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

Clinical Guidelines for Medical Necessity Review

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Important Notices

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Guideline Information:

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

Recommended Clinical Approach

Computed tomography (CT) of the upper extremity for trauma typically does not require contrast. IV contrast is used if requested by the ordering provider and guided by the radiologist. Common reasons for using contrast include detecting infectious and inflammatory conditions, or suspected malignancy. In cases where internal joint derangement or cartilage loss is suspected but MRI is not feasible (e.g., due to an incompatible implanted device, inability to tolerate an MRI exam or metallic artifacts), intra-articular contrast may be beneficial.

Medical Necessity Criteria

Indications

- ➔ **Computed tomography (CT), upper extremity** is considered appropriate if **ANY** of the following is **TRUE**:
  - ◆ Traumatic upper extremity injury (e.g., fracture, dislocation) that requires additional detail than is available with plain radiographs and **ANY** of the following is **TRUE**[1-3]:
    - 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., rotator cuff tear), and MRI and ultrasound are contraindicated or cannot be performed[1,3,5-6]; **OR**

- Preoperative imaging for **ANY** of the following:
  - Prior to shoulder arthroplasty; **OR**
  - Prior to non-arthroplasty surgical management of glenohumeral osteoarthritis (e.g. arthroscopy, distal clavicle resection/excision) only when there is clinical concern for rotator cuff compromise, or when there is advanced glenoid wear; **OR**
  - Prior to surgical management of congenital condition, injury, recurrent instability, malignancy, mass, infectious disorder, or vascular abnormality; **OR**
- Detection, screening, or surveillance of neoplasms, masses, and cysts of an upper extremity, and **ANY** of the following is **TRUE**[7]:
  - Malignant or aggressive primary tumor[7]; **OR**
  - A bone tumor is suspected with indeterminate or aggressive appearance of an incidental osseous lesion on MRI or radiographs for unrelated indication[8]; **OR**
  - Presence of a mass with **ANY** of the following[9]:
    - Absence of trauma; **OR**
    - Rapid growth; **OR**
    - Recurrence after prior surgery; **OR**
    - Non-diagnostic ultrasound or other inconclusive imaging; **OR**
  - Known malignancy and **ANY** of the following is required:
    - Monitor response to treatment; **OR**
    - Surveillance after treatment or surgery; **OR**
    - Non-diagnostic ultrasound or other inconclusive imaging; **OR**
  - Follow-up exam to further characterize a bone or soft tissue lesion diagnosed on initial imaging study[8-9]; **OR**
- Infectious disorder, including **ANY** of the following:
  - Septic arthritis is suspected with initial radiographs that are normal or with findings suggestive of joint effusion or soft tissue swelling; **OR**
  - Osteomyelitis suspected[10]; **OR**
  - Soft tissue infection suspected with **ANY** of the following[10]:
    - Normal initial radiographs or with findings suggestive of joint effusion or soft tissue swelling; **OR**
    - History of puncture wound with possible retained foreign body; **OR**

        - High clinical suspicion of necrotizing fasciitis; **OR**
- Vascular conditions, known or suspected, when ultrasound and MRI are contraindicated or inconclusive; **OR**
- Evaluation of **ANY** of the following uncategorized/miscellaneous symptoms when applicable:
    - Marrow abnormalities[12-13]; **OR**
    - Pain or weakness of an upper extremity as indicated by **ALL** of the following[5,14]:
        - 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**
    - Diagnosis, surveillance, or follow-up of autoimmune, collagen vascular diseases, or inflammatory conditions (e.g., inflammatory arthritis)[11]; **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), upper extremity** is not considered appropriate if **ANY** of the following is **TRUE** if contrast is used:
  - ◆ The patient has undergone advanced imaging of the same body part within 3 months without undergoing treatment or developing new or worsening symptoms[15]; **OR**
  - ◆ If contrast is used, history of anaphylactic allergic reaction to iodinated contrast media; **OR**
  - ◆ Renal insufficiency and no detailed guidelines have been provided.

*NOTE: CT in patients with claustrophobia should be requested at the discretion of the ordering provider.
**NOTE: CT in pregnant patients should be requested at the discretion of the ordering provider and obstetric care 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.[16-17]

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.[16-17]

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.[16-17]

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.[16-17]

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
73200	Computed tomography (CT), upper extremity; without contrast material
73201	Computed tomography (CT), upper extremity; with contrast material
73202	Computed tomography (CT), upper 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, close attention should be paid to 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]

Saliken et al. (2015) performed a systematic review of glenohumeral instability related to traumatic anterior shoulder dislocation. Among the primary risk factors contributing to recurrent instability are glenoid and Hill-Sachs bone loss. The efficacy of arthroscopic Bankart repairs is notably impacted by the extent of bone loss, with larger degrees of bone loss correlating with higher failure rates. The review addressed optimal imaging techniques for quantifying glenohumeral bone loss. Various imaging modalities such as radiography, CT scans, and MRI scans are utilized; however, there is currently no universally accepted gold standard method. The authors concluded that radiography serves as a valuable tool in screening patients for significant glenoid bone loss, while CT imaging, employing methods such as the Glenoid Index or Pico Method, demonstrates substantial evidence supporting its efficacy in accurately quantifying glenoid bone loss. Further research is needed to establish the optimal imaging modality and method for precisely quantifying glenohumeral bone loss.[20]

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Clinical Guideline Revision History/Information

Original Date: April 29, 2022		
Review History		
Version 2	8/29/2024	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.