

## Bone Metastases

Note: 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.

Note: 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

Bone metastases are the result of cancer cells spreading from their primary site where the cancer started and invading the bone. It is the third most common site of metastasis and frequently presents with cancers that started in the prostate, lung, or breast. Common areas of bone metastasis include the hips, ribs, spine, and sternum.<sup>1</sup>

Bone metastases are a common manifestation of malignancy that can cause severe and debilitating effects including pain, spinal cord compression, hypercalcemia, and fracture. Radiation therapy (RT) provides successful palliation of painful bone metastases that is time-efficient and associated with very few side effects.<sup>2,3</sup>

#### General Treatment and Dosing Information

##### Palliative Radiation Therapy for Bone Metastases

- 8 Gy as a single dose is as effective for pain palliation at any bony site.<sup>3</sup>
- 30 Gy in 10 fractions may be used as alternative palliative dosing depending on clinical scenario.<sup>4</sup>
- An updated review of high-quality data continues to show pain relief equivalency following a single 8 Gy fraction, 20 Gy in 5 fractions, 24 Gy in 6 fractions, and 30 Gy in 10 fractions for patients with previously unirradiated painful bone metastases.<sup>4</sup>
- Stereotactic body radiotherapy or intensity modulated radiation therapy may be considered medically necessary on a case-by-case basis to treat a previously irradiated field.

### DEFINITIONS

- **Adjuvant radiation therapy** - Additional radiation therapy given after the primary treatment to lower the risk of cancer recurrence.
- **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.
- **Intensity-modulated radiation therapy (IMRT)** - Intensity-modulated radiation therapy (IMRT) is an advanced mode of high-precision radiotherapy that uses computer-controlled linear accelerators to deliver precise radiation doses to a malignant tumor or specific areas within the tumor. IMRT allows the radiation dose to conform more precisely to the three-dimensional shape of the tumor by controlling the intensity of the radiation beam in

multiple small volumes. IMRT also allows higher radiation doses to be focused to regions within the tumor while minimizing the dose to surrounding normal critical structures.

- **National Comprehensive Cancer Network® (NCCN)** - An alliance of 32 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.
- **Stereotactic body radiotherapy (SBRT)** - Treatment outside the brain is called stereotactic body radiation therapy (SBRT). SBRT may be used for certain lung, spine, and liver tumors.
- **Stereotactic radiosurgery (SRS)** - Stereotactic radiosurgery (SRS) allows the delivery of a large dose of radiation to a small tumor area, usually in one session. After imaging tests show the exact location of the tumor, a very thin beam of radiation is focused on the area from many different angles. This is typically done with a radiation source on the end of a computer-controlled robotic arm, which rotates around the person as they lie on a table.
- **Three dimensional conformal radiation therapy (3D-CRT)** - A procedure that uses a computer to create a three dimensional picture of the tumor. This allows doctors to give the highest possible dose of radiation to the tumor, while sparing the normal tissue as much as possible.

## POLICY

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The following table outlines the criteria that needs to be met for the number of fractions and dosing relative to bone metastases cancer radiation treatments. The dosing table represents evidence-based doses and fractions for the designated type of cancer treatment. Variations outside of the ranges may indicate a deviation from standard treatment.

Bone Metastases			
	Number of Fractions	Total Dose	Technique
Bone (spine and non-spine) Metastasis	1	8 Gy	3D
	5	20 Gy	
	6	24 Gy	
	10	30 Gy	

## REFERENCES

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1. Bone metastases. American Cancer Society. <https://www.cancer.org/treatment/understanding-your-diagnosis/advanced-cancer/bone-metastases.html> Accessed May 14, 2022.
2. Bone cancer. Medline Plus. <https://medlineplus.gov/bonecancer.html>. Accessed May 14, 2022.
3. ASTRO guideline - bone metastases. American Society for Radiation Oncology (ASTRO). [https://www.astro.org/Patient-Care-and-Research/Clinical-Practice-Statements/ASTRO-39;s-guideline-on-Palliative-Radiation-T-\(1\)](https://www.astro.org/Patient-Care-and-Research/Clinical-Practice-Statements/ASTRO-39;s-guideline-on-Palliative-Radiation-T-(1)). Accessed May 14, 2022.
4. NCCN Clinical Practice Guidelines in Oncology (NCCN Guidelines®) for Bone Metastases. (Version 1.2022). Available at [https://www.nccn.org/professionals/physician\\_gls/pdf/cns.pdf](https://www.nccn.org/professionals/physician_gls/pdf/cns.pdf). ©National Comprehensive Cancer Network, 2022.

Please see all related radiation therapy treatment policies for additional information on the treatment modalities. (3D-CRT and EBRT)

**CODING [ICD-10, 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, codes listed are not a guarantee of payment. CPT codes are available through the AMA.

Code	Description
0C00-D49	Neoplasms
C40-C41	Malignant neoplasm of bone and articular cartilage
C79	Secondary malignant neoplasm of other and unspecified sites
C79.5	Secondary malignant neoplasm of bone and bone marrow
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

**REVISION AND REVIEW HISTORY**

No.	Description	Metadata
1	Original Effective Date:	5/2022
2	Policy Review Dates:	5/16/2022, 5/17/2022, 6/2/2022, 7/20/2022, 8/29/2022
3	Policy Revision Dates:	5/16/2022, 5/17/2022, 6/2/2022, 7/20/2022, 8/29/2022
4	Department Owner:	Medical Affairs
5	NH Advisory Committee Approval Dates:	5/27/2022, 6/2/2022, 8/30/2022
6	Revision Changes:	8/29/2022 - Removed 37.5 Gy in 15 fractions from the General Treatment and dosing information under Palliative RT. Added an additional NCCN reference # 4.