coding Implications Revision Log

#### Description

Medical necessity criteria for intensity-modulated radiotherapy (IMRT). IMRT is a technology that delivers highly conformal external beam radiation to specified targets with radiation beams whose intensity varies throughout the treatment fields. IMRT is useful for delivery of highly conformal radiation doses to targets positioned near sensitive normal tissues. The treatment planning for IMRT is a multi-step process, one of which is contouring for defining the target and avoiding normal structures that could potentially be harmed by radiation.<sup>47</sup>

Note: For criteria applicable to Medicare plans, please see MC.CP.MP.69 Intensity-Modulated Radiotherapy.

#### **Policy/Criteria**

- I. It is the policy of PA Health and Wellness<sup>®</sup> (PHW) that IMRT is **medically necessary** for **any** of the following indications:
  - A. Age < 18 years with a solid tumor;
  - B. Medically inoperable patient with diagnosis of cancer where dose escalation is required;<sup>47</sup>
  - C. Primary malignant or benign bone tumors; <sup>47</sup>
  - D. Re-irradiation (where cumulative critical structure dose would exceed tolerance dose); 47
  - E. Indications by cancer site may include any of the following:
    - 1. Central Nervous System, any of the following: <sup>47</sup>
      - a. Ocular tumors, including intraocular melanomas;
      - b. Tumors that approach or are located at the base of skull;
      - c. Primary CNS tumors, primary spine, or metastatic tumors to the spine or spinal cord where organ at risk tolerance may be exceeded with 3-D conformal treatments;
      - d. Primary and metastatic tumors requiring craniospinal irradiation;
      - e. Brain metastases requiring hippocampal-sparing whole brain radiotherapy;
    - 2. Head and Neck, any of the following: <sup>47</sup>
      - a. Definitive, adjuvant, or palliative treatment of primary/secondary head and neck cancers or draining lymphatics of the neck including (but not limited to) cancers of the nasopharynx, nasal cavity, paranasal sinuses, oropharynx, oral cavity, hypopharynx, larynx, thyroid, or salivary glands;
      - b. Cutaneous tumors with cranial nerve invasion to the base of skull, cavernous sinus, and/or brainstem;
      - c. Mucosal Melanoma;
      - d. Occult (or unknown) primary malignancies of the head and neck;
    - 3. Breast, any of the following: <sup>47</sup>
      - a. Bilateral breast cancers requiring nodal treatment on at least one side;
      - b. Breast cancer patients being treated with definitive intent and who have unfavorable anatomy (e.g., pectus excavatum) that would deliver unacceptably high doses to organs-at-risk;



- c. Early-stage breast cancer in which dose to the heart is unacceptably high with conventional photon or photon/electron using cardiac sparing techniques;
- d. Accelerated partial breast irradiation (APBI), regardless of laterality;
- e. Patients in whom internal mammary lymph nodes are targeted;
- f. Breast cancer patients who have limited ipsilateral arm range of motion and require treatment in the arms down position;
- g. Post-mastectomy radiotherapy when the patient has had bilateral implant-based reconstruction;
- h. Whole breast radiotherapy in patients with bilateral augmentation implants;
- 4. Thoracic, any of the following: <sup>47</sup>
  - a. Primary or secondary tumors of the mediastinum, including thymic tumors, mediastinal tumors, mediastinal lymphomas and thoracic sarcomas;
  - b. Early-stage lung cancer for which SBRT is not feasible secondary to anatomic considerations;
  - c. Locally advanced lung cancer in which IMRT significantly reduces dose to normal tissues (ex: bilateral mediastinal disease, paraspinal tumors, N3 disease, reducing esophageal dose);
  - d. Malignant pleural mesothelioma;
- 5. Gastrointestinal, any of the following:<sup>47</sup>
  - a. Hepatocellular cancer, bile duct, gallbladder and cholangiocarcinoma cancers;
  - b. Primary cancers of the esophagus and GE junction;
  - c. Abdominal malignancies, including primary pancreatic, gastric and adrenal incancers;
  - d. Primary and Secondary liver cancers;
  - e. Anal and colorectal cancers;
- 6. Sarcomas, any of the following: <sup>47</sup>
  - a. Retroperitoneal sarcomas;
  - b. Desmoid tumors;
  - c. Endometrial cancer;
- 7. Pelvic/Gynecological, any of the following:<sup>47</sup>
  - a. Cervical cancer;
  - b. Vulvar and vaginal cancers;
  - c. Endometrial cancer;
- 8. Genitourinary, any of the following:<sup>47</sup>
  - a. Prostate cancer;
  - b. Renal cancer;
  - c. Bladder cancer;
  - d. Penile cancer;
  - e. Ureteral cancer;

Note: The above indications are anatomical sites reported by ASTRO where IMRT is commonly performed, but may not be an all-inclusive listing.<sup>47</sup>

#### 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.<sup>1</sup>

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.<sup>1-2</sup>

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.<sup>3-7</sup>

OMRT and volumetric-modulated arc therapy (VMAT) are the standard of care for treatment of many pediatric cancers. Many are under investigation such as stereotactic body radiation therapy (SBRT) for treating bone tumors, along with metastatic and recurrent lesions.<sup>48</sup>

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<sup>®</sup>). CPT<sup>®</sup> is a registered trademark of the American Medical Association. All CPT codes and descriptions are copyrighted 2024, 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®	Description
Codes	
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 treatment delivery (IMRT) includes guidance and tracking, when
	performed; complex



HCPCS	Description
Codes	
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	Approval
	Date	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	
Annual review. Removed sub-criteria noted in I.G.8.b-I.G.8.c. and replaced with I.G.8.b. Left-sided breast cancers when treating the internal mammary lymph nodes; I.G.8.c. 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; 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.	05/2024	09/2024
Annual review. Edits to description and background with no impact on criteria. Removed I.B - G, leaving I.A. "Age $\leq$ 18 years". Added	04/2025	



Reviews, Revisions, and Approvals	Revision Date	Approval Date
I.B. "Medically inoperablerequired"; added I.C. "Primary malignanttumors"; added I.D. "Re-irradiation (wheredose)"; added I.E.1 - 8, all new indications by cancer site. Added note "The above indicationsall-inclusive listing". References reviewed and updated. Reviewed by external specialist.		

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