AmeriHealth Caritas Louisiana

National Imaging Associates, Inc.	
Clinical guidelines **LOWER EXTREMITY CT** **(Foot, Ankle, Knee, Leg or Hip CT)**	**Original Date: September 1997**
CPT Codes: 73700, 73701, 73702	**Last Revised Date: ~~March 2022~~May 2023**
Guideline Number: NIA_CG_057-2	**Implementation Date: January 202~~3~~4**

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.***

INDICATIONS FOR LOWER EXTREMITY CT (FOOT, ANKLE, KNEE, LEG or HIP)
(Plain radiographs must precede CT evaluation)

Some indications are for MRI, CT, or MR or CT Arthrogram. More than one should not be approved at the same time.

If a CT Arthrogram fits approvable criteria below, approve as CT.

~~**Joint specific provocative orthopedic examination** when MRI is contraindicated or cannot be performed (see Table 1)~~
~~**Note**: With a positive orthopedic sign, an initial x-ray is always preferred. However, it is not required to approve advanced imaging.~~
~~○ Ankle~~
~~○ Unstable syndesmotic injury (high ankle injury)~~
~~▪ With inconclusive stress x-rays (a standing CT is preferred)~~

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- ~~Can have positive fibular translation, squeeze or cotton test, but imaging may be needed to confirm diagnosis~~

~~○ Knee[1-7]~~

- ~~Any positive test listed~~
  - ~~McMurray's~~
  - ~~Apley'sLachman's~~
  - ~~Anterior or Posterior Drawer sign~~
  - ~~Varus or valgus stress~~
  - ~~Acute mechanical locking of the knee not due to guarding[8]~~

~~○ Hip~~

- ~~Anterior Impingement sign (labral tear)[9-11]~~

~~○ Posterior Impingement sign (labral tear)[12]~~

Joint or muscle pain without positive findings on an orthopedic exam as listed ~~above~~below and , after x-ray completed~~ and an MRI is contraindicated or cannot be performed ~~[1-3] (does not apply to young children~~)[3, 13]~~**). If MRI contraindicated or cannot be performed or requested as a CT arthrogram**

- Persistent joint or musculotendinous pain unresponsive to conservative treatment*, within the last 6 months which includes active medical therapy (physical therapy, chiropractic treatments, and/or physician ~~-~~supervised exercise**) of at least four (4) weeks, **OR**
- With progression or worsening of symptoms during the course of conservative treatment

Joint specific approvable provocative orthopedic examination tests and suspected injuries[4] (If MRI contraindicated or cannot be performed or requested as a CT arthrogram).

Note: With a positive orthopedic sign, an initial x-ray is always preferred, however, it is not required to approve advanced imaging UNLESS otherwise specified in bold below. Any test that suggests joint instability requires further imaging (list is not all inconclusive)

ANKLE[5-7]

- **Syndesmotic injury (high ankle injury) with tenderness to palpation over the syndesmosis (AITFL – anterior inferior tibiofibular ligament) and any of the following:**
  - **Positive stress x-rays**
  - **Squeeze test**
  - **Cotton test**
  - **Dorsiflexion external rotation test.**
- **Unstable lateral injury to ATFL (anterior talofibular ligament) with suspicion of a possible associated fracture around the ankle or a possible osteochondral injury of the talus AFTER non-diagnostic or inconclusive x-rays and any ONE of the following:**
  - **Positive stress x-rays**

- Positive anterior drawer test
- Positive posterior drawer test

- Achilles tendon tear
  - Thompson test

KNEE[1, 8-12]

- Anterior cruciate ligament (ACL) Injury
  - Positive testing:
    - Anterior drawer
    - Lachman's
    - Pivot shift test

  OR

- Suspected ACL Rupture - Acute knee injury with physical exam limited by pain and swelling AFTER initial x-ray completed[13, 14]
  - Based on mechanism of injury, i.e., twisting, blunt force
    - Normal x-ray:
  - Extreme pain, inability to stand, audible pop at time of injury, very swollen joint
  - Abnormal x-ray:
    - Large joint effusion on x-ray knee effusion
- Acute mechanical locking of the knee not due to guarding[15]
- Meniscal injury/tear (A positive test is denoted by pain or audible/palpable clunk)
  - McMurray's Compression
  - Apley's
  - Thessaly test
- Patellar dislocation (acute or recurrent)
  - Positive patellofemoral apprehension test
  - Radiographic findings compatible with a history of patellar dislocation (i.e., lipohemarthrosis or osteochondral fracture)
- Posterior cruciate ligament (PCL) injury
  - Posterior drawer
  - Posterior tibial sag (Godfrey or step-off test)
- Medial collateral ligament tear
  - Positive valgus stress testing/laxity
- Lateral Collateral ligament tear
  - Positive Varus stress testing/laxity

HIP

- Femoroacetabular impingement (FAI)/ Labral tear
  - Anterior Impingement sign (aka FADIR test)[16-18]

- **Posterior Impingement sign (Pain with hip extension and external rotation on exam)[19]**
- Persistent hip mechanical symptoms **(after initial radiographs completed)** including clicking, locking, catching, giving way or hip instability with a clinical suspicion of labral tear~~, with or without clinical findings suggestive of impingement[12, 14]~~ **and/or radiographic findings suggestive of FAI (i.e cross over sign/pistol grip deformity) and suspected labral tear**
- **To determine candidacy for hip preservation surgery for known FAI[20]**

NOTE: For evaluation of both hips when the patient meets hip MRI guidelines (x-ray + persistent pain unresponsive to conservative treatment) for both the right and left hip, Pelvis MRI (NIA_CG_037) is the preferred study

- **If labral tear is suspected and fulfills above criteria, then bilateral hip MRIs are the preferred studies (not Pelvis MRI)**
- **If bilateral hip arthrograms are requested and otherwise meet guidelines, bilateral hip MRIs are the preferred studies (not Pelvis MRI)**

Tendon Rupture after x-ray[21-24] (not listed in above) - If MRI contraindicated or cannot be performed.

- **High clinical suspicion of specific tendon rupture based on mechanism of injury and physical findings (i.e., palpable defect in quadriceps or patellar tendon rupture)**

Trauma

~~**Ankle instability and suspected anterior talofibular ligament rupture** (anterior and posterior drawer tests) as a result of a sprain requires initial active conservative therapy (above) and x-ray~~

~~**Painful acquired or congenital flatfoot deformity in an adult**, after x-ray completed and MRI is contraindicated~~

- ~~After failure of active conservative therapy listed above[15, 16]~~

Bone Fracture (If MRI contraindicated or cannot be performed)

- **Hip and femur**
  - **Suspected occult, stress or insufficiency fracture with a negative or non-diagnostic initial x-ray[25]:**
    - **Approve an immediate CT if contraindication to MRI or MRI cannot be performed (no follow up radiographs required)**
- **Non-hip extremities: suspected occult, stress, or insufficiency fracture**
  - **If x-rays, taken 10-14 days after the injury or clinical assessment, are negative or nondiagnostic[26]**

- **If at high risk for a complete fracture with conservative therapy (e.g., navicular bone), then immediate CT is warranted[27]**

- **Pathologic or concern for impending fracture on x-ray[28] - approve immediate CT**
- **Suspected ligamentous/tendon injury with known fractures on x-ray that may require surgery**

Fracture Nonunion

- Nonunion or delayed union as demonstrated by no healing between two sets of x-rays. If a fracture has not healed by 4-6 months, there is delayed union. Incomplete healing by 6-8 months is nonunion

Osteochondral Lesions (defects, fractures, osteochondritis dissecans) and x-ray done [8, 29-32]

- Clinical suspicion based on mechanism of injury and physical findings

Joint prosthesis/replacement

- **Suspected joint prosthesis loosening or dysfunction, (i.e. pseudotumor formation) after initial x-rays [33, 34]**
- **Suspected metallosis with painful metal on metal hip replacement after initial x-rays**
  - **After initial x-rays and Cobalt - chromium levels > 7ppb[35]**
  - **Abnormal joint aspiration**

Extremity Mass

- Mass or lesion after non-diagnostic x-ray or ultrasound[~~17~~ ~~and~~[36]. MRI ~~cannot be performed.~~**preferred.** CT is better than MRI to evaluate mass calcification or bone involvement and may complement or replace MRI[~~18~~37]
  - Baker's cyst should be initially evaluated with ultrasound
  - If superficial, then ultrasound is the initial study
  - If deep, then x-ray is the initial study
- **Vascular malformations**
  - **After initial evaluation with ultrasound and results will change management or for preoperative planning[38]**
    - **CTA is also approvable for initial evaluation**
  - **Follow up after treatment/embolization**

Known Primary Cancer of the Extremity[~~19-23~~39-43]

- ~~Cancer~~**Initial** staging **primary extremity tumor**

~~- Cancer Restaging~~

- **Follow-up of known primary cancer of patient undergoing active treatment within the past year or as per surveillance imaging guidance for that cancer**
- Signs or symptoms ~~of~~**or imaging findings suspicious for** recurrence

- **Suspected metastatic disease with signs/symptoms and after initial imaging with radiographs**

Further evaluation of indeterminate or questionable findings on prior imaging and MRI cannot be performed or CT is preferred (i.e., tumor matrix):

- **For initial evaluation of an inconclusive finding on a prior imaging report (i.e., x-ray, ultrasound, MRI) that requires further clarification.**
- **One follow-up exam of a prior indeterminate MR/CT finding to ensure no suspicious interval change has occurred. (No further surveillance unless specified as highly suspicious or change was found on last follow-up exam**

Osteonecrosis (Avascular necrosis (AVN), Legg-Calve-Perthes Disease) when MRI is contraindicated or cannot be performed[44-46]

- **To further characterize a prior abnormal x-ray**
  Normal or indeterminate x-rays but symptomatic and high risk (e.g., glucocorticosteroid use, renal transplant recipient, glycogen storage disease, alcohol abuse,
- ~~**Infection of Bone or Joint**[24, 25]~~[47] **sickle cell anemia**[48]**)**
- **Known osteonecrosis to evaluate a contralateral joint after initial x-rays**

Loose bodies or synovial chondromatosis and after x-ray or ultrasound completed (If MRI contraindicated or cannot be completed)

- **In the setting of joint pain or mechanical symptoms**[49]

Infection of Bone, Joint, or Soft tissue abscess[50, 51]

Note: MRI and nuclear medicine studies are recommended for acute infection as they are more sensitive in detecting early changes of osteomyelitis.[~~26, 27~~52, 53] CT is better at demonstrating findings of chronic osteomyelitis (sequestra, involucrum, cloaca, sinus tracts) as well as detecting soft tissue gas and foreign bodies.[~~28~~54]

- Abnormal x-ray or ultrasound
- Negative x-ray but with a clinical suspicion of infection
  - Signs and symptoms of joint or bone infection include:
    - Pain and swelling
    - Decrease range of motion
    - Fevers
  - Laboratory findings of infection include **any of the following**:
    - Elevated ESR or CRP
    - Elevated white blood cell count
    - Positive joint aspiration

- Ulcer (diabetic, pressure, ischemic, traumatic) with signs of infection (redness, warm, swelling, pain, discharge which may range from white to serosanguineous) that is not improving despite treatment and bone or deep infection is suspected[29][55]
    - Increased suspicion if size or temperature increases, bone is exposed/positive probe-to-bone test, new areas of breakdown, new smell[30][56]
- Neuropathic foot with friable or discolored granulation tissue, foul odor, non-purulent discharge, and delayed wound healing[31][57]

~~**Osteonecrosis (Avascular necrosis (AVN), Legg-Calve-Perthes Disease) when MRI is contraindicated or cannot be performed**[32] [34]~~

- ~~Abnormal x-ray~~

Pre-operative/procedural evaluation

- Pre-operative evaluation for a planned surgery or procedure

Post-operative/procedural evaluation

- When imaging, physical, or laboratory findings indicate joint infection, delayed or non-healing, or other surgical/procedural complications
- Trendelenburg sign or other indication of muscle or nerve damage after recent hip surgery

- ~~Normal or indeterminate x-rays but symptomatic and high risk (e.g., glucocorticosteroid use, renal transplant recipient, glycogen storage disease, alcohol abuse,[35] sickle cell anemia[36])~~

For evaluation of known or suspected autoimmune disease (e.g., rheumatoid arthritis) and MRI is contraindicated or cannot be performed[37][58]

- Further evaluation of an abnormality or non-diagnostic findings on prior imaging
- Initial imaging of a single joint for diagnosis or response to therapy after plain films and appropriate lab tests (e.g., RF, ANA, CRP, ESR)
- To determine change in treatment or when diagnosis is uncertain prior to start of treatment
- Follow-up to determine treatment efficacy of **the following**:~~Early rheumatoid arthritis~~
    - Early rheumatoid arthritis
    - ~~Follow-up to determine treatment efficacy of~~ Advanced rheumatoid arthritis if x-ray and ultrasound are equivocal or ~~noncontributory~~**non-contributory**

Known or suspected inflammatory myopathies (If MRI contraindicated or cannot be performed): (Includes polymyositis, dermatomyositis, immune-mediated necrotizing myopathy, inclusion body myositis)[59, 60]

- **For diagnosis**
- **For biopsy planning**

Crystalline Arthropathy

- ~~Dual-energy CT can be used to characterize crystal deposition disease, such as gout versus CPPD[38]~~

~~**Trauma**~~

~~**Bone Fracture**~~

- ~~Suspected stress or insufficiency fracture with a negative initial x-ray[39-41]:~~
  - ~~If hips and MRI cannot be done~~
  - ~~Non-hip extremities: if x-rays, taken 10-14 days after the injury or clinical assessment, are negative or nondiagnostic[42]~~
  - ~~If at high risk for a complete fracture with conservative therapy (e.g., navicular bone) and MRI cannot be performed[43]~~
- ~~Suspected acute hip fracture with initial x-rays negative or non-diagnostic[11, 44]~~
- ~~Intra-articular fractures that may require surgery (i.e., depressed tibial plateau fracture)[45]~~
- ~~Nonunion or delayed union as demonstrated by no healing between two sets of x-rays. If a fracture has not healed by 4-6 months, there is delayed union. Incomplete healing by 6-8 months is nonunion[46, 47]~~

Dual-energy CT can be used to characterize crystal deposition disease (i.e., gout)

- ~~**Tendon or Muscle Rupture**~~ after ~~**X-Ray**~~
  - **Appropriate rheumatological work up** and ~~MRI is contraindicated or~~ **initial x-rays AND**
  - **After inconclusive joint aspiration or when joint aspiration** cannot be performed[48-50] OR[61]
- ~~Clinical suspicion based on mechanism of injury and physical findings~~

~~**Suspected ACL Rupture -** Acute knee injury with physical exam limited by pain and swelling with x-ray completed (Wheeless, 2018) if MRI is contraindicated[6]~~

- ~~Inability to perform because of pain and swelling should be considered a red flag~~
  - ~~Suspicion should be Based on mechanism of injury, i.e., twisting, blunt force~~
    - ~~Normal x-ray:~~
  - ~~Extreme pain, inability to stand, audible pop at time of injury, very swollen joint, leg numbness~~
    - ~~Abnormal x-ray:~~
  - ~~Large joint effusion on x-ray knee effusion[51]~~

~~**Osteochondral Lesions** (defects, fractures, osteochondritis dissecans) and x-ray done (if MRI contraindicated or cannot be done)[6, 14, 52-54]~~

- ~~Clinical suspicion based on mechanism of injury and physical findings~~

~~**Foreign Body**[55]~~

- ~~Indeterminate x-ray and ultrasound~~

~~**Loose bodies or synovial chondromatosis seen on x-ray or ultrasound**~~

- ~~In the setting of joint pain~~[56]
    - **In the setting of extra-articular crystal deposits (i.e., tendons or bursa)**

Peripheral Nerve Entrapment (e.g., tarsal tunnel, Morton's neuroma) and MRI is contraindicated **or cannot be performed**, including any of the following[57-60]62-65

- Abnormal Electromyogram or Nerve conduction study
- Abnormal x-ray or ultrasound
- Clinical suspicion and failed 4 weeks conservative treatment including at least 2 of the following (active treatment with physical therapy is not required):
    - Activity modification
    - Rest, ice, or heat
    - Splinting or orthotics
    - Medication

~~**Pediatrics**~~

~~**Note:**~~ **Leg length discrepancy**

- ~~– the literature indicates that standing plain film x-rays are preferred, but there are some advantages to using a~~ CT scanogram [66, 67]

Foreign Body[68]

- Indeterminate x-ray and ultrasound

~~instead and may~~**Painful acquired or congenital flatfoot deformity in an adult, after x-ray completed and MRI is contraindicated or cannot** be ~~preferred~~**performed**.

- **After failure of active conservative therapy listed above**[61, 62]69, 70

Pediatrics

- ~~Osteoid Osteoma after an x-ray is done~~[63]
- ~~Painful flatfoot (Pes planus) deformity with suspected tarsal coalition, not responsive to active conservative care~~[64]**Osteoid Osteoma after an x-ray is done**[71]
- **Painful flatfoot (pes planus) deformity with suspected tarsal coalition, not responsive to active conservative care**[72]
    - When MRI cannot be performed~~; OR~~

- Extra-articular coalition is suspected (bony bridges around the joints~~); OR~~)
- When needed for surgical planning[65]~~73~~

- ~~Slipped Capital Femoral Epiphysis and Chronic Recurrent Multifocal Osteomyelitis – MRI is the appropriate modality, rather than CT~~

~~Pre-operative/procedural evaluation~~

- ~~Pre-operative evaluation for a planned surgery or procedure~~

~~Post-operative/procedural evaluation~~

- ~~When imaging, physical, or laboratory findings indicate joint infection, delayed or non-healing, or other surgical/procedural complications~~
- ~~Joint prosthesis loosening or dysfunction, x-rays non-diagnostic[66, 67]~~
- ~~Trendelenburg sign or other indication of muscle or nerve damage after recent hip surgery~~

~~Table 1: Positive Orthopedic Joint Tests, Lower Extremity~~

~~ANKLE~~

~~Fibular translation~~
~~Squeeze~~
~~Cotton~~
~~Thompson~~
~~Thumb squeeze test~~
~~Mulder click~~

~~HIP~~

~~KNEE~~

~~Anterior draw~~
~~Pivot shift test~~
~~Lachman~~
~~Posterior tibial Sag~~
~~Posterior Draw~~
~~McMurray's Test~~
~~Valgus stress~~
~~Varus stress~~
~~Ege~~

BACKGROUND

Plain radiographs are typically used as the first-line modality for assessment of lower extremity conditions. Computed tomography (CT) is used for evaluation of tumors, metastatic lesions, infection, fractures, and other problems. Magnetic resonance imaging (MRI) is the first-line choice for imaging of many conditions, but CT may be used in these cases if MRI is contraindicated or unable to be performed.

OVERVIEW

***Conservative Therapy** – (musculoskeletal) should include a multimodality approach consisting of a combination of active and inactive components. Inactive components such as rest, ice, heat, modified activities, medical devices (such as crutches, immobilizer, metal braces, orthotics, rigid stabilizer, or splints, etc. and not to include neoprene sleeves), medications, injections (bursal, and/or joint, not including trigger point), and diathermy, can be utilized. Active modalities may consist of physical therapy, a physician-supervised home exercise program**, and/or chiropractic care.

****Home Exercise Program (HEP)** – the following two elements are required to meet guidelines for completion of conservative therapy:

- Information provided on exercise prescription/plan AND
- Follow up with member with information provided regarding completion of HEP (after suitable 4-week period), or inability to complete HEP due to physical reason- i.e., increased pain, inability to physically perform exercises. (Patient inconvenience or noncompliance without explanation does not constitute “inability to complete” HEP).

~~**Joint Implants and Hardware –** Dual-energy CT may be useful for metal artifact reduction if available but is also imperfect as the correction is based on a projected approximation of x-ray absorption, and it does not correct for scatter.[68] Dual-energy CT can be used to characterize crystal deposition disease, such as gout versus CPPD (calcium pyrophosphate deposition).[38]~~

~~**CT and Ankle Fractures –** One of the most frequently injured areas of the skeleton is the ankle. These injuries may include ligament sprains, as well as fractures. A suspected fracture is first imaged with conventional radiographs in anteroposterior, internal oblique and lateral projections. CT is used in patients with complex ankle and foot fractures after radiography.~~

~~**CT and Hip Trauma –** Computed tomography is primarily used to evaluate acute trauma, e.g., acetabular fracture or hip dislocation. It can detect intraarticular fragments and associated articular surface fractures, and it is useful in surgical planning.~~

~~**CT and Knee Fractures –** CT is used after plain films to evaluate fractures to the tibial plateau. These fractures occur just below the knee joint, involving the cartilage surface of the knee. Soft tissue injuries are usually associated with the fractures. The meniscus is a stabilizer of the knee,~~

~~and it is very important to detect meniscal injury in patients with tibial plateau fractures. CT of the knee with two-dimensional reconstruction in the sagittal and coronal planes may be performed for evaluation of injuries with multiple fragments and comminuted fractures. Spiral CT has an advantage of rapid acquisition and reconstruction times and may improve the quality of images of bone. Soft tissue injuries are better demonstrated with MRI.~~

~~**CT and Knee Infections** – CT is used to depict early infection which may be evidenced by increased intraosseous density or the appearance of fragments of necrotic bone separated from living bone by soft tissue or fluid density. Contrast-enhanced CT may help in the visualization of abscesses and necrotic tissue.~~

~~**CT and Knee Tumors** – CT complements arthrography in diagnosing necrotic malignant soft-tissue tumors and other cysts and masses in the knee. Meniscal and ganglion cysts are palpable masses around the knee. CT is useful in evaluations of the vascular nature of lesions.~~

~~**CT and Legg-Calve-Perthes Disease (LPD)** – This childhood condition is associated with an insufficient blood supply to the femoral head which is then at risk for osteonecrosis. Clinical signs of LPD include a limp with groin, thigh, or knee pain. Flexion and adduction contractures may develop as the disease progresses and eventually movement may only occur in the flexion-extension plane. This condition is staged based on plain radiographic findings. CT scans are used in the evaluation of LPD and can demonstrate changes in the bone trabecular pattern. They also allow diagnosis of bone collapse and sclerosis early in the disease where plain radiography is not as sensitive.~~

Joint Implants and Hardware – Dual-energy CT may be useful for metal artifact reduction if available but is also imperfect as the correction is based on a projected approximation of x-ray absorption, and it does not correct for scatter.[74] Dual-energy CT can be used to characterize crystal deposition disease, such as gout versus CPPD (calcium pyrophosphate deposition).[61]

CT and Osteolysis – Since computed tomography scans show both the extent and the location of lytic lesions, they are useful to guide treatment decisions, as well as to assist in planning for surgical intervention when needed, in patients with suspected osteolysis after Total Hip Arthroplasty (THA).

~~**CT and Tarsal Coalition** – This is a congenital condition in which two or more bones in the mid-foot or hind-foot are joined. It usually presents during late childhood or late adolescence and is associated with repetitive ankle sprains. Mild pain, deep in the subtalar joint and limited range of motion are clinical symptoms. Tarsal coalition is detectable on oblique radiographs, but these are not routinely obtained at many institutions. Clinical diagnosis is not simple; it requires the expertise of skilled examiners. CT is valuable in diagnosing tarsal coalition because it allows differentiation of osseous from non-osseous coalitions and depicts the extent of joint~~

~~involvement as well as degenerative changes. It may also detect the overgrowth of the medial aspect of the talus that may be associated with talocalcaneal coalitions.~~

American Academy of Pediatrics "Choosing Wisely" Guidelines advise against ordering advanced imaging studies (MRI or CT) for most musculoskeletal conditions in a child until all appropriate clinical, laboratory and plain radiographic examinations have been completed. **"**History, physical examination, and appropriate radiographs remain the primary diagnostic modalities in pediatric orthopedics, as they are both diagnostic and prognostic for the great majority of pediatric musculoskeletal conditions. Examples of such conditions would include, but not be limited to, the work up of injury or pain (spine, knees and ankles), possible infection, and deformity. MRI examinations and other advanced imaging studies frequently require sedation in the young child (5 years old or less) and may not result in appropriate interpretation if clinical correlations cannot be made. Many conditions require specific MRI sequences or protocols best ordered by the specialist who will be treating the patient…if you believe findings warrant additional advanced imaging, discuss with the consulting orthopedic surgeon to make sure the optimal studies are ordered."~~69~~75

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POLICY HISTORY

Date	Summary
May 2023	• Updated orthopedic signs • Added ○ When contraindicated to MRI where appropriate ○ Metallosis ○ Evaluation of indeterminate findings on imaging reports ○ Non-diagnostic imaging ○ CPT code for leg length ○ Statement regarding clinical indications not addressed in the guideline • Clarified hip versus pelvis imaging • Updated DECT • Modified ○ References. ○ Background section ○ Cancer of the extremity section
March 2022	• Clarification of language for non-hip stress fractures • Deleted Thessaly sign based on updated literature
~~May 2021~~	~~• Added unstable syndesmotic injury~~ ~~• Removed ankle instability~~ ~~• Added the following: navicular bone to high risk stress fracture, information about suspected bone infection in the setting of ulcers and neuropathy and following treatment for rheumatoid arthritis~~ ~~• Clarified that pre-operative imaging is for *a planned surgery or procedure*~~ ~~• Removed *CT or MRI requests are *not* approvable for the following total knee arthroplasty (TKA) procedures:~~ ~~○ Procedures utilizing computer-navigated or patient-specific or gender-specific instrumentation (Johnson, 2011)~~ ~~○ Bicompartmental arthroplasty (investigational at this time) (Dudhniwala, 2016)~~ ~~○ **Note**: Robot-assisted TKA (Makoplasty) (Banerjee, 2015; Nair, 2014)~~ ~~These surgical procedures are not considered a covered service and are not reimbursable based on lack of current scientific evidence for clinically important improvement, safety or efficacy; or based on scientific evidence of increased risk of serious complications.~~

	• Included early complications of hip surgery to the post operative evaluation list
May 2020	• Expanded orthopedic signs listing and moved to the top • Added note: With a positive orthopedic sign, an initial x-ray is always preferred. However, it is not required to approve advanced imaging. • Added labral tear/posterior impingement to approvable list • Added flatfoot deformity • Expanded section about initial work-up of a mass • Added the National Comprehensive Care Network as a reference for imaging guidance • Expanded the section on osteomyelitis • Added section on crystalline arthropathy • Revised the section on non or delayed union • Added a section on loose bodies and synovial chondromatosis • Added a pediatric section • Removed Makoplasty from not approvable list • Added a section about joint implants and hardware to the background section • Updated references
May 2019	• Reformatting in parallel with the new LE MRI. Updated references • Added indication: peripheral nerve entrapment • Criteria for approval of existing indications specified within the parameters of the current evidence base • Added initial statement about approvals: 'Some indications are for MRI, CT, or MR or CT Arthrogram. More than one should not be approved at the same time'. • Added Extremity mass indications including peripheral lymphadenopathy; and mass with increased risk for malignancy • Modified Known Cancer indication to be more broad – 'cancer staging, cancer restaging, signs or symptoms of recurrence' • Expanded section for infection of bone or joint to include list of signs or symptoms and laboratory findings (elevated ESR or CRP, elevated white blood cell count, positive joint aspiration)

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Reviewed / Approved by NIA Clinical Guideline Committee

~~**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.*~~

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