Three-Dimensional Conformal Radiation Therapy (3D-CRT)

Please note the following:

For Medicare members/enrollees, to ensure consistency with the Medicare National Coverage Determinations (NCD) and Local Coverage Determinations (LCD), all applicable NCDs, LCDs, and Medicare Coverage Articles should be reviewed prior to applying the criteria set forth in this clinical policy. Please refer to the CMS website at http://www.cms.gov for additional information.

For Medicaid members/enrollees, circumstances when state Medicaid coverage provisions conflict with the coverage provisions within 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.

Discussion

3D conformal radiation therapy (3D-CRT) is a common type of external beam radiation therapy. It uses images from CT, MRI, and PET scans to precisely plan the treatment area, a process called simulation. A computer program is used to analyze the images and to design radiation beams that conform to the shape of the tumor. 3D conformal radiation conforms to the shape of the tumor by delivering beams from many directions. The precise shaping makes it possible to use higher doses of radiation to effectively shrink and destroy the tumor while sparing normal tissue.[1]

Advances in imaging technology have made it possible to locate and treat the tumor more precisely. 3D conformal radiation therapy is commonly utilized for the below cancer types:

- Anal Cancer
- Bladder Cancer
- Bone Metastases
- Bone Cancer, Primary
- Breast Cancer
- Central Nervous System Cancer
- Colon and Rectal Cancer
- Esophageal and Gastric Cancer
- Gynecological Cancer
- Head and Neck Cancer
- Liver and Biliary Tract Cancers

- Lung Cancer
- Lymphoma
- Pancreatic Cancer
- Prostate Cancer
- Skin Cancer
- Soft Tissue Sarcoma[2]

Definitions

- **External Beam Radiation Therapy (EBRT) -** External radiation (or external beam radiation) is the most common type of radiation therapy used for cancer treatment. A machine is used to aim high-energy rays (or beams) from outside the body into the tumor.
- **Fractions -** A way of dividing a total dose of radiation into separate doses to be administered over a period of time.
- **Gray (Gy) -** One of the two units used to measure the amount of radiation absorbed by an object or person, known as the absorbed dose. One gray (Gy) is the international system of units (SI) equivalent of 100 rads, which is equal to an absorbed dose of 1 Joule/kilogram.
- **Magnetic Resonance Imaging (MRI) -** Magnetic resonance imaging is a form of medical imaging that measures the response of the atomic nuclei of body tissues to high-frequency radio waves when placed in a strong magnetic field, and that produces images of the internal organs.
- **National Comprehensive Cancer Network (NCCN) -** An alliance of 33 leading cancer centers devoted to patient care, research, and education. The NCCN guidelines are utilized for Radiation Therapy and Medical Oncology standards. NCCN consensus clinical standards are periodically updated and NantHealth, Inc. reviews these and updates its policies within a timely manner.
- **PET Scan -** Positron emission tomography is an imaging study that uses radiotracers to assess organ and tissue functions.[3]

Policy

Please see all related anatomical policies that include 3D-CRT as a treatment for dosing parameters and medical necessity.

- Anal Cancer
- Bladder Cancer
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- Prostate Cancer

- Skin Cancer
- Soft Tissue Sarcoma

Coding (CPT®, ICD-10, and HCPCS)

Procedure codes appearing in medical policy documents are only included as a general reference. This list may not be all-inclusive and is subject to updates. In addition, the codes listed are not a guarantee of payment. CPT codes are available through the AMA.

Code	Description
C15.3	Malignant neoplasm of upper third of esophagus
C15.4	Malignant neoplasm of middle third of esophagus
C15.5	Malignant neoplasm of lower third of esophagus
C15.8	Malignant neoplasm of overlapping sites of esophagus
C41.0-C41.2	Malignant neoplasm of bones of skull and face - malignant neoplasm of vertebral column
C41.4	Malignant neoplasm of pelvic bones, sacrum, and coccyx
C41.9	Malignant neoplasm of bone and articular cartilage, unspecified
C45.1	Mesothelioma of peritoneum
C45.7	Mesothelioma of other sites
C47.0	Malignant neoplasm of peripheral nerves of head, face, and neck
C48.0	Malignant neoplasm of retroperitoneum
C48.8	Malignant neoplasm of overlapping sites of retroperitoneum and peritoneum
C49.0	Malignant neoplasm of connective and soft tissue of head, face, and neck
C75.0	Malignant neoplasm of parathyroid gland
C75.1-C75.3	Malignant neoplasm of pituitary gland - malignant neoplasm of pineal gland
C76.0-C76.8	Malignant neoplasm of head, face, and neck - malignant neoplasm of other specified ill-defined sites
C78.7	Secondary malignant neoplasm of liver and intrahepatic bile duct
C79.31	Secondary malignant neoplasm of brain
D32.0-D33.9	Benign neoplasm of cerebral meninges - benign neoplasm of central nervous system, unspecified
D35.2-D35.4	Benign neoplasm of pituitary gland - benign neoplasm of pineal gland
D35.6	Benign neoplasm of aortic body and other paraganglia
D42.0-D43.2	Neoplasm of uncertain behavior of cerebral meninges - neoplasm of uncertain behavior of brain, unspecified
D44.10-D44.12	Neoplasm of uncertain behavior of unspecified adrenal gland - neoplasm of uncertain behavior of left adrenal gland
D44.3-D44.5	Neoplasm of uncertain behavior of pituitary gland - neoplasm of uncertain behavior of pineal gland

Code	Description
D44.6-D44.7	Neoplasm of uncertain behavior of carotid body - neoplasm of uncertain behavior of aortic body and other paraganglia
D49.6-D49.7	Neoplasm of unspecified behavior of brain - neoplasm of unspecified behavior of endocrine glands and other parts of nervous system
G6017	Intra-fraction localization and tracking of target or patient motion during delivery of radiation therapy (for example,3D positional tracking, gating, 3D surface tracking), each fraction of treatment
77295	3-dimensional radiotherapy
77300	Basic radiation dosimetry calculation
77331	Special radiation dosimetry
77370	Radiation physics consult
77470	Special radiation treatment

Revision and Review History

No.	Description	Date(s)
1	Original Effective Date	5/25/2022
2	Policy Annual Review Dates:	5/25/2022, 6/2/2022, 6/2/2023, 5/1/2024, 5/27/2025
3	Department Owner	Medical Affairs
4	NH Advisory Committee Approval Dates:	5/25/2022, 6/2/2022, 6/2/2023, 5/10/2024, 5/29/2025
5	Revision Changes:	6/2/2022 Grammatical non-material changes 5/1/2024 Annual review complete; corrected the ASTRO external bean RT URL link; v.1.2 5/27/2025 Annual review complete; format changes; v.2.0

References

[1] External beam radiation therapy for cancer. National Cancer Institute (NCI). https://www.cancer.gov/about-cancer/treatment/types/radiation-therapy/external-beam. Accessed May 27, 2025.

[2] External beam radiation therapy. ASTRO. https://www.rtanswers.org/cancer-types/head-and-neck-cancers/treatment-types/external-beam-radiation-therapy. Accessed May 25, 2025.

[3] Dictionary of cancer terms. National Cancer Institute. https://www.cancer.gov/publications/dictionaries/cancer-terms/def/neoadjuvant-therapy. Accessed May 25, 2025.