

Evidence Discussion (ONC 12.6-12.9)

Bone Sarcomas

Initial staging of both soft tissue and bone sarcomas

The choice of imaging modality is driven by the primary tumor site. EviCore guidelines align with NCCN recommendations for cross sectional imaging of the primary site with MRI with and without contrast or CT with contrast for best illustration of anatomic detail and vascular and nodal involvement. Our guideline provides flexibility for provider discretion for choice of modality for all sites. Providers should choose modality expected to offer maximum primary tumor definition with consideration of minimizing radiation exposure (Mehren, Biermann, NCCN 2024). CT is more sensitive and specific than MRI for evaluation for metastatic disease of the lung, and is supported for all patients with a newly diagnosed malignant sarcoma in alignment with NCCN Guidelines and ACR appropriateness criteria. ACR appropriateness criteria do not support imaging both with and without contrast for evaluation of metastatic disease to the lung, as this exposes patients to higher radiation doses without significant clinical benefit. CT either with or without contrast should be selected at discretion of the provider. (ACR 2024).

Chordomas have a propensity for the distant disease at presentation including spine, so unlike other bone sarcomas, imaging of the abdomen and pelvis with contrasted CT as well as bone scan and MRI of the spine are supported. FDG Pet/CT is a level 2B NCCN recommendation and thus is supported only for inconclusive conventional imaging. PET is not generally supported for initial staging of other histologies discussed in this section due to low sensitivity and specificity (Biermann, NCCN 2024).

Restaging

CT chest is supported for restaging for all bone sarcomas, as well as MRI of primary site. CT of other body areas are driven by clinical symptoms and patterns of spread at primary site and not routine across all cell types (Biermann, NCCN 2024; ACR 2024). PET-CT for restaging is not routinely supported, but may be used for inconclusive conventional imaging (ASCO 2024; ACR 2024; Biermann NCCN 2024).

Surveillance

Data do not show an overall survival benefit with advanced imaging surveillance of sarcomas. Less than 20% of local recurrences are detected based on advanced imaging surveillance in asymptomatic patients. Sensitivity and specificity of chest imaging are higher in grade two or higher disease (Srinivasan 2024). EviCore guidelines align with the NCCN recommendations for plain X-ray rather than advanced imaging for low-grade, low stage bone sarcomas.

For Grade II+ disease , plain X ray is supported as primary tool for primary site surveillance, with cross sectional advanced imaging for signs and symptoms of progression or changes on X ray. Chest imaging is supported with either plain imaging or CT. Recurrence beyond 10 years is rare, asymptomatic surveillance imaging beyond 10 years is low yield and is not generally supported (Biermann, 2024).

References

1. Biermann JS, Hirbe A, Agulnik M, et al. National Comprehensive Cancer Network (NCCN) Guidelines Version 3.2023 – April 4, 2023. Bone cancer, available at: https://www.nccn.org/professionals/physician_gls/pdf/bone.pdf. Referenced with permission from the NCCN Clinical Practice Guidelines in Oncology (NCCN Guidelines™) for Bone cancer V1.2024 – August 7, 2023. ©2023 National Comprehensive Cancer Network, Inc. All rights reserved. The NCCN Guidelines™ and illustrations herein may not be reproduced in any form for any purpose without the express written permission of the NCCN. To view the most recent and complete version of the NCCN Guidelines™, go online to NCCN.org.
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