



CLINICAL GUIDELINES

Musculoskeletal Imaging Policy

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eviCore healthcare Clinical Decision Support Tool Diagnostic Strategies: This tool addresses common symptoms and symptom complexes. Imaging requests for individuals with atypical symptoms or clinical presentations that are not specifically addressed will require physician review. Consultation with the referring physician, specialist and/or individual's Primary Care Physician (PCP) may provide additional insight.

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Procedure Codes associated with Musculoskeletal Imaging

MRI/MRA	CPT®
MRI Upper Extremity, other than joint, without contrast	73218
MRI Upper Extremity, other than joint, with contrast	73219
MRI Upper Extremity, other than joint, without and with contrast	73220
MRI Upper Extremity, any joint, without contrast	73221
MRI Upper Extremity, any joint, with contrast	73222
MRI Upper Extremity, any joint, without and with contrast	73223
MR Angiography Upper Extremity without or with contrast	73225
MRI Lower Extremity, other than joint, without contrast	73718
MRI Lower Extremity, other than joint, with contrast	73719
MRI Lower Extremity, other than joint, without and with contrast	73720
MRI Lower Extremity, any joint, without contrast	73721
MRI Lower Extremity, any joint, with contrast	73722
MRI Lower Extremity, any joint, without and with contrast	73723
MR Angiography Lower Extremity without or with contrast	73725
MRI Pelvis without contrast	72195
MRI Pelvis with contrast	72196
MRI Pelvis without and with contrast	72197
CT/CTA	CPT®
CT Upper Extremity without contrast	73200
CT Upper Extremity with contrast	73201
CT Upper Extremity without and with contrast	73202
CT Angiography Upper Extremity without and with contrast	73206
CT Lower Extremity without contrast	73700
CT Lower Extremity with contrast	73701
CT Lower Extremity without and with contrast	73702
CT Angiography Lower Extremity without and with contrast	73706
CT Pelvis without contrast	72192
CT Pelvis with contrast	72193
CT Pelvis without and with contrast	72194
Nuclear Medicine	CPT®
Bone Marrow Imaging, Limited	78102
Bone Marrow Imaging, Multiple	78103
Bone Marrow Imaging, Whole Body	78104
Bone or Joint Imaging Limited	78300
Bone or Joint Imaging Multiple	78305
Bone Scan Whole Body	78306
Bone Scan 3 Phase Study	78315
Bone Joint Imaging Tomo Test SPECT	78320
Radiopharmaceutical localization of abscess; limited area	78805
Radiopharmaceutical localization of abscess; whole body	78806
Radiopharmaceutical localization of abscess; tomographic (SPECT)	78807

MS-1: General Guidelines

- Before advanced diagnostic imaging can be considered, there must be an initial face-to-face clinical evaluation as well as a clinical re-evaluation after a trial of failed conservative treatment; the clinical re-evaluation may consist of a face-to-face evaluation or other meaningful contact with the provider's office such as email, web or telephone communications.
- A face-to-face clinical evaluation is required to have been performed within the last 60 days before advanced imaging can be considered. This may have been either the initial clinical evaluation or the clinical re-evaluation.
- The initial face-to-face clinical evaluation should include a relevant history and physical examination, appropriate laboratory studies, and non-advanced imaging modalities. Other forms of meaningful contact (e.g., telephone call, electronic mail or messaging) are not acceptable as an initial evaluation.
- Prior to advanced imaging consideration, plain X-rays must be performed after the current episode of symptoms started or changed for all musculoskeletal conditions, unless otherwise noted in the guidelines.
- Clinical re-evaluation is required prior to consideration of advanced diagnostic imaging to document failure of significant clinical improvement following a recent (within 3 months) six week trial of provider-directed conservative treatment. Clinical re-evaluation can include documentation of a face-to-face encounter or documentation of other meaningful contact with the requesting provider's office by the patient (e.g. telephone call, electronic mail or messaging).
- Provider-directed conservative treatment may include rest, ice, compression, and elevation (R.I.C.E.), non-steroidal anti-inflammatories (NSAIDs), narcotic and non-narcotic analgesic medications, oral or injectable corticosteroids, viscosupplementation injections, a provider-directed home exercise program, cross-training, and/or physical/occupational therapy or immobilization by splinting/casting/bracing.
- Orthopedic specialist evaluation can be helpful in determining the need for advanced imaging.
 - ◆ The need for repeat advanced imaging should be carefully considered and may not be indicated if prior imaging has been performed.
 - ◆ Serial advanced imaging, whether CT or MRI, for surveillance of healing or recovery from musculoskeletal disease is not supported by the medical evidence in the majority of musculoskeletal conditions.

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MS-2.1: Plain X-Ray

- Should be done prior to advanced imaging in all musculoskeletal conditions/disorders, unless otherwise noted in the guidelines, to rule out those situations that do not often require advanced imaging, such as osteoarthritis, acute/healing fracture, dislocation, osteomyelitis, acquired/congenital deformities, and tumors of bone amenable to biopsy or radiation therapy (in known metastatic disease), etc.

MS-2.2: MRI or CT

- Magnetic Resonance Imaging (MRI) is often the preferred advanced imaging modality in musculoskeletal conditions because it is superior in imaging the soft tissues and can also define physiological processes in some instances [e.g. edema, loss of circulation (AVN), and increased vascularity (tumors)].
- Computed Tomography (CT) is preferred for imaging cortical bone anatomy; thus, it is useful for studying complex fractures (particularly of the joints), dislocations, and assessing delayed union or non-union of fractures, if plain X-rays are equivocal. CT may be the procedure of choice in patients who cannot undergo an MRI, such as those with pacemakers.
- In the absence of written payor instructions, CT/MRI should not be submitted for prior authorization with a diagnostic CT or MRI procedure code for preoperative treatment planning.

MS-2.3: Contrast Issues

- Most musculoskeletal imaging (MRI or CT) is without contrast; however, the following examples may be considered with contrast:
 - ◆ Tumors, osteomyelitis, and soft tissue infection (without and with contrast)
 - ◆ MRI arthrography (with contrast only)
 - ◆ MRI for rheumatoid arthritis and inflammatory arthritis (contrast as requested)
 - ◆ For patients with a contrast contraindication, if the advanced imaging recommendation specifically includes contrast, the corresponding advanced imaging study without contrast may be approved as an alternative, although the non-contrast study may not provide an adequate evaluation of the condition of concern.

MS-2.4: Positron Emission Tomography (PET)

- At the present time, there is inadequate evidence to support the medical necessity of PET for the routine assessment of musculoskeletal disorders. It should be considered experimental or investigational and will be forwarded to Medical Director review.
 - ◆ See also: **MS-16: Post-Operative Joint Replacement Surgery**

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MS-3: 3D Rendering

- Indications for musculoskeletal 3-D image post-processing for preoperative planning when conventional imaging is insufficient for:
 - ◆ Complex fractures/dislocations (comminuted or displaced) of any joint.
 - ◆ Spine fractures, pelvic/acetabulum fractures, intra-articular fractures.
- The code assignment for 3-D rendering depends upon whether the 3-D post-processing is performed on the scanner workstation (CPT® 76376) or on an independent workstation (CPT® 76377).
 - ◆ 2-D reconstruction (i.e. reformatting axial images into the coronal plane) is considered part of the tomography procedure, is not separately reportable, and does not meet the definition of 3-D rendering.
 - ◆ It is not appropriate to report 3-D rendering in conjunction with CTA and MRA because those procedure codes already include the post-processing.
 - ◆ In addition to the term “3-D,” the following terms may also be used to describe 3-D post-processing:
 - maximum intensity projection (MIP)
 - shaded surface rendering
 - volume rendering
- The 3-D rendering codes require concurrent supervision of image post-processing 3-D manipulation of volumetric data set and image rendering. Certain health plan payors do not reimburse separately for 3-D rendering while others may have differing indication/limitation criteria. In these cases, individual plan coverage policies may take precedence over eviCore guidelines.

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MS-4: Avascular Necrosis (AVN)/Osteonecrosis

MS-4.1: AVN

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MS-4.1: AVN

- Classification systems use a combination of plain radiographs, MRI, and clinical features to stage avascular necrosis. MRI of the area of concern without contrast can be performed when plain X-ray findings are negative or equivocal and clinical symptoms warrant further investigation for suspected avascular necrosis.
- Advanced imaging for AVN confirmed by plain X-ray is appropriate in the following situations:
 - ◆ Femoral head collapse:
 - MRI Hip without contrast (CPT® 73721) or CT Hip without contrast (CPT® 73700) for preoperative planning. See: **MS-24: Hip**.
 - ◆ Distal Femur:
 - MRI Knee without contrast (CPT® 73721) if needed for treatment planning. See: **MS-25: Knee**.
 - ◆ Talus:
 - MRI Ankle without contrast (CPT® 73721) if needed for treatment planning. See: **MS-26: Ankle**.
 - ◆ Tarsal navicular (Kohler Disease):
 - MRI Foot without contrast (CPT® 73718) if needed for treatment planning. See: **MS-27: Foot**.
 - ◆ Humeral head:
 - For preoperative planning prior to shoulder replacement: CT Shoulder without contrast (CPT® 73200) and/or MRI Shoulder without contrast (CPT® 73221). See: **MS-19: Shoulder**.
 - ◆ Lunate (Kienbock's Disease)/Scaphoid (Preiser's Disease):
 - CT Wrist without contrast (CPT® 73200) or MRI Wrist without contrast (CPT® 73221). See **MS-21: Wrist**.
- Patients with acute lymphoblastic leukemia and known or suspected osteonecrosis should be imaged according to guidelines in: **PEDONC-3.2: Acute Lymphoblastic Leukemia**
- Known or suspected osteonecrosis in long-term cancer survivors should be imaged according to guidelines in: **PEDONC-19.4: Osteonecrosis in Long Term Cancer Survivors**

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MS-5: Fractures

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MS-5.1: Acute

- CT or MRI without contrast is appropriate, if one of the following is present:
 - ◆ Complex (comminuted or displaced) fracture with or without dislocation on plain X-ray.
 - CT is preferred unless it is associated with neoplastic disease when MRI without/with contrast is preferred unless MRI contraindicated.
 - ◆ Patient presents initially to the requesting provider with a documented history of an acute traumatic event at least two weeks prior with a negative plain X-ray at the time of this face-to-face encounter and a clinical suspicion for an occult/stress/insufficiency fracture see: **MS-5.2: Suspected Occult/Stress/Insufficiency Fracture/Stress Reaction and Shin Splints.**
 - ◆ If plain X-rays are negative and an osteochondral fracture is still suspected, or if plain X-ray and clinical exam suggest an unstable osteochondral injury, either MRI without contrast, MRI with contrast (arthrogram), or CT with contrast (arthrogram) of the area of interest is indicated. See also **MS-13.1: Chondral/Osteochondral Lesions, Including Osteochondritis Dissecans and Fractures**

MS-5.2: Suspected Occult/Stress/Insufficiency Fracture/Stress Reaction and Shin Splints

- For suspected hip/femoral neck, tibia, pelvis/sacrum, tarsal navicular, proximal fifth metatarsal, or scaphoid occult/stress/insufficiency fractures, and suspected atypical femoral shaft fractures related to bisphosphonate use, MRI without contrast can be performed if the initial evaluation of history, physical exam and plain X-ray fails to establish a definitive diagnosis.
 - ◆ CT without contrast can be performed as an alternative to MRI for suspected insufficiency fractures of the pelvis/hip and suspected atypical femoral shaft fractures related to bisphosphonate see: **MS-23: Pelvis and MS-24: Hip**, and suspected occult fractures of the scaphoid see: **MS-21: Wrist.**
 - ◆ Tc-99m Bone scan whole body (CPT® 78306) with SPECT of the area of interest (CPT® 78320) is indicated for suspected fractures if MRI cannot be performed see: **MS-28: Nuclear Medicine.**
 - ◆ Tc-99m Bone scan Foot (CPT® 78315) is indicated for suspected occult or stress fractures of the tarsal navicular if MRI cannot be performed see: **MS-27: Foot.**
- MRI or CT without contrast can be performed for all other suspected occult/stress/insufficiency fractures when either:
 - ◆ Repeat plain X-rays remain non-diagnostic for fracture after a minimum of 10 days of provider-directed conservative treatment, or
 - ◆ Initial plain X-rays obtained a minimum of 14 days after the onset of symptoms are non-diagnostic for fracture
- For suspected shin splints, MRI of the lower leg without contrast (CPT® 73718) is appropriate after plain X-ray and failure of a 6-week trial of provider-directed conservative treatment.

- For periprosthetic fractures related to joint replacement see: **MS-16.1: Post-Operative Joint Replacement Surgery**, **MS-19: Shoulder**, **MS-20: Elbow**, **MS-24: Hip**, **MS-25: Knee**, and **MS-26: Ankle**.
- For stress reaction, advanced imaging is not medically necessary for surveillance or “return to play” decisions regarding a stress reaction identified on an initial imaging study.
- For stress fracture, an MRI without contrast of the area of interest is allowed as follow-up imaging for “return to play” evaluation at least 3 months after the initial imaging study. Any additional requests will be forwarded for Medical Director review.

MS-5.3: Other Indications

- CT or MRI without contrast is appropriate after recent (within 30 days) plain X-ray if one of the following is present:
 - ◆ Concern for delayed union or non-union of fracture or joint fusions.
 - ◆ As part of preoperative evaluation for a planned surgery of a complex fracture with or without dislocation.

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MS-6: Foreign Body

MS-6.1: Foreign Body - General

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MS-6.1: Foreign Body - General

- Plain X-ray is the initial imaging study for foreign bodies.
 - ◆ CT without contrast or MRI without and with contrast of the area of interest can be approved after plain X-rays rule out the presence of radiopaque foreign bodies.
 - ◆ Ultrasound examination of the area of interest (CPT®76882) is the preferred imaging modality for radiolucent (non-radiopaque) foreign bodies(e.g. wood, plastic).

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MS-7: Ganglion Cysts

MS-7.1: Ganglion Cysts – General

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MS-7.1: Ganglion Cysts – General

- Plain X-ray is the initial imaging study for ganglion cysts.
- MRI without contrast or without and with contrast is appropriate for occult ganglions (smaller cysts that remain hidden under the skin; suspected, but not palpable on physical examination) or cysts/masses in atypical anatomic locations.
- Advanced imaging is not indicated for ganglions that can be diagnosed by history and physical examination.

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MS-8: Gout/Calcium Pyrophosphate Deposition Disease [(CPPD)/ Pseudogout/ Chondrocalcinosis

MS-8.1: Gout-General	23
MS-8.2: CPPD (pseudogout /chondrocalcinosis)-General	23

MS-8.1: Gout-General

- Early stages of gout can be diagnosed clinically since radiographic findings are not present early in the disease course, however an initial plain X-ray is necessary to rule out other potential disease processes before requesting advanced imaging.
- CT without contrast, MRI without contrast, or MRI without and with contrast of the area of interest is indicated for soft-tissue tophi when infection or neoplasm is in the differential diagnosis.

MS-8.2: CPPD (Pseudogout /Chondrocalcinosis)-General

- CPPD can often be diagnosed from plain X-rays; advanced diagnostic imaging is generally not medically necessary.

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MS-9: Infection/Osteomyelitis

MS-9.1: Infection – General	25
MS-9.2: Septic Joint	25

MS-9.1: Infection – General

- MRI without and with contrast after plain X-ray(s) and:
 - ◆ Plain X-ray(s) are negative or do not suggest alternative diagnoses such as neuropathic arthropathy or fracture, and soft tissue or bone infection (osteomyelitis) is suspected; *or*
 - ◆ Plain X-ray(s) are positive for osteomyelitis, and the extent of infection into the soft tissues and any skip lesions require evaluation.
- CT without and with contrast can replace an MRI:
 - ◆ To assess the extent of bony destruction from osteomyelitis; CT can guide treatment decisions.
 - ◆ For preoperative planning
 - ◆ If MRI is contraindicated
- Patients with suspected spinal infections and diabetic foot infections are an exception to the above criteria
 - ◆ See: **SP-1.2: Red Flag Indications** for advanced imaging guidelines
 - ◆ See: **MS-27: Foot** for advanced imaging guidelines

MS-9.2: Septic Joint

- Analysis of joint fluid is most often sufficient to diagnose a septic joint. An MRI of the joint, without and with contrast is appropriate when standard or image-guided arthrocentesis is contraindicated, unsuccessful, or non-diagnostic, and the clinical documentation satisfies ALL of the following criteria:
 - ◆ History and physical examination findings [One of the following]:
 - Development of an acutely hot and swollen joint (< 2 weeks)
 - Decreased range of motion due to pain
 - Documented fever
 - ◆ Laboratory tests [One of the following]:
 - Leukocytosis
 - Elevated ESR or C-reactive protein
 - Analysis of the joint fluid is non-diagnostic
 - ◆ Plain X-ray of the joint
- MRI without and with contrast is appropriate after plain X-rays if the arthrocentesis is diagnostic and if there is a confirmed septic joint, to evaluate the extent of infection into the soft tissues and any skip lesions that would require evaluation.
- CT with contrast can replace MRI without and with contrast if MRI is contraindicated.

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MS-10: Soft Tissue Mass or Lesion of Bone

MS-10.1: Soft Tissue Mass	28
MS-10.2: Lesion of Bone	28

MS-10.1: Soft Tissue Mass

- History and physical exam should include documentation of: location, size, duration, growing or stable, solid/cystic, fixed/not fixed to the bone, discrete or ill-defined, and an association with pain.
- Plain X-ray should be performed initially. These plain X-rays could determine if an advanced imaging procedure is indicated, and if so, which modality is most appropriate. If non-diagnostic, these initial plain X-rays can provide complementary information if advanced imaging is indicated.
- MRI without and with contrast or without contrast is appropriate for:
 - ◆ Soft tissue mass(es)
 - ◆ Known or suspected soft tissue mass in a patient with a cancer predisposition syndrome if a recent ultrasound is inconclusive. **Plain X-ray is not required for these patients.** See: **PEDONC-2: Screening Imaging in Cancer Predisposition Syndromes**
- Advanced imaging is not indicated for:
 - ◆ Subcutaneous lipoma with no surgery planned
 - ◆ Ganglia see: **MS-7: Ganglion Cysts**
 - ◆ Sebaceous cyst

MS-10.2: Lesion of Bone

- History and physical exam should include documentation of: location, size, duration, growing or stable, discrete or poorly defined, and an association with pain.
- Complete radiograph of the entire bone containing the lesion of bone is required prior to consideration of advanced imaging.
- Many benign bone tumors have a characteristic appearance on plain X-ray and advanced imaging is not necessary. MRI without and with contrast. MRI without contrast, or CT without contrast may be indicated if one of the following applies:
 - ◆ Diagnosis uncertain based on plain X-ray appearance.
 - ◆ Imaging requested for preoperative planning.
- MRI without and with contrast or without contrast is appropriate when plain X-ray reveals an osteochondroma with clinical concern of malignant transformation.
- For Paget's Disease:
 - ◆ bone scan see: **MS-28: Nuclear Medicine** or MRI (contrast as requested) can be considered if the diagnosis (based on plain X-rays and laboratory studies) is in doubt
 - ◆ MRI (contrast as requested) can be considered if malignant degeneration, which occurs in up to 10% of cases, is suspected.

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MS-11: Muscle/Tendon Unit Injuries/Diseases

MS-11.1: Muscle/Tendon Unit Injuries/Diseases	31
MS-11.2: Acute Compartment Syndrome	31
MS-11.3: Chronic Exertional Compartment Syndrome	31

MS-11.1: Muscle/Tendon Unit Injuries/Diseases

- See: **MS-19: Shoulder** for clinical suspicion of a partial or complete rotator cuff tear.
- Plain X-ray is the initial imaging study for Muscle/Tendon Unit Injuries.
- MRI without contrast can be considered for a suspected partial tendon rupture of a specific (named) tendon.
- MRI without contrast can be performed on complete tendon ruptures for preoperative planning (for example, Achilles tendon rupture, posterior tibial tendon rupture, humeral insertion of the pectoralis major rupture, proximal and distal biceps tendon rupture, patellar ligament/tendon rupture, proximal/distal hamstring tendon rupture).
- MRI is not medically necessary for muscle belly strains/muscle tears.
- See **PN-6.2: Inflammatory Muscle Diseases** and **PEDMS-10.3: Inflammatory Muscle Diseases**.

MS-11.2: Acute Compartment Syndrome

- Advanced imaging is not indicated. Diagnosis is made clinically and by direct measurement of compartment pressure and is a surgical emergency.
 - ◆ Noninvasive methods of measuring compartment pressures and diagnosing acute compartment syndrome are under study, but are currently experimental, investigational, and unproven.

MS-11.3: Chronic Exertional Compartment Syndrome

- Direct measurement of compartment pressure remains the diagnostic standard. Noninvasive methods of measuring compartment pressures and diagnosing chronic exertional compartment syndrome are under study, but are currently experimental, investigational, and unproven.
 - ◆ Advanced imaging should only be considered when ruling out other potential causes of extremity pain following a plain X-ray and conservative treatment as indicated.

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MS-12: Osteoarthritis

MS-12.1: Osteoarthritis

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MS-12.1: Osteoarthritis

- Plain X-rays are performed initially and will reveal characteristic joint space narrowing, osteophyte formation, cyst formation, and subchondral sclerosis.
- CT without contrast is appropriate for preoperative planning in arthrodesis surgery and in joint replacement surgery when congenital or post-traumatic deformities are present in the elbow, wrist, hip, knee, and ankle.
 - ◆ CT Shoulder without contrast (CPT® 73200) and/or MRI Shoulder without contrast (CPT® 73221) are considered medically necessary for preoperative planning prior to shoulder replacement.
- In the absence of written payor instructions, CT/MRI should not be submitted for prior authorization with a diagnostic CT or MRI procedure code for preoperative treatment planning for customized to patient joint replacement surgery or Computer-Assisted Musculoskeletal Surgical Navigation Procedures because it is NOT for diagnostic purposes. Preoperative imaging studies (CT/MRI) utilized as part of intraoperative navigation for joint replacement surgery (e.g. MAKOplasty) are considered not medically necessary. See: **MS-2: Imaging Techniques** and **MS-3: 3D Rendering**.
- MRI arthrogram or CT arthrogram is appropriate when joint sparing/salvage reconstructive surgery is planned for the following:
 - ◆ Suspected concomitant rotator cuff tear of the shoulder see: **MS-19: Shoulder**
 - ◆ Suspected concomitant labral tear of the shoulder see: **MS-19: Shoulder**
 - ◆ Suspected concomitant labral tear of the hip see: **MS-24: Hip**
 - ◆ Suspected concomitant internal derangement of the knee see: **MS-25: Knee**

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MS-13: Chondral/Osteochondral Lesions

MS-13.1: Chondral/Osteochondral Lesions, Including Osteochondritis Dissecans and Fractures

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MS-13.1: Chondral/Osteochondral Lesions, Including Osteochondritis Dissecans and Fractures

- If plain X-rays are negative and an osteochondral fracture is still suspected, or if plain X-ray and clinical exam suggest an unstable osteochondral injury, either MRI without contrast, MRI with contrast (arthrogram), or CT with contrast (arthrogram) of the area of interest is indicated.
- If plain X-rays show a non-displaced osteochondral fragment, follow-up imaging should be with plain X-rays. Advanced imaging is not necessary.
- MRI without contrast or CT without contrast is indicated when healing cannot be adequately assessed on follow-up plain X-rays.

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MS-14: Osteoporosis

- Plain X-ray is not required for **MS-14: Osteoporosis**.
- Quantitative CT (CPT® 77078) can be approved for screening when DXA scanner is unavailable or known to be inaccurate for ANY of the following populations:
 - ◆ Women age ≥65 years
 - ◆ Men age >70 years
 - ◆ Women age <65 years who have additional risk factors for osteoporosis based on medical history and other findings:
 - Estrogen deficiency
 - A history of maternal hip fracture that occurred after age 50 years
 - Low body mass (<127 lb or 57.6 kg)
 - History of amenorrhea (>1 year before age 42 years)
 - ◆ Women age <65 years or men age <70 years who have additional risk factors:
 - Current use of cigarettes
 - Loss of height, thoracic kyphosis
 - ◆ Individuals of any age with bone mass osteopenia or fragility fractures on imaging studies such as radiographs, CT, or MRI
 - ◆ Individuals age 50 years and older who develop a wrist, hip, spine, or proximal humerus fracture with minimal or no trauma, excluding pathologic fractures
 - ◆ Individuals of any age who develop 1 or more insufficiency fractures
 - ◆ Premenopausal females or males age 20 to 50 years with risk factors:
 - Individuals with medical conditions that could alter bone mineral density
 - Chronic renal failure
 - Rheumatoid arthritis and other inflammatory arthritides
 - Eating disorders, including anorexia nervosa and bulimia
 - Organ transplantation
 - Prolonged immobilization
 - Conditions associated with secondary osteoporosis, such as gastrointestinal malabsorption or malnutrition, sprue, osteomalacia, vitamin D deficiency, endometriosis, acromegaly, chronic alcoholism or established cirrhosis, and multiple myeloma
 - Individuals who have had gastric bypass for obesity
 - Individuals with an endocrine disorder known to adversely affect bone mineral density (e.g., hyperparathyroidism, hyperthyroidism, or Cushing syndrome)
 - Individuals receiving (or expected to receive) glucocorticoid therapy for >3 months
 - Hypogonadal men older than 18 years and men with surgically or chemotherapeutically induced castration
 - Individuals beginning or receiving long-term therapy with medications known to adversely affect BMD (e.g. anticonvulsant drugs, androgen deprivation therapy, aromatase inhibitor therapy, or chronic heparin)

Note: Repeat screening quantitative computed tomography (QCT) can be approved no sooner than every two years.

- Quantitative CT scan (CPT® 77078) can be approved for non-screening/monitoring when DXA scanner is unavailable or known to be inaccurate for ANY of the following circumstances:
 - ◆ Follow-up in cases where QCT was the original study
 - ◆ Multiple healed vertebral compression fractures
 - ◆ Significant scoliosis
 - ◆ Advanced arthritis of the spine due to increased cortical sclerosis often with large marginal osteophytes. Obese patient over the weight limit of the dual-energy X-ray absorptiometry (DXA) exam table
 - ◆ Severely obese patients (BMI >35kg/m²)
 - ◆ Extremes in body height (i.e. very large and very small patients)
 - ◆ Patients with extensive degenerative disease of the spine
 - ◆ A clinical scenario that requires sensitivity to small changes in trabecular bone density (parathyroid hormone and glucocorticoid treatment monitoring).

Note: Repeat non-screening/monitoring QCT can be approved no earlier than one year following a change in treatment regimen, and only when the results will directly impact a treatment decision.

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MS-15: Rheumatoid Arthritis (RA) and Inflammatory Arthritis

MS 15.1: Rheumatoid Arthritis (RA) and Inflammatory Arthritis	40
MS-15.2: Pigmented Villonodular Synovitis (PVNS)	40

MS 15.1: Rheumatoid Arthritis (RA) and Inflammatory Arthritis

- Prior to advanced imaging, a physical exam and appropriate laboratory studies [for example: Lyme titers, rheumatoid factor (RF), anti-cyclic citrullinated peptide (anti-CCP), sedimentation rate (ESR), C-reactive protein (CRP), and antinuclear antibody (ANA)], joint fluid analysis and plain X-rays should be performed.
- MRI without contrast or MRI without and with contrast is appropriate for the most symptomatic joint, or of the dominant hand or wrist, in the following situations:
 - ◆ When diagnosis is uncertain prior to initiation of drug therapy.
 - ◆ To study the effects of treatment with disease modifying anti-rheumatic drug (DMARD) therapy.
 - ◆ To identify seronegative RA patients that might benefit from early DMARD therapy.
 - ◆ To determine change in treatment, such as:
 - Switching from standard DMARD therapy to tumor necrosis factor (TNF) therapy.
 - Changing to a different TNF drug therapy, then one MRI (contrast as requested) of a single joint can be performed.
 - Addition of other treatments, including joint injections
- MRI should NOT be considered for routine follow-up of treatment.

MS-15.2: Pigmented Villonodular Synovitis (PVNS)

- Following plain X-rays, MRI of the affected joint without contrast, or CT of the affected joint with contrast (arthrogram) if MRI contraindicated.

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MS-16: Post-Operative Joint Replacement Surgery

MS-16.1: Post-Operative Joint Replacement Surgery - General 43

MS-16.1: Post-Operative Joint Replacement Surgery - General

- Complications following joint replacement surgery include (not limited to) periprosthetic fracture, infection, aseptic loosening, failure of fixation/component malposition, and wear.
- CT without contrast or bone scan (CPT® 78315 or CPT® 78320) may be indicated for the evaluation of suspected aseptic loosening of orthopaedic joint replacements when recent plain X-ray is nondiagnostic.
 - ◆ CT shoulder without contrast (CPT® 73200) can be performed as additional imaging following plain X-rays regardless of plain X-ray findings. See **MS-19: Shoulder**
 - The usefulness of bone scan for the evaluation of suspected aseptic loosening of a shoulder replacement may be limited as bone remodeling-related increased uptake can be seen at the site of joint replacement for up to 1 year following surgery.
- CT without contrast is appropriate with a high suspicion for a periprosthetic fracture and a negative plain X-ray.
 - ◆ CT shoulder without contrast (CPT® 73200) can be performed as additional imaging following plain X-rays regardless of plain X-ray findings. See **MS-19: Shoulder**
- Joint aspiration is the initial evaluation after plain X-ray for a painful joint replacement when periprosthetic infection is suspected.
 - ◆ For suspected infection with negative or inconclusive joint aspiration culture see: **MS-28: Nuclear Medicine**
- For specific joints post-operative from replacement surgery:
 - ◆ See **MS-19: Shoulder**
 - ◆ See **MS-20: Elbow**
 - ◆ See **MS-24: Hip**
 - ◆ See **MS-25: Knee**
 - ◆ See **MS-26: Ankle**
- MRI hip without contrast (CPT® 73721) and ultrasound (CPT® 76881) are both appropriate for the diagnosis of ALVAL (aseptic lymphocytic-dominated vasculitis-associated lesion) pseudotumors surrounding metal-on-metal (MoM) hip prostheses. One of these two imaging modalities can be approved but not both. See: **MS-10.1: Soft Tissue Mass or Lesion of Bone**
- MRI hip without contrast (CPT® 73721) or ultrasound (CPT® 76881) are both appropriate for Metal-On-Metal (MoM) Hip Prostheses that are considered high risk for implant performance issues from THA cup-neck impingement and subsequent ALTR with Co and Cr ion levels greater than 10 ppb.
- CT hip without contrast (CPT® 73700) or MRI hip without contrast (CPT® 73721) is appropriate to evaluate suspected particle disease (aggressive granulomatous disease) of the hip when infection has been excluded.

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MS-17: Limb Length Discrepancy

MS-17.1: Limb Length Discrepancy

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MS-17.1: Limb Length Discrepancy

- Requests will be sent to Medical Director Review. Either plain radiographic or “CT scanogram,” both reported with CPT® 77073, is appropriate to radiographically evaluate limb length discrepancy due to congenital anomalies, acquired deformities, growth plate (physeal injuries or surgery), or inborn errors of metabolism.

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MS-18: Anatomical Area Tables – General Information

The imaging guidelines for each anatomical area are presented in table format. The table below includes a description of how each column header should be utilized for each guideline **MS-19: Shoulder** through **MS-27: Foot**.

Condition	Plain X-Ray?	Conservative Treatment	Advanced Imaging	Comments
Patient's condition	Is an initial plain X-ray required before advanced imaging can be approved? (Yes or No)	Is failure of 6 weeks of provider-directed conservative treatment within the past 12 weeks with clinical re-evaluation required? (Yes or No)	The appropriate advanced imaging indicated for this condition. In some scenarios, advanced imaging may not be indicated.	Additional comments related to the condition.

MS-19: Shoulder

Condition	Plain X-Ray?	Conservative Treatment	Advanced Imaging	Comments
General Shoulder Pain	Yes	Yes	<ul style="list-style-type: none"> ➤ MRI shoulder without contrast (CPT® 73221) ➤ CT shoulder with contrast (arthrogram) (CPT® 73201) if MRI contraindicated 	
Symptomatic Loose Bodies	Yes	No	<ul style="list-style-type: none"> ➤ MRI shoulder without contrast (CPT® 73221) 	
Impingement	Yes	Yes	<ul style="list-style-type: none"> ➤ MRI shoulder without contrast (CPT® 73221) or MRI shoulder with contrast (arthrogram) (CPT® 73222) ➤ CT shoulder with contrast (CPT® 73201) if MRI is contraindicated 	
Tendonitis/Bursitis	Yes	Yes	<ul style="list-style-type: none"> ➤ MRI shoulder without contrast (CPT® 73221) 	
Tendon Rupture (Biceps Long Head)	Yes	No	<ul style="list-style-type: none"> ➤ MRI shoulder without contrast (CPT® 73221) when clinical exam is inconclusive due to inability to visualize a “Popeye” sign clinically or for preoperative planning 	
Tendon Rupture (Pectoralis Major/Minor)	Yes	No	MRI Shoulder without contrast (CPT® 73221) or MRI Chest without contrast (CPT® 71550) when clinical exam is inconclusive or for preoperative planning	
Shoulder Rotator Cuff Tear (Complete and Partial)	Yes	Yes*	<ul style="list-style-type: none"> ➤ MRI shoulder without contrast (CPT® 73221) or MRI shoulder with contrast (arthrogram) (CPT® 73222) ➤ CT shoulder with contrast (CPT® 73201) if MRI is contraindicated 	*Conservative treatment is not required with an acute shoulder injury prior to the onset of symptoms and consideration of surgery. For surgery criteria, see <u>CMM-315: Shoulder Surgery-Arthroscopic and Open Procedures.</u>

<p>Partial Tendon Rupture (Excluding Partial Rotator Cuff Tears)</p>	<p>Yes</p>	<p>No</p>	<ul style="list-style-type: none"> ➤ MRI shoulder without contrast (CPT® 73221) for a suspected partial tendon rupture of a specific named tendon not otherwise specified 	<p>MRI is <i>NOT</i> needed for muscle belly strains/muscle tears.</p>
<p>Shoulder Labral Tear (e.g., SLAP, ALPSA, HAGL)</p>	<p>Yes</p>	<p>No</p>	<ul style="list-style-type: none"> ➤ MRI shoulder with contrast (arthrogram) (CPT® 73222) ➤ CT shoulder with contrast (arthrogram) (CPT® 73201) if MRI contraindicated 	<p>For surgery criteria, see <u>CMM-315: Shoulder Surgery-Arthroscopic and Open Procedures.</u></p>
<p>Shoulder Dislocation, Subluxation, or Hill-Sachs lesions</p>	<p>Yes</p>	<p>Yes*</p>	<ul style="list-style-type: none"> ➤ *CT shoulder without contrast (CPT® 73200) to evaluate Hill-Sachs lesions or posterior dislocation and/or MRI shoulder with contrast (arthrogram) (CPT® 73222) is medically necessary without conservative treatment in patients 40 years of age or younger with a first time dislocation and in patients with recurrent dislocations. 	<p>Conservative treatment is required in patients over age 40 with a first time dislocation. For surgery criteria, see <u>CMM-315: Shoulder Surgery-Arthroscopic and Open Procedures.</u></p>

<p>Frozen Shoulder/Adhesive Capsulitis</p>	<p>Yes</p>	<p>Yes</p>	<ul style="list-style-type: none"> ➤ Advanced imaging is rarely indicated. 	<p>Requests will be forwarded to Medical Director review. For surgery criteria, see <u>CMM-310: Manipulation Under Anesthesia</u> and <u>CMM-315: Shoulder Surgery-Arthroscopic</u></p>
<p>Avascular Necrosis (AVN) of the Humeral Head</p>	<p>Yes</p>	<p>No</p>	<ul style="list-style-type: none"> ➤ MRI shoulder without contrast (CPT® 73221) when suspected and plain X-ray is negative or equivocal ➤ CT shoulder without contrast (CPT® 73200) and/or MRI shoulder without contrast (CPT® 73221) for preoperative planning prior to shoulder replacement 	<p>See also <u>MS-4.1: AVN</u></p>
<p>Acromioclavicular (AC) Separation</p>	<p>Yes</p>	<p>No</p>	<ul style="list-style-type: none"> ➤ MRI shoulder without contrast (CPT® 73221) to rule out possible rotator cuff tear following AC separation 	
<p>Sternoclavicular (SC) Dislocation</p>	<p>Yes</p>	<p>No</p>	<ul style="list-style-type: none"> ➤ CT Chest without contrast (CPT® 71250) if posterior SC dislocation is evident or suspected 	
<p>Post-Operative Shoulder Surgery for Impingement, Rotator Cuff Tear, and/or Labral Tear</p>	<p>Yes</p>	<p>Yes</p>	<ul style="list-style-type: none"> ➤ MRI shoulder without contrast (CPT® 73221) or MRI shoulder with contrast (arthrogram) (CPT® 73222) in symptomatic individuals ➤ CT shoulder with contrast (arthrogram) (CPT® 73201) if MRI contraindicated 	<p>Other requests for advanced imaging will be forwarded to Medical Director review.</p>

<p>Preoperative Shoulder (Glenohumeral) Replacement Surgery</p>	<p>Yes</p>	<p>Yes</p>	<ul style="list-style-type: none"> ➤ CT shoulder without contrast (CPT® 73200) and/or MRI shoulder without contrast (CPT® 73221) for preoperative planning prior to shoulder replacement 	<p>See also <u>MS-12: Osteoarthritis</u> For joint surgery criteria, see <u>CMM-318: Shoulder Arthroplasty/Arthrodesis</u></p>
<p>Post-Operative Shoulder (Glenohumeral) Replacement Surgery</p>	<p>Yes</p>	<p>No</p>	<ul style="list-style-type: none"> ➤ CT shoulder without contrast (CPT® 73200) for suspected aseptic loosening or fracture as additional imaging following plain X-rays ➤ In-111 WBC (CPT® 78805) and Tc-99m sulfur colloid scan shoulder (CPT® 78102 or 78103) for suspected infection with negative or inconclusive joint aspiration culture (see also <u>MS-28: Nuclear Medicine</u>) ➤ CT shoulder with contrast (arthrogram) (CPT® 73201) for possible rotator cuff tear ➤ MRI shoulder without contrast (CPT® 73221) for possible nerve injury 	<p>Other requests for advanced imaging will be forwarded to Medical Director review. See also <u>MS-16: Post-Operative Joint Replacement</u></p>

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MS-20: Elbow				
Condition	Plain X-Ray?	Conservative Treatment	Advanced Imaging	Comments
General Elbow Pain	Yes	Yes	➤ MRI elbow without contrast (CPT® 73221)	
Symptomatic Loose Bodies	Yes	No	➤ MRI elbow without contrast (CPT® 73221) if effusion is present; <i>or</i> ➤ MRI elbow with contrast (arthrogram) (CPT® 73222) if no effusion is present	
Tendonitis	Yes	Yes	➤ MRI elbow without contrast (CPT® 73221)	
Lateral (tennis elbow) or Medial (golfer's elbow) Epicondylitis	Yes	Yes	➤ MRI elbow without contrast (CPT® 73221) can confirm the clinical diagnosis of epicondylitis if symptoms persist for longer than 6 months in cases refractory to conservative treatment.	Epicondylitis, caused by tendon degeneration and tear of the common extensor tendon laterally or of the common flexor tendon medially, is a common clinical diagnosis for which imaging is not medically necessary except as noted. Requests will be forwarded to Medical Director review.
Suspected Osteochondral Injury	Yes	No	➤ MRI elbow without contrast (CPT® 73221) or MRI elbow with contrast (arthrogram) (CPT® 73222) or CT elbow with contrast (arthrogram) (CPT® 73201) if plain X-rays are negative and an osteochondral fracture is still suspected	See <u>MS-13: Chondral/Osteochondral Lesions</u>
Ruptured Biceps Insertion at Elbow	Yes	No	➤ MRI elbow without contrast (CPT® 73221) when clinical exam is inconclusive or for preoperative planning	
Ruptured Triceps Insertion at Elbow	Yes	No	➤ MRI Elbow without contrast (CPT® 73221) when clinical exam is inconclusive or for preoperative planning	

Partial Tendon Rupture	Yes	No	<ul style="list-style-type: none"> ➤ MRI Elbow without contrast (CPT® 73221) for a suspected partial tendon rupture of a specific named tendon not otherwise specified 	MRI is <i>NOT</i> needed for muscle belly strains/muscle tears.
Trauma	Yes	No	<ul style="list-style-type: none"> ➤ MRI Elbow without contrast (CPT® 73221) or CT without contrast (CPT® 73200) when surgery is being considered 	
Ulnar Collateral Ligament (UCL) Tear	Yes	No	<ul style="list-style-type: none"> ➤ MRI Elbow with contrast (arthrogram) (CPT® 73222) or MRI Elbow without contrast (CPT® 73221) following acute or repetitive elbow trauma 	
Post-Operative	Yes	Yes	<ul style="list-style-type: none"> ➤ CT elbow without contrast (CPT® 73200) in symptomatic post-operative patients following surgical treatment of complex fractures; or ➤ MRI elbow without contrast (CPT® 73221) in symptomatic post-operative patients following soft-tissue surgery 	Other requests for advanced imaging will be forwarded to Medical Director review.
Preoperative Elbow Replacement Surgery	Yes	Yes	<ul style="list-style-type: none"> ➤ CT elbow without contrast (CPT® 73200) for preoperative planning prior to elbow replacement when congenital or post-traumatic deformities exist 	See: <u>MS-12: Osteoarthritis</u>
Post-Operative Elbow Replacement Surgery	Yes	No	<ul style="list-style-type: none"> ➤ CT elbow without contrast (CPT® 73200) for suspected aseptic loosening or fracture replacement when recent plain X-ray is nondiagnostic ➤ In-111 WBC (CPT® 78805) and Tc-99m sulfur colloid scan elbow (CPT® 78102 or 78103) for suspected infection with negative or inconclusive joint aspiration culture see: <u>MS-28: Nuclear Medicine</u> 	Other requests for advanced imaging will be forwarded to Medical Director review.

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MS-21: Wrist

Condition	Plain X-Ray?	Conservative Treatment	Advanced Imaging	Comments
General Wrist Pain	Yes	Yes	➤ MRI wrist without contrast (CPT® 73221)	
Tendonitis	Yes	Yes	➤ MRI wrist without contrast (CPT®73221)	
Kienbock's Disease (Avascular Necrosis (AVN) of the Lunate)/ Preiser's Disease (Avascular Necrosis (AVN) of the Scaphoid)	Yes	No	<ul style="list-style-type: none"> ➤ MRI wrist without contrast (CPT® 73221) when suspected and plain X-ray is negative or equivocal ➤ If diagnosed on plain X-ray, CT wrist without contrast (CPT® 73200) or MRI wrist without contrast (CPT® 73221) 	See also <u>MS-4.1: AVN</u>
Suspected Navicular/Scaphoid Fracture	Yes	No	➤ MRI wrist without contrast (CPT® 73221) or CT wrist without contrast (CPT® 73200) when suspected based on history and physical exam	See also <u>MS-5.2: Suspected Occult/Stress/Insufficiency Fracture/Stress Reaction and Shin Splints</u>
Distal Radioulnar Joint (DRUJ) Instability	Yes	No	➤ CT of both wrists without contrast (CPT® 73200) (should include wrists in supination and pronation)	
Complex Distal Radius/Ulna Fracture	Yes	No	➤ CT wrist without contrast (CPT® 73200)	
Carpal Tunnel Syndrome/Ulnar Tunnel Syndrome	Yes	No	➤ MRI wrist without contrast (CPT® 73221) for surgical planning when a soft tissue mass is identified on physical examination and/or ultrasound	Clinical diagnosis is often confirmed with electrodiagnostic studies. Refer to <u>PN-2: Focal Neuropathy</u>

<p>Intrinsic Ligament (e.g. scapholunate)/Triangular Fibrocartilage Complex (TFCC) Injuries</p>	<p>Yes</p>	<p>Yes</p>	<p>➤ MRI wrist with contrast (arthrogram) (CPT® 73222)</p>
<p>Complete Rupture of a Specific Named Tendon Not Otherwise Specified</p>	<p>Yes</p>	<p>No</p>	<p>➤ MRI wrist without contrast (CPT® 73221) for preoperative planning</p>
<p>Partial Tendon Rupture</p>	<p>Yes</p>	<p>No</p>	<p>➤ MRI wrist without contrast (CPT® 73221) for a suspected partial tendon rupture of a specific named tendon not otherwise specified</p> <p>MRI is NOT needed for muscle belly strains/muscle tears.</p>
<p>Post-Operative</p>	<p>Yes</p>	<p>Yes</p>	<p>➤ CT wrist without contrast (CPT® 73200) in symptomatic patients following surgery for navicular/scaphoid fractures and complex distal radius/ulna fractures; or</p> <p>➤ MRI wrist with contrast (arthrogram) (CPT® 73222) in symptomatic patients following DRUJ or TFCC surgery</p> <p>Other requests for advanced imaging will be forwarded to Medical Director review.</p>

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MS-22: Hand				
Condition	Plain X-Ray?	Conservative Treatment	Advanced Imaging	Comments
General Hand Pain	Yes	Yes	➤ MRI hand or finger without contrast (CPT® 73218)	
Tendonitis	Yes	Yes	➤ MRI hand or finger without contrast (CPT® 73218)	
Occult Fracture	Yes	No	➤ Advanced imaging guided by <u>MS-5.2: Suspected Occult/Stress/Insufficiency Fracture/Stress Reaction and Shin Splints</u>	
Complex Fracture	Yes	No	➤ CT hand or finger without contrast (CPT® 73200) when plain X-ray shows a complex fracture	
Ulnar Collateral Ligament (UCL) Thumb Injury	Yes	No	➤ MRI thumb without contrast (CPT® 73218) if rule out for Stener lesion or complete tear of UCL of the thumb MCP joint	Also called "Gamekeeper's Thumb" or "Skier's Thumb"
Complete Rupture of a Specific Named Tendon not Otherwise Specified	Yes	No	➤ MRI hand or finger without contrast (CPT® 73218) for preoperative planning	
Partial Tendon Rupture	Yes	No	➤ MRI hand or finger without contrast (CPT® 73218) for a suspected partial tendon rupture of a specific named tendon not otherwise specified	MRI is <i>NOT</i> needed for muscle belly strains/muscle tears.
Post-Operative	Yes	Yes	➤ CT hand or finger without contrast (CPT® 73200) or MRI hand or finger without contrast (CPT® 73218) in symptomatic post-operative patients following surgical treatment for complex hand or finger fractures or following soft-tissue surgery	Other requests for advanced imaging will be forwarded to Medical Director review.

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MS-23: Pelvis				
Condition	Plain X-Ray?	Conservative Treatment	Advanced Imaging	Comments
General Pain-Pelvis	Yes	Yes	<ul style="list-style-type: none"> ➤ MRI pelvis without contrast (CPT® 72195); or ➤ MRI RT and/or LT hip without contrast (CPT® 73721) 	
Tendonitis	Yes	Yes	<ul style="list-style-type: none"> ➤ MRI pelvis without contrast (CPT® 72195); or ➤ MRI RT and/or LT hip without contrast (CPT® 73721) 	
Insufficiency Fracture	Yes	No	<ul style="list-style-type: none"> ➤ MRI pelvis without contrast (CPT® 72195) or CT pelvis without contrast (CPT® 72192) 	See also MS-5.2: Suspected Occult/Stress/Insufficiency Fracture/Stress Reaction and Shin Splints for occult and stress fractures of the pelvis
Complex Fracture/Dislocation - Pelvis, Sacrum and Acetabulum	Yes	No	<ul style="list-style-type: none"> ➤ CT pelvis without contrast (CPT® 72192) 	Additionally, 3D rendering may be appropriate for preoperative planning. See also MS-3: 3D Rendering
Sacro-iliac (SI) Joint Pain, Sacroiliitis, Coccydynia	Yes	Yes	<ul style="list-style-type: none"> ➤ Advanced imaging guided by: SP-10.1: Sacroiliac (SI) Joint Pain/Sacroiliitis and SP-5.2: Coccydynia without Neurological Features 	
Complete Rupture of a Specific Named Tendon	Yes	No	<ul style="list-style-type: none"> ➤ MRI pelvis without contrast (CPT® 72195) for preoperative planning 	
Partial Tendon Rupture	Yes	No	<ul style="list-style-type: none"> ➤ MRI Pelvis without contrast (CPT® 72195) for a suspected partial tendon rupture of a specific named tendon not otherwise specified 	MRI is <i>NOT</i> needed for muscle belly strains/muscle tears.
Osteitis Pubis/Symphysis Pubis Diastasis	Yes	Yes	<ul style="list-style-type: none"> ➤ MRI pelvis without contrast (CPT® 72195) 	

Athletic Pubalgia (Sports Hernia)	Yes	Yes	<ul style="list-style-type: none"> ➤ MRI pelvis without contrast (athletic pubalgia protocol) (CPT® 72195) or dynamic pelvic ultrasound (CPT® 76857) are appropriate to evaluate for the cause of suspected athletic pubalgia. 	
Post-Operative	Yes	Yes	<ul style="list-style-type: none"> ➤ CT pelvis without contrast (CPT® 72192) in symptomatic patients following surgery for complex pelvic ring/acetabular fractures 	Other requests for advanced imaging will be forwarded to Medical Director review.

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MS-24: Hip

Condition	Plain X-Ray?	Conservative Treatment	Advanced Imaging	Comments
General Hip Pain	Yes	Yes	➤ MRI hip without contrast (CPT® 73721)	
Symptomatic Loose Bodies	Yes	No	➤ MRI hip without contrast (CPT® 73721)	
Tendonitis/Bursitis	Yes	Yes	➤ MRI hip without contrast (CPT® 73721)	
Hip Abductor Tendon Tear/Avulsion	Yes	No	➤ MRI hip without contrast (CPT® 73721)	
Complete Rupture of a Specific Named Tendon	Yes	No	➤ MRI hip without contrast (CPT® 73721) for preoperative planning	
Partial Tendon Rupture	Yes	No	➤ MRI hip without contrast (CPT® 73721) for a suspected partial tendon rupture of a specific named tendon not otherwise specified	MRI is <i>NOT</i> needed for muscle belly strains/muscle tears.
Insufficiency Fracture	Yes	No	➤ MRI hip without contrast (CPT® 73721) or CT hip without contrast (CPT® 73700)	See also <u>MS-5.2: Suspected Occult/Stress/Insufficiency Fracture/Stress Reaction and Shin Splints</u> for occult and stress fractures of the hip
Avascular Necrosis (AVN) of the Femoral Head	Yes	No	<ul style="list-style-type: none"> ➤ MRI hip without contrast (CPT® 73721) when suspected and plain X-ray is negative or equivocal ➤ MRI hip without contrast (CPT® 73721) or CT hip without contrast (CPT® 73700) with femoral head collapse for preoperative planning 	See also <u>MS-4.1: AVN</u>
Labral Tear	Yes	No	➤ MRI hip with contrast (arthrogram) (CPT® 73722) or CT hip with contrast (arthrogram) (CPT® 73701)	➤ For surgery criteria, see <u>CMM-314: Hip Surgery-Arthroscopic and Open Procedures</u>

Femoroacetabular Impingement	Yes	Yes	<ul style="list-style-type: none"> ➤ MRI hip without contrast (CPT® 73721) or MRI hip with contrast (arthrogram) (CPT® 73722) in addition to CT hip without contrast (CPT® 73700) for preoperative planning for femoroacetabular impingement 	For surgery criteria, see <u>CMM-314: Hip Surgery-Arthroscopic and Open Procedures</u>
Piriformis Syndrome	Yes	Yes	<ul style="list-style-type: none"> ➤ MRI pelvis without contrast (CPT® 72195) or CT pelvis without contrast (CPT® 72192) for preoperative planning 	EMG/NCV may confirm the diagnosis. Refer to <u>PN-2: Focal Neuropathy</u>
Post-Operative	Yes	Yes	<ul style="list-style-type: none"> ➤ MRI hip with contrast (arthrogram) (CPT® 73722) in symptomatic patients following surgery for labral tears and femoroacetabular impingement ➤ CT hip without contrast (CPT® 73700) or MRI hip without contrast (CPT® 73721) in symptomatic patients following surgery for hip fracture and/or hip avascular necrosis 	Other requests for advanced imaging will be forwarded to Medical Director review.
Preoperative Hip Replacement Surgery	Yes	Yes	<ul style="list-style-type: none"> ➤ CT hip without contrast (CPT® 73700) for preoperative planning prior to hip replacement when congenital or post-traumatic deformities exist 	See also <u>MS-12: Osteoarthritis</u> For surgery criteria, see <u>CMM-313: Hip Arthroplasty-Total and Partial</u>

<p>Post-Operative Hip Replacement Surgery</p>	<p>Yes</p>	<p>No*</p>	<ul style="list-style-type: none"> ➤ CT hip without contrast (CPT® 73700) or bone scan (CPT®78315 or CPT® 78320) for suspected aseptic loosening of hip replacement when recent plain X-ray is nondiagnostic ➤ In-111 WBC (CPT® 78805) and Tc-99m sulfur colloid scan hip (CPT® 78102 or 78103) for suspected infection with negative or inconclusive joint aspiration culture (see <u>MS-28: Nuclear Medicine</u>) ➤ CT hip without contrast (CPT® 73700) for suspicion of a periprosthetic fracture when recent plain X-ray is nondiagnostic ➤ CT hip without contrast (CPT® 73700) to evaluate component malposition or heterotopic bone after plain X-ray ➤ MRI hip without contrast (CPT® 73721) for possible nerve injury ➤ MRI hip without contrast (CPT® 73721) for suspected for suspected tendinitis/bursitis (*requires conservative treatment) 	<p>See also <u>MS-16: Post-Operative Joint Replacement</u></p>
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Coding Notes

- ◆ Unilateral hip MRI is reported as CPT® 73721.
- ◆ Bilateral hip MRI can be identified in several different ways on the claim.
 - eviCore will approve two separate codes (CPT® 73721 x 2) with RT and LT modifiers.
 - However, providers are urged to check for individual payer preferences regarding bilateral modifier use.

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MS-25: Knee

Condition	Plain X-Ray?	Conservative Treatment	Advanced Imaging	Comments
General Knee Pain	Yes	Yes	➤ MRI knee without contrast (CPT® 73721)	
Symptomatic Loose Bodies	Yes	No	<ul style="list-style-type: none"> ➤ MRI knee without contrast (CPT® 73721) ➤ CT knee with contrast (arthrogram) (CPT® 73701) if MRI cannot be performed 	
Tendonitis	Yes	Yes	➤ MRI knee without contrast (CPT® 73721)	
Complex Knee Fracture	Yes	No	➤ CT knee without contrast (CPT® 73700)	See: MS-5: Fractures
Meniscus Tear	Yes	Yes*	<ul style="list-style-type: none"> ➤ MRI knee without contrast (CPT® 73721) <p>*Conservative treatment is not required if at least 2 of following 4 criteria are met:</p> <ol style="list-style-type: none"> 1) Positive McMurray's or positive Thessaly test 2) twisting or acute injury of the knee 3) locked knee/inability to fully extend the knee 4) knee effusion <ul style="list-style-type: none"> ➤ MRI knee without contrast (CPT® 73721) for clinical suspicion of a symptomatic degenerative meniscus tear in a patient with osteoarthritis following conservative treatment 	For surgery criteria, see: CMM-312: Knee Surgery-Arthroscopic and Open Procedures
Ligament Tear	Yes	Yes*	<ul style="list-style-type: none"> ➤ MRI knee without contrast (CPT® 73721) <p>*Conservative treatment is not required if any of the following signs are positive in comparison to the normal knee:</p> <ul style="list-style-type: none"> ◆ Anterior drawer ◆ Lachman ◆ Pivot shift ◆ Posterior drawer ◆ Posterior sag ◆ Valgus stress ◆ Varus stress 	For surgery criteria, see: CMM-312: Knee Surgery-Arthroscopic and Open Procedures
Knee Joint Dislocation	Yes	No	➤ MRI knee without contrast (CPT® 73721) and MRA knee without and with contrast (CPT® 73725) following significant trauma to evaluate for ligament and vascular injury	

Patellar Dislocation	Yes	No	<ul style="list-style-type: none"> ➤ MRI knee without contrast (CPT® 73721) with acute knee injury, consideration of surgery and concern for osteochondral fracture or loose osteochondral fracture fragment 	For surgery criteria, see: <u>CMM-312: Knee Surgery-Arthroscopic and Open Procedures</u>
Recurrent Patellar Instability	Yes	Yes	<ul style="list-style-type: none"> ➤ MRI knee without contrast (CPT® 73721) if consideration for surgery 	For surgery criteria, see: <u>CMM-312: Knee Surgery-Arthroscopic and Open Procedures</u>
Patellofemoral Pain Syndrome/Anterior Knee Pain/Tracking Disorder	Yes	Yes	<ul style="list-style-type: none"> ➤ MRI knee without contrast (CPT® 73721) if consideration for surgery 	
Suspected Osteochondral Injury	Yes	No	<ul style="list-style-type: none"> ➤ MRI knee without contrast (CPT® 73721) or MRI knee with contrast (arthrogram) (CPT® 73722) or CT knee with contrast (arthrogram) (CPT® 73701) if plain X-rays are negative and an osteochondral fracture is still suspected 	See <u>MS-13: Chondral Osteochondral Lesions</u> for other osteochondral injury scenarios. For surgery criteria, see: <u>CMM-312: Knee Surgery-Arthroscopic and Open Procedures</u>
Avascular Necrosis (AVN) of the Distal Femur	Yes	No	<ul style="list-style-type: none"> ➤ MRI knee without contrast (CPT® 73721) when suspected and plain X-ray is negative or equivocal or with AVN confirmed by plain X-ray if needed for treatment planning 	See: <u>MS-4.1: Avascular Necrosis</u>
Baker's Cyst (Popliteal Cyst)	Yes	Yes	<ul style="list-style-type: none"> ➤ Ultrasound (CPT® 76881 or CPT® 76882) is the initial imaging study ➤ MRI knee without contrast (CPT® 73721) for preoperative planning 	See also <u>PVD-7.5: Lower Extremity Deep Venous Thrombosis (DVT) and/or Lower Extremity Edema</u>

Plica (Symptomatic Synovial Plica/Medial Synovial Shelf)	Yes	Yes	<ul style="list-style-type: none"> ➤ MRI knee without contrast (CPT® 73721) 	
Hemarthrosis	Yes	No	<ul style="list-style-type: none"> ➤ MRI knee without contrast (CPT® 73721) for clinical suspicion of cruciate ligament tear (requires a positive objective sign for ACL/PCL tear) or patellar dislocation (requires a positive apprehension sign) ➤ CT knee without contrast (CPT® 73700) for clinical suspicion of non-displaced intra-articular fracture 	
Complete Rupture of the Distal Quadriceps Tendon or Patellar Ligament/Tendon	Yes	No	<ul style="list-style-type: none"> ➤ MRI knee without contrast (CPT® 73721) for preoperative planning 	
Partial Tendon Rupture	Yes	No	<ul style="list-style-type: none"> ➤ MRI knee without contrast (CPT® 73721) for a suspected partial tendon rupture of a specific named tendon not otherwise specified 	MRI is NOT needed for muscle belly strains/muscle tears.
Post-Operative	Yes	Yes	<ul style="list-style-type: none"> ➤ MRI knee with contrast (arthrogram) (CPT® 73722) or MRI knee without contrast (CPT® 73721) in symptomatic patients following surgery for meniscus tears and reconstruction of the anterior cruciate ligament ➤ CT knee without contrast (CPT® 73700) in symptomatic patients following surgery for fracture/dislocation 	Other requests for advanced imaging will be forwarded to Medical Director review.
Preoperative Knee Replacement Surgery	Yes	Yes	<ul style="list-style-type: none"> ➤ CT knee without contrast (CPT® 73700) for preoperative planning prior to knee replacement when congenital or post-traumatic deformities exist of the patella, distal femur and/or proximal tibia 	See also MS-12: Osteoarthritis For surgery criteria, see CMM-311: Knee Arthroplasty- Total and Partial

<p>Post-Operative Knee Replacement Surgery</p>	<p>Yes</p>	<p>No*</p>	<ul style="list-style-type: none"> ➤ CT knee without contrast (CPT® 73700) or bone scan (CPT® 78315 or CPT® 78320) for suspected aseptic loosening when recent plain X-ray is nondiagnostic ➤ Tc-99m 3-phase bone scan (CPT® 78315) and In-111 WBC scan knee (CPT® 78805) or In-111 WBC (CPT® 78805) and Tc-99m sulfur colloid scan knee (CPT® 78102 or 78103) for suspected infection with negative or inconclusive joint aspiration culture (see <u>MS-28: Nuclear Medicine</u>) ➤ CT knee without contrast (CPT® 73700) following plain X-ray for suspected periprosthetic fracture ➤ CT knee without contrast (CPT® 73700) or MRI knee without contrast (CPT® 73721) for suspected osteolysis or component instability, rotation, or wear; ➤ MRI knee without contrast (CPT® 73721) for suspected periprosthetic soft tissue abnormality unrelated to infection (e.g., tendinopathy, arthrofibrosis, patellar clunk syndrome, impingement of nerves or other soft tissue - *requires conservative treatment). 	<p>Other requests for advanced imaging will be forwarded to Medical Director review. See also <u>MS-16: Post-Operative Joint Replacement Surgery</u></p>
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MS-26: Ankle				
Condition	Plain X-Ray?	Conservative Treatment	Advanced Imaging	Comments
General Ankle Pain	Yes	Yes	➤ MRI ankle without contrast (CPT® 73721)	
Symptomatic Loose Bodies	Yes	No	➤ MRI ankle without contrast (CPT® 73721)	
Complex Fracture	Yes	No	➤ CT ankle without contrast (CPT® 73700)	
Ankle Sprain, Including Avulsion Fracture	Yes	Yes	➤ MRI ankle without contrast (CPT® 73721) or CT without contrast (CPT® 73700)	
High Ankle Sprain (Syndesmosis Injury)	Yes	No	➤ MRI ankle without contrast (CPT® 73721)	
Suspected Osteochondral Injury	Yes	No	➤ MRI ankle without contrast (CPT® 73721) or MRI ankle with contrast (arthrogram) (CPT® 73722) or CT ankle with contrast (arthrogram) (CPT® 73701) if plain X-rays are negative and an osteochondral fracture is still suspected	See MS-13: Chondral/Osteochondral Lesions for other osteochondral injury scenarios
Avascular Necrosis (AVN) of the Talus	Yes	No	➤ MRI ankle without contrast (CPT® 73721) when suspected and plain X-ray is negative or equivocal or with plain X-ray-confirmed AVN if needed for treatment planning	See: MS-4.1: AVN
Anterior Impingement Anterior-Lateral Impingement Posterior Impingement (e.g., Os Trigonum Syndrome)	Yes	Yes	➤ MRI ankle with contrast (arthrogram) (CPT® 73722) or CT ankle with contrast (arthrogram) (CPT® 73701) or MRI ankle without contrast (CPT® 73721)	
Tendonitis	Yes	Yes	➤ MRI ankle without contrast (CPT® 73721) for suspected posterior tibial dysfunction, peroneal tendon or subluxation, Achilles tendonitis	

Ruptured Achilles Tendon	Yes	No	<ul style="list-style-type: none"> ➤ MRI ankle without contrast (CPT® 73721) for preoperative evaluation 	
Complete Rupture -Tear of a Specific Named Tendon	Yes	No	<ul style="list-style-type: none"> ➤ MRI ankle without contrast (CPT® 73721) for preoperative planning 	
Partial Tendon Rupture	Yes	No	<ul style="list-style-type: none"> ➤ MRI ankle without contrast (CPT® 73721) for a suspected partial tendon rupture of a specific named tendon not otherwise specified 	MRI is <i>NOT</i> needed for muscle belly strains/muscle tears.
Instability	Yes	Yes	<ul style="list-style-type: none"> ➤ MRI ankle without contrast (CPT® 73721) or MRI ankle with contrast (arthrogram) (CPT® 73722) for preoperative evaluation 	
Post-Operative	Yes	Yes	<ul style="list-style-type: none"> ➤ MRI ankle without contrast (CPT® 73721) in symptomatic patients following surgery for ligament/tendon injuries ➤ CT ankle without contrast (CPT® 73700) for symptomatic patients following surgery for complex fractures 	Other requests for advanced imaging will be forwarded to Medical Director review.
Preoperative Ankle Replacement Surgery	Yes	Yes	<ul style="list-style-type: none"> ➤ CT ankle without contrast (CPT® 73700) for preoperative planning prior to ankle replacement when congenital or post-traumatic deformities exist 	See also <u>MS-12: Osteoarthritis</u> .
Post-Operative Ankle Replacement Surgery	Yes	No	<ul style="list-style-type: none"> ➤ CT ankle without contrast (CPT® 73700) for suspected aseptic loosening or periprosthetic fracture when recent plain X-ray is nondiagnostic ➤ In-111 WBC (CPT® 78805) and Tc-99m sulfur colloid scan ankle (CPT® 78102 or 78103) for suspected infection with negative or inconclusive joint aspiration culture (see <u>MS-28: Nuclear Medicine</u>) 	Other requests for advanced imaging will be forwarded to Medical Director review. See also <u>MS-16: Post-Operative Joint Replacement Surgery</u>

One Study/Area Only

In foot and ankle advanced imaging, studies are frequently ordered of both areas. This is unnecessary since ankle MRI will image from above the ankle to the mid- metatarsal area. **Only one CPT® code should be reported.**

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MS-27: Foot

Condition	Plain X-Ray?	Conservative Treatment	Advanced Imaging	Comments
General Foot Pain	Yes	Yes	➤ MRI foot without contrast (CPT® 73718)	
Complex Fractures	Yes	No	➤ CT foot without contrast (CPT® 73700)	
Plantar Plate Disorders, Including Turf Toe Injuries	Yes	Yes	➤ MRI foot without contrast (CPT® 73718)	
Sesamoid Disorders	Yes	Yes	➤ MRI foot without contrast (CPT® 73718) or CT foot without contrast (CPT® 73700)	
Lisfranc Tarsometatarsal Fracture or Dislocation	Yes	No	➤ MRI foot without contrast (CPT® 73718) or CT foot without contrast (CPT® 73700)	
Tarsal Navicular Stress/Occult Fracture	Yes	No	<ul style="list-style-type: none"> ➤ MRI foot without contrast (CPT® 73718) ➤ Tc-99m bone scan foot (CPT® 78315) if MRI cannot be performed ➤ CT foot without contrast (CPT® 73700) for follow-up of healing fractures 	See also <u>MS-5.2: Suspected Occult/Stress/Insufficiency Fracture/Stress Reaction and Shin Splints</u>
Avascular Necrosis (AVN) of the Tarsal Navicular (Kohler Disease)	Yes	No	➤ MRI foot without contrast (CPT® 73718) when suspected and plain X-ray is negative or equivocal or with AVN confirmed by plain X-ray if needed for treatment planning	See: <u>MS-4.1: AVN</u>
Tendonitis	Yes	Yes	➤ MRI foot without contrast (CPT® 73718)	
Complete rupture/tear of a specific named tendon	Yes	No	➤ MRI foot without contrast (CPT® 73718) for preoperative planning	
Partial Tendon Rupture	Yes	No	➤ MRI foot without contrast (CPT® 73718) for a suspected partial tendon rupture of a specific named tendon not otherwise specified	MRI is <i>NOT</i> needed for muscle belly strains/muscle tears.
Morton's Neuroma	Yes	Yes	➤ MRI foot without and with contrast (CPT® 73720) for preoperative planning	

Plantar Fasciitis	Yes	Yes*	➤ MRI foot without contrast (CPT® 73718) for preoperative planning	*Provider-directed conservative treatment must be for 6 months or more.
Suspected Plantar Fascia Rupture or Tear	Yes	Yes	➤ MRI foot without contrast (CPT® 73718)	
			➤	
Diabetic Foot Infection	Yes*	No	➤ MRI foot without and with contrast (CPT® 73720) or MRI foot without contrast (CPT® 73718) for suspected osteomyelitis or soft tissue infection as a complement to plain X-ray (both plain X-ray and MRI are indicated)	* Plain X-ray results do not preclude the necessity for advanced imaging studies. See also MS 9.1: Infection-General
Tarsal Tunnel Syndrome	Yes	Yes	➤ MRI foot without contrast (CPT® 73718) or MRI foot without and with contrast (CPT® 73720) for preoperative planning if mass/lesion is suspected as etiology of entrapment	
Tarsal Coalition	Yes	Yes	➤ MRI ankle without contrast (CPT® 73721) or CT without contrast (CPT® 73700) for preoperative planning	
Sinus Tarsi Syndrome	Yes	Yes	➤ MRI ankle without contrast (CPT® 73721) if diagnosis is unclear or for preoperative evaluation	
Post-Operative	Yes	Yes	<ul style="list-style-type: none"> ➤ MRI foot without contrast (CPT® 73718) in symptomatic patients following surgery for conditions including the tendons, ligaments and plantar plate ➤ CT foot without contrast (CPT® 73700) in symptomatic patients following surgery for complex fractures, sesamoid fractures and subtalar arthrodesis 	Other requests for advanced imaging will be forwarded to Medical Director review.

One Study/Area Only

In foot and ankle advanced imaging, studies are frequently ordered of both areas. This is unnecessary since ankle MRI will image from above the ankle to the mid- metatarsal area. Only one CPT® code should be reported.

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MS-28: Nuclear Medicine

- SPECT scan may be approved for any of the indications for which a bone scan can be approved. If the request is for CPT® 78300 and CPT® 78320, then only CPT® 78320 is to be approved if medical necessity is established. If the request is for CPT® 78305 or CPT® 78306 and CPT® 78320, then two CPT codes may be approved if medical necessity is established.
- Nuclear Medicine
 - ◆ Nuclear medicine studies may be used in the evaluation of some musculoskeletal disorders, and other rare indications exist as well:
 - Bone scan (CPT® 78315 or CPT® 78320) may be indicated for the evaluation of suspected aseptic loosening of orthopedic prostheses when recent plain X-ray is nondiagnostic see **MS-16: Post-Operative Joint Replacement Surgery**
 - Nuclear medicine bone marrow imaging (CPT® 78102, CPT® 78103, or CPT® 78104) is indicated for detection of ischemic or infarcted regions in sickle cell disease
 - Triple phase bone scan (CPT® 78315) is indicated for evaluation of complex regional pain syndrome or reflex sympathetic dystrophy For interventional pain criteria see: **CMM-209: Regional Sympathetic Blocks** and **CMM-211: Spinal Cord Stimulators**.
 - Bone scan (CPT® codes: 78300, 78305, 78306, 78315, or 78320) is indicated for evaluation of suspected frostbite
 - Bone scan (CPT® codes: 78300, 78305, 78306, or 78320) is indicated for evaluation of Paget's disease (see also **MS-10: Soft Tissue Mass or Lesion of Bone**).
 - Tc-99m bone scan whole body (CPT® 78306) with SPECT of the area of interest (CPT® 78320) is indicated for suspected fractures if MRI cannot be performed. See also **MS-5.2: Suspected Occult/Stress/Insufficiency Fracture/Stress Reaction and Shin Splints**.
 - Bone scan (CPT® 78315 or CPT® 78320) is indicated for the evaluation of suspected bone infection if MRI cannot be done and when infection is multifocal, or when the infection is associated with orthopedic hardware or chronic bone alterations from trauma or surgery. Combining bone scintigraphy with a labeled leukocyte scan enhances sensitivity. A labeled leukocyte scan (radiopharmaceutical inflammatory imaging - one of CPT® codes: 78805, 78806, or 78807) in concert with Tc-99m sulfur colloid marrow imaging (one of CPT® codes: 78102, 78103, or 78104) is particularly useful in cases with altered bone marrow distribution, such as joint prosthesis. See also **MS-16: Post-Operative Joint Replacement Surgery**.
 - For specific joints post-operative from replacement surgery:
 - ◆ See **MS-19: Shoulder**
 - ◆ See **MS-20: Elbow**
 - ◆ See **MS-24: Hip**
 - ◆ See **MS-25: Knee**
 - ◆ See **MS-26: Ankle**

- Radionuclide bone scan (CPT® codes: 78300, 78305, or 78306) may be indicated in setting of a non-focal exam, especially in younger and non-verbal children. Due to relatively high radiation exposure, bone scan is reserved for high suspicion cases with negative radiographs. It is a preferred examination in a child with implanted hardware or devices precluding MRI.
- Bone scan (CPT® codes: 78300, 78305, 78306, or 78320) is complimentary to plain radiographs, and may be used when the skeletal survey is negative but clinical suspicion remains high.

References

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