Clinical Policy: Intensity-Modulated Radiotherapy

Reference Number: LA.CP.MP.69 Coding Implications
Date of Last Revision: 03/25 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 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. [47]

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 with a solid tumor;
   B. Medically inoperable patient with diagnosis of cancer where dose escalation is required;[47]
   C. Primary malignant or benign bone tumors; [47]
   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: [47]
         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: [47]
         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: [47]
         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: [47]
   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: [47]
   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: [47]
   a. Retroperitoneal sarcomas;
   b. Desmoid tumors;
   c. Endometrial cancer;
7. Pelvic/Gynecological, any of the following:[47]
   a. Cervical cancer;
   b. Vulvar and vaginal cancers;
   c. Endometrial cancer;
8. Genitourinary, any of the following: [47]
   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. [47]

Background

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.[1-2]

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.[3-7]

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.[48]

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 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 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	Effective Date
Converted corporate to local policy.	12/1/20		
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		
Annual review completed. Background updated. ICD-10 code table removed. References reviewed and updated.	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	12/27/23
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; 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.	05/24	7/16/24	8/16/24
Annual review. Edits to description and background with no impact on criteria. Removed I.B - G, leaving I.A. "Age ≤ 18 years". Added I.B. "Medically inoperable……required"; added I.C. "Primary malignant….tumors"; added I.D. "Re-irradiation (where…..dose)"; added I.E.1 - 8, all new indications by cancer site. Added note "The above indications……all-inclusive listing". References reviewed and updated. Reviewed by external specialist.	3/25	5/20/25	6/19/25

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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.

The purpose of this clinical policy is to provide a guide to medical necessity, which is a component of the guidelines used to assist in making coverage decisions and administering benefits. It does not constitute a contract or guarantee regarding payment or results. Coverage decisions and the administration of benefits are subject to all terms, conditions, exclusions and limitations of the coverage documents (e.g., evidence of coverage, certificate of coverage, policy, contract of insurance, etc.), as well as to state and federal requirements and applicable LHCC administrative policies and procedures.

This clinical policy is effective as of the date determined by LHCC. The date of posting may not be the effective date of this clinical policy. This clinical policy may be subject to applicable legal and regulatory requirements relating to provider notification. If there is a discrepancy between the effective date of this clinical policy and any applicable legal or regulatory requirement, the requirements of law and regulation shall govern. LHCC retains the right to change, amend or withdraw this clinical policy, and additional clinical policies may be developed and adopted as needed, at any time.

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