



<b>*National Imaging Associates, Inc.</b>	
<b>Clinical guidelines</b> <b>BONE METASTASES</b>	<b>Original Date: June 2013</b>
<b>Radiation Oncology</b>	<b>Last Revised Date: May 2023</b>
<b>Guideline Number: NIA_CG_126</b>	<b>Implementation Date: January 2024</b>

### GENERAL INFORMATION

- *It is an expectation that all patients receive care/services from a licensed clinician. All appropriate supporting documentation, including recent pertinent office visit notes, laboratory data, and results of any special testing must be provided. If applicable: All prior relevant imaging results and the reason that alternative imaging cannot be performed must be included in the documentation submitted.*
- *Where a specific clinical indication is not directly addressed in this guideline, medical necessity determination will be made based on widely accepted standard of care criteria. These criteria are supported by evidence-based or peer-reviewed sources such as medical literature, societal guidelines and state/national recommendations.*

### MEDICALLY NECESSARY INDICATIONS FOR RADIATION THERAPY<sup>1-3</sup>

2D or 3D Conformal External Beam Radiation Therapy (EBRT) is appropriate for the treatment of bone metastases

#### Good performance status = ECOG less than 3:

- EBRT – Up to 10 fractions for multiple bone metastases

#### Poor performance status = ECOG 3 or greater or progressive metastatic disease:

- EBRT – Up to 5 fractions

#### All other treatment regimens (Will be reviewed on a case-by-case basis)

#### Intensity modulated radiation therapy (IMRT)

IMRT is not indicated as a standard treatment option and should not be used routinely for the delivery of radiation therapy for bone metastasis. IMRT may be appropriate for limited circumstances in which radiation therapy is indicated and 3D conformal radiation therapy (3D-CRT) techniques cannot adequately deliver the radiation prescription without exceeding normal tissue radiation tolerance, the

delivery is anticipated to contribute to potential late toxicity or tumor volume dose heterogeneity is such that unacceptable hot or cold spots are created.

Requests for IMRT require review of the clinical rationale and documentation for performing IMRT rather than 2D or 3D-CRT treatment planning and delivery. Supporting documentation will need to:

- Demonstrate how 3D-CRT isodose planning cannot produce a satisfactory treatment plan (as stated above) via the use of patient-specific dose volume histograms and isodose plans.
- Provide tissue constraints for both the target and affected critical structures.

### **Stereotactic Body Radiation Therapy (SBRT)<sup>4,5</sup>**

Stereotactic Body Radiation Therapy (SBRT) for treatment of bone metastasis may be medically necessary to treat previously irradiated field.<sup>1</sup>

- Oligometastatic Disease\*: Stereotactic Body Radiation Therapy (SBRT) is medically necessary for extracranial oligometastatic disease for an individual with one (1) to five (5) metastatic lesions when the following criteria are met:
  - Good performance status: ECOG less than 3 or Karnofsky Scale greater than or equal to 70% and stable systemic disease or reasonable systemic treatment options.

\*Note: Based on available data, OMD can to date be defined as 1–5 metastatic lesions, a controlled primary tumor being optional, but where all metastatic sites must be safely treatable.<sup>4</sup>

### **Proton Beam Radiation Therapy**

Proton beam is not an approved treatment option for bone metastasis. Overall, studies of proton beam therapy have not shown clinical outcomes to be superior to conventional radiation therapy in bone metastases.

### **THE FOLLOWING APPLIES TO CMS (MEDICARE) MEMBERS ONLY**

*For Proton Beam and Stereotactic Radiotherapy refer to Local Coverage Determination (LCD), if applicable.*

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## **BACKGROUND**

Bone metastases are a common manifestation of malignancy that can cause severe and debilitating effects including pain, spinal cord compression, hypercalcemia, and pathologic fracture. Radiation therapy has a proven track record in the palliation of bone metastases. Following a course of palliative treatment, approximately one-third of patients will have complete relief of pain, and two-thirds of

patients will have significant reduction in their pain. The optimal delivery of radiation therapy has been the focus of multiple trials looking at the best dose fractionation. Common dose fractionation schedules have shown good rates of palliation, including 8 Gy in 1 fraction, 20 Gy in 4 fractions, 24 Gy in 6 fractions, or 30 Gy in 10 fractions. All provide excellent pain control with minimal side effects. The benefit of the single fraction is that it is the most convenient for patients, whereas the advantage of a longer course of treatment is a lower incidence of re-treatment to the same site. Dose fractionation is typically determined based on location of the metastasis, patient's clinical status, previous irradiation treatment, etc. Therefore, multiple factors must be reviewed prior to prescribing palliative radiotherapy.

## REFERENCES

1. Lutz S, Balboni T, Jones J, et al. Palliative radiation therapy for bone metastases: Update of an ASTRO Evidence-Based Guideline. *Pract Radiat Oncol*. Jan-Feb 2017;7(1):4-12. doi:10.1016/j.prro.2016.08.001
2. ACR Appropriateness Criteria®: Non-Spine Bone Metastases. American College of Radiology. Updated 2014. Accessed December 6, 2022. <https://acsearch.acr.org/docs/69354/Narrative/>
3. American Academy of Hospice and Palliative Medicine. Five Things Physicians and Patients Should Question: Don't recommend more than a single fraction of palliative radiation for an uncomplicated painful bone metastasis. ABIM Foundation. Updated January 14, 2021. Accessed December 6, 2022. <https://www.choosingwisely.org/clinician-lists/american-academy-hospice-palliative-care-single-fraction-palliative-radiation-for-bone-metastasis/>
4. Lievens Y, Guckenberger M, Gomez D, et al. Defining oligometastatic disease from a radiation oncology perspective: An ESTRO-ASTRO consensus document. *Radiother Oncol*. Jul 2020;148:157-166. doi:10.1016/j.radonc.2020.04.003
5. American Society for Radiation Oncology. Astro Model Policies: Stereotactic Body Radiation Therapy. American Society for Radiation Oncology (ASTRO). Updated June 2020. Accessed December 21, 2022. <https://www.astro.org/ASTRO/media/ASTRO/Daily%20Practice/PDFs/ASTROSBRTModelPolicy.pdf>

## POLICY HISTORY

Date	Summary
May 2023	<ul style="list-style-type: none"><li>• No significant changes</li><li>• References updated</li><li>• Deleted Additional Resources</li><li>• Removed “physician review” language</li></ul>
January 2022	<ul style="list-style-type: none"><li>• In SBRT, increased the range for the number of metastatic lesions from One (1) to Four (4) to One (1) to Five (5)</li><li>• In SBRT, added Note to clarify oligometastatic disease</li></ul>

## **Reviewed / Approved by NIA Clinical Guideline Committee**

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