Cohere Medical Policy - Computed Tomography (CT), Lower Extremity

Clinical Guidelines for Medical Necessity Review

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Important Notices

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Other Notices:

Guideline Information:

Specialty Area: Diagnostic Imaging
Guideline Name: Cohere Medical Policy - Computed Tomography (CT), Lower Extremity

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Type: [**X**] Adult (18+ yo) | [**X**] Pediatric (0-17yo)

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Medical Necessity Criteria

Service: Computed Tomography (CT), Lower Extremity

Recommended Clinical Approach

Computed tomography (CT) of the lower extremity for trauma and fracture generally does not require contrast. IV contrast should be used at the request of the ordering provider with guidance from the radiologist. Common indications for administering contrast include infectious and inflammatory conditions, as well as fractures, tumors, palpable abnormalities, and concern for malignancy of the soft tissues. CT scan coverage can be modified to include the region of clinical suspicion. Intra-articular contrast may be useful in patients for whom internal joint derangement or cartilage loss is suspected, but in whom MR is not possible (e.g., incompatible pacemaker, unable to tolerate MR exam, metallic artifact).

Medical Necessity Criteria

Indications

- ➔ **Computed tomography (CT), lower extremity** is considered appropriate if **ANY** of the following is **TRUE**:
  - ◆ Neoplastic conditions (including masses and mass-like conditions) requiring evaluation (e.g., for treatment planning, treatment response, or prognostication) and **ANY** of the following is **TRUE**[1-3]:
    - Malignant or aggressive primary bone tumor[1]; **OR**
    - Malignant or aggressive primary soft tissue tumor[1]; **OR**
    - Metastatic lesions of the lower extremity; **OR**
    - Nonsuperficial (deep) soft tissue mass[2]; **OR**
    - Soft tissue mass and MRI or ultrasound is unable to be performed or is contraindicated[2]; **OR**
    - A primary bone tumor is suspected, and radiographs indicate **ANY** of the following[3]:
      - ○ Radiograph is negative; **OR**
      - ○ Benign features (osteoid osteoma is not suspected); **OR**
      - ○ Osteoid osteoma is suspected; **OR**

        - Lesion is present on plain radiographs; **OR**
        - Indeterminate or aggressive appearance for malignancy; **OR**
        - "Incidental" osseous lesion on MRI or CT scan for unrelated indication; **OR**
    - Presence of a mass with **ANY** of the following[2]:
        - Absence of trauma; **OR**
        - Rapid growth; **OR**
        - Recurrence after prior surgery; **OR**
        - Non-diagnostic ultrasound or other inconclusive imaging; **OR**
    - Follow-up exam to further characterize a bone or soft tissue lesion diagnosed on the initial radiologic exam, including radiograph, ultrasound, magnetic resonance (MR), and nuclear medicine studies[3]; **OR**
    - Known malignancy with unexpected, localized lower extremity pain or swelling; **OR**
    - Persistent palpable abnormality with non-diagnostic imaging (e.g., radiograph, ultrasound); **OR**
    - Routine surveillance of known malignancy; **OR**
- Acute traumatic lower extremity injury (e.g., fracture, dislocation, etc.) that requires additional detail than is available with plain radiographs and **ANY** of the following is **TRUE**[4-5]:
    - Bony injury and **ANY** of the following is **TRUE**[4]:
        - Fracture (known) and additional detail needed; **OR**
        - Acute injury with occult fracture suspected; **OR**
        - Joint dislocation or instability; **OR**
        - Stress/insufficiency fracture (known) and follow-up imaging needed; **OR**
        - Stress/insufficiency fracture (suspected) with negative radiographs; **OR**
    - Suspected soft tissue injury (e.g., peroneal tendon injury, etc.) and MRI or ultrasound is unable to be performed or is contraindicated; **OR**
- Preoperative imaging prior to surgical management of congenital condition, injury, recurrent instability, malignancy, mass, infectious disorder, or vascular abnormality; **OR**
- Chronic injury with ongoing symptoms for greater than or equal to 6 weeks and **ALL** of the following are **TRUE**[6-7]:

- Documented failure of at least 6 weeks of conservative treatment, including **ALL** of the following:
    - Anti-inflammatory medications, non-opioid analgesics, or prescription medications (e.g., oral steroids, neuropathic pain medications) if not contraindicated; **AND**
    - Physical therapy, including a self-directed home exercise program; **AND**
- Radiographs are negative for osseous injury, an alignment abnormality is suspected based on physical examination, and **ALL** of the following are **TRUE**:
    - MRI and/or ultrasound are contraindicated or cannot be performed; **AND**
    - Radiographs that suggest **ANY** of the following:
        - Dislocation; **OR**
        - Syndesmotic injury; **OR**
        - Other ligamentous injury; **OR**

- The patient requires a CT with arthrogram for a knee meniscal tear, and **ALL** of the following are **TRUE**:
    - Concern for rupture or tear based on clinical history, imaging, or physical exam; **AND**
    - Joint-specific orthopedic evaluation and maneuvers suggest a tear; **OR**
- Vascular conditions, known or suspected, including **ANY** of the following:
    - Diagnosis, surveillance, and follow-up of autoimmune, collagen vascular diseases, or inflammatory conditions (e.g., inflammatory arthritis)[8]; **OR**
    - Osteonecrosis, known or suspected, with negative radiographs[9]; **OR**
    - MRI and/or ultrasound are contraindicated or cannot be performed, and the patient requires evaluation for vascular malformation (with or without pain) due to **ANY** of the following findings[10]:
        - Diffuse or focal enlargement; **OR**
        - Discoloration; **OR**
        - Soft-tissue mass; **OR**
        - Ulceration; **OR**
        - Vascular bruit or thrill; **OR**

- Post-intervention evaluation when **ANY** of the following is **TRUE**:
  - Imaging after hip arthroplasty and **ANY** of the following is **TRUE**[11]:
    - Hardware fracture; **OR**
    - History of acute injury; **OR**
    - Metal-on-metal prosthesis with an adverse reaction to metal debris; **OR**
    - Trunnionosis (corrosion or metallosis), suspected; **OR**
    - Pain with **ANY** of the following (infection excluded):
      - Aseptic loosening; **OR**
      - Instability; **OR**
      - Osteolysis; **OR**
    - Periprosthetic fracture; **OR**
  - Imaging after knee arthroplasty and **ANY** of the following are suspected (with or without pain)[12]:
    - Hardware fracture; **OR**
    - Infection; **OR**
    - Pain with **ANY** of the following (infection excluded):
      - Aseptic loosening; **OR**
      - Instability; **OR**
      - Osteolysis; **OR**
    - Periprosthetic fracture; **OR**
    - Concern for injury to extensor mechanism; **OR**
- Infection or an infectious disorder including **ANY** of the following:
  - Septic arthritis with **ANY** of the following:
    - Elevated laboratory markers (e.g., ESR/CRP, white blood cell count); **OR**
    - Findings are suggestive of joint effusion or soft tissue swelling[13]; **OR**
    - Clinical history of **ANY** of the following:
      - Adjacent infection; **OR**
      - Diabetes; **OR**
      - IV drug use; **OR**
      - Previous surgery on the suspected joint of concern (e.g., joint replacement/ ligament, labral, meniscus repair); **OR**
    - Physical exam that supports suspicion of septic arthritis; **OR**
    - Positive joint aspiration; **OR**

        - Septic arthritis is suspected with normal initial radiographs[13]; **OR**
    - Osteomyelitis, suspected[12-13]; **OR**
    - Soft tissue infection suspected with a history of puncture wound with possible retained foreign body (radiographs normal)[13]; **OR**
    - Soft tissue infection suspected with high clinical suspicion of necrotizing fasciitis[13]; **OR**
- Evaluation of **ANY** of the following uncategorized/miscellaneous symptoms when MRI is contraindicated or cannot be performed, and the patient requires evaluation[14]:
    - Marrow abnormalities[9]; **OR**
    - Pain or weakness of a lower extremity as indicated by **ALL** of the following:
        - Nondiagnostic or indeterminate imaging (e.g. radiographs, US); **AND**
        - Documented failure of at least 6 weeks of conservative treatment, including **ALL** of the following:
            - Anti-inflammatory medications, non-opioid analgesics, or prescription medications (e.g., oral steroids, neuropathic pain medications) if not contraindicated; **AND**
            - Physical therapy, including a self-directed home exercise program; **AND**
        - Concern for rupture or tear based on **ALL** of the following:
            - Clinical history; **AND**
            - Physical exam; **OR**
- Repeat imaging (defined as repeat request following recent imaging of the same anatomic region with the same modality), in the absence of established guidelines, will be considered reasonable and necessary if **ANY** of the following is **TRUE**:
    - New or worsening symptoms, such that repeat imaging would influence treatment; **OR**
    - One-time clarifying follow-up of a prior indeterminate finding; **OR**
    - In the absence of change in symptoms, there is an established need for monitoring which would influence management.

Non-Indications

- ➔ **Computed tomography (CT), lower extremity** is not considered appropriate if **ANY** of the following is **TRUE**[15]:
  - ◆ The patient has undergone advanced imaging of the same body part within 3 months without undergoing treatment or developing new or worsening symptoms[16]; **OR**
  - ◆ If contrast is used, history of anaphylactic allergic reaction to iodinated contrast media.

*NOTE: The referring professional and radiologist should discuss the risks and benefits of contrast media administration, including possible prophylaxis, in patients with chronic or worsening kidney disease or severe renal failure.
**NOTE: CT in pregnant patients should be requested at the discretion of the ordering provider and obstetric care provider.
***NOTE: CT in patients with claustrophobia should be requested at the discretion of the ordering provider.

Disclaimer on Radiation Exposure in Pediatric Population

Due to the heightened sensitivity of pediatric patients to ionizing radiation, minimizing exposure is paramount. At Cohere, we are dedicated to ensuring that every patient, including the pediatric population, has access to appropriate imaging following accepted guidelines. Radiation risk is dependent mainly on the patient's age at exposure, the organs exposed, and the patient's sex, though there are other variables. The following technical guidelines are provided to ensure safe and effective imaging practices:

Radiation Dose Optimization: Adhere to the lowest effective dose principle for pediatric imaging. Ensure that imaging protocols are specifically tailored for pediatric patients to limit radiation exposure.[17-18]

Alternative Modalities: Prioritize non-ionizing imaging options such as ultrasound or MRI when clinically feasible, as they are less likely to expose the patient to ionizing radiation. For instance, MRI or ultrasound should be considered if they are more likely to provide an accurate diagnosis than CT, fluoroscopy, or radiography.[17-18]

Cumulative Dose Monitoring: Implement systems to track cumulative radiation exposure in pediatric patients, particularly for those requiring

multiple imaging studies. Regularly reassess the necessity of repeat imaging based on clinical evaluation.[17-18]

CT Imaging Considerations: When CT is deemed the best method for achieving a correct diagnosis, use the lowest possible radiation dose that still yields reliable diagnostic images.[17-18]

Cohere Imaging Gently Guideline

The purpose of this guideline is to act as a potential override when clinically indicated to adhere to Imaging Gently and Imaging Wisely guidelines and As Low As Reasonably Possible (ALARA) principles.

Level of Care Criteria

Inpatient or Outpatient

Procedure Codes (CPT/HCPCS)

CPT/HCPCS Code	Code Description/Definition
73700	Computed tomography (CT), lower extremity; without contrast material
73701	Computed tomography (CT), lower extremity; with contrast material
73702	Computed tomography (CT), lower extremity; without contrast material, followed by contrast material(s) and further sections
76380	Computed tomography, limited or localized follow-up study

Medical Evidence

Drezin et al. (2022) review the role of computed tomography (CT) and computed tomography angiography (CTA) in trauma and salvaging a threatened or mangled extremity. When reviewing CT scans to assess complications around the amputation site, attention should focus on signs such as surgical wound opening, ulceration, infection, post-surgical blood collections, lingering bone fragments, abnormal bone growth, excessive scarring, and the maintenance of vascular function. Damage control techniques involve swift actions to manage bleeding and restore blood circulation. Early implementation of fasciotomies may be required, along with immediate temporary realignment and stabilization using splints, traction, or external fixation. The measures aim to safeguard the repaired blood vessels and ensure a smooth connection without tension.[19]

Allen et al. (2020) performed an observational study to evaluate the incidence of fractures and ligament injuries among patients presenting with an acute ankle injury and normal findings on radiographic examination while also exploring optimal examination protocols. A total of 100 patients were enrolled in the study - 19 were diagnosed with major fractures, and 42 had small avulsion fractures. Further, 42 patients exhibited ankle effusions, alongside a notable occurrence of soft tissue injuries. CT scans and ultrasound can identify fractures and soft tissue injuries yet may be utilized less frequently in standard clinical practice. The authors also discuss advances in imaging techniques. Research indicates that cone beam CT surpasses ultrasound examination and the traditional combination of clinical assessment and radiography in fracture detection sensitivity. Despite this heightened sensitivity, cone beam CT maintains a radiation exposure level comparable to conventional radiography, suggesting it is a safer and more precise imaging alternative.[20]

Kellock et al. (2019) conducted a meta-analysis on the diagnostic accuracy of CT to identify occult proximal femoral fractures. The authors report 13 studies of varied reporting quality that included 1248 patients (496 with hip fractures, 752 without) with MRI or clinical follow-up serving as the reference standard. Fifty false-negative examinations were identified. The pooled sensitivity estimate was 94%, with specificity reaching 100%. The authors conclude that when clinical suspicion arises for occult proximal femoral fracture, and MRI is either contraindicated or inaccessible, CT represents a viable option. In cases where clinical concern persists despite normal CT results, MRI may be indicated.[21]

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Clinical Guideline Revision History/Information

Original Date: April 29, 2022		
Review History		
Version 2	9/5/2024	Annual review and policy restructure.
Version 3	10/30/2024	Edited repeat imaging criteria language.
Version 4	2/20/2025	Replaced conservative care requirement with current standard language. Provided avenue for approval for preoperative imaging. Loosened requirement for injury evaluation - no longer requires suspicion of “high-grade” tear.