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UnitedHealthcare® Community Plan: *Radiology Imaging Coverage Determination Guideline*

Adult Musculoskeletal Imaging Guidelines (For Ohio Only)

V1.0.2023

Guideline Number: CSRAD007OH.A

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Application (for Ohio Only)

This Medical Policy only applies to the state of Ohio. Any requests for services that are stated as unproven or services for which there is a coverage or quantity limit will be evaluated for medical necessity using Ohio Administrative Code 5160-1-01.

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- The UnitedHealthcare's evidence-based, proprietary clinical guidelines evaluate a range of advanced imaging and procedures, including NM, US, CT, MRI, PET, Radiation Oncology, Sleep Studies, as well as Cardiac, musculoskeletal and Spine interventions.
- UnitedHealthcare reserves the right to change and update the guidelines. The guidelines undergo a formal review annually. United HealthCare's guidelines are based upon major national and international association and society guidelines and criteria, peer-reviewed literature, major treatises as well as, input from health plans, and practicing academic and community-based physicians.
- These Guidelines are not intended to supersede or replace sound medical judgment, but instead, should facilitate the identification of the most appropriate imaging or other designated procedure given the individual's clinical condition. These guidelines are written to cover medical conditions as experienced by the majority of individuals. However, these guidelines may not be applicable in certain clinical circumstances, and physician judgment can override the guidelines.
- Clinical decisions, including treatment decisions, are the responsibility of the individual and his/her provider. Clinicians are expected to use independent medical judgment, which takes into account the clinical circumstances to determine individual management decisions.
- UnitedHealthcare supports the Choosing Wisely initiative **(https://www.choosingwisely.org/)** by the American Board of Internal Medicine (ABIM) Foundation and many national physician organizations, to reduce the overuse of diagnostic tests that are low value, no value, or whose risks are greater than the benefits.

Benefits, Coverage Policies, and Eligibility Issues (Preface-2)

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Benefits, Coverage Policies, and Eligibility Issues (Preface-2.1)

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Investigational and Experimental Studies

- Certain advanced imaging studies, or other procedures, may be considered investigational and experimental if there is a paucity of supporting evidence; if the evidence has not matured to exhibit improved health parameters or; the advanced imaging study/procedure lacks a collective opinion of support.

Clinical and Research Trials

- Similar to investigational and experimental studies, clinical trial imaging requests will be considered to determine whether they meet UnitedHealthcare's evidence-based guidelines.
- Imaging studies which are inconsistent with established clinical standards, or are requested for data collection and not used in direct clinical management are not supported.

Legislative Mandate

- State and federal legislations may need to be considered in the review of advanced imaging requests.

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1. Coverage of Clinical Trials under the Patient Protection and Affordable Care Act; 42 U.S.C.A. § 300gg-8

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Clinical Documentation and Age Considerations

- UnitedHealthcare's guidelines use an evidence-based approach to determine the most appropriate procedure for each individual, at the most appropriate time in the diagnostic and treatment cycle. UnitedHealthcare's guidelines are framed by:
  - Clinical presentation of the individual, rather than the studies requested
  - Adequate clinical information that must be submitted to UnitedHealthcare in order to establish medical necessity for advanced imaging or other designated procedures includes but is not limited to the following:
    - Pertinent clinical evaluation should include a recent detailed history, physical examination[20] since the onset or change in symptoms, and/or laboratory and prior imaging studies.
      - Condition-specific guideline sections may describe additional clinical information which is required for a pertinent clinical evaluation.
      - The Spine and Musculoskeletal guidelines require x-ray studies from when the current episode of symptoms has started or changed; x-ray imaging does not have to be within the past 60 days.
      - Advanced imaging or other designated procedures should not be ordered prior to clinical evaluation of an individual by the physician treating the individual. This may include referral to a consultant specialist who will make further treatment decisions.
      - Other meaningful technological contact (telehealth visit, telephone or video call, electronic mail or messaging) since the onset or change in symptoms by an established individual can serve as a pertinent clinical evaluation.
        - Some conditions may require a face-to-face evaluation as discussed in the applicable condition-specific guideline sections.
    - A recent clinical evaluation may be unnecessary if the individual is undergoing a guideline-supported, scheduled follow-up imaging or other designated procedural evaluation. Exceptions due to routine surveillance indications are addressed in the applicable condition-specific guideline sections.
  - UnitedHealthcare's evidence-based approach to determine the most appropriate procedure for each individual requires submission of medical records pertinent to the requested imaging or other designated procedures.
- Many conditions affecting the pediatric population are different diagnoses than those occurring in the adult population. For those diseases which occur in both pediatric and adult populations, minor differences may exist in management due to

individual age, comorbidities, and differences in disease natural history between children and adults.

  - Individuals who are 18 years old or younger[19] should be imaged according to the Pediatric Imaging Guidelines if discussed in the condition-specific guideline sections. Any conditions not specifically discussed in the Pediatric Imaging Guidelines should be imaged according to the General Imaging Guidelines. Individuals who are >18 years old should be imaged according to the General Imaging Guidelines, except where directed otherwise by a specific guideline section.

- The terms “male” and “female” used in these guidelines refer to anatomic-specific diseases and disease predispositions associated with individuals’ sex assigned at birth rather than their gender identity. It should be noted that gender identity and anatomic-specific diseases as well as disease predispositions are not always linked. As such, these guidelines should be applied to the individual’s corresponding known or suspected anatomic-specific disease or disease predisposition. At UnitedHealthcare, we believe that it is important to understand how all individuals, including those who are gender-diverse, choose to identify themselves. To ensure that gender-diverse individuals are treated with respect and that decisions impacting their healthcare are made correctly and with sensitivity, UnitedHealthcare recognizes all individuals with the following gender marker options: Male, Female, Transgender male, Transgender female, “X,” and “Not specified.”

General Imaging Information

- “Standard” or “conventional” imaging is most often performed in the initial and subsequent evaluations of malignancy. Standard or conventional imaging includes plain film, CT, MRI, or US.
  - Often, further advanced imaging is needed when initial imaging, such as ultrasound, CT, or MRI does not answer the clinical question. Uncertain, indeterminate, inconclusive, or equivocal may describe these situations.
- Appropriate use of contrast is a very important component of evidence-based advanced imaging use.
  - The appropriate levels of contrast for an examination (i.e. without contrast, with contrast, without and with contrast) is determined by the evidence-based guidance reflected in the condition-specific guideline sections.
  - If, during the performance of a non-contrast imaging study, there is the unexpected need to use contrast in order to evaluate a possible abnormality, then that is appropriate.[1]

Ultrasound

- Diagnostic ultrasound uses high frequency sound waves to evaluate soft tissue structures and vascular structures utilizing greyscale and Doppler techniques.
- Ultrasound allows for dynamic real-time imaging at the bedside

- Ultrasound is limited in areas where there is dense bone or other calcification.
- Ultrasound also has a relatively limited imaging window so may be of limited value to evaluate very large abnormalities
- In general, ultrasound is highly operator-dependent, and proper training and experience are required to perform consistent, high-quality evaluations.

- Indications for ultrasound may include, but are not limited to:
  - Obstetric and gynecologic imaging
  - Soft tissue and visceral imaging of the chest, abdomen, pelvis, and extremities
  - Brain and spine imaging when not obscured by dense bony structures
  - Vascular imaging when not obscured by dense bony structures
  - Procedural guidance when not obscured by dense bony structures
  - Initial evaluation of ill-defined soft tissue masses or fullness and differentiating adenopathy from mass or cyst. Prior to advanced imaging, ultrasound can be very beneficial in selecting the proper modality, body area, image sequences, and contrast level that will provide the most definitive information for the individual.
- More specific guidance for ultrasound usage, including exceptions to this general guidance, can be found throughout the condition-specific guidelines.

Computed Tomography (CT):

- The AMA CPT® manual does not describe nor assign any minimum or maximum number of sequences for any CT study. CT imaging protocols are often influenced by the individual clinical situation of the individual and additional sequences are not uncommon. There are numerous CT protocols that may be performed to evaluate specific clinical questions, and this technology is constantly undergoing development.
- CT utilizes ionizing radiation to create cross-sectional and volumetric images of the body.
  - Advantages over ultrasound include a much larger field of view, and faster completion time in general. Disadvantages compared to ultrasound include lack of portability and exposure to ionizing radiation.
  - Advantages over MRI include faster imaging, and a more spacious scanner area limiting claustrophobia. Disadvantages compared to MRI include decreased soft tissue definition, especially with non-contrast imaging, and exposure to ionizing radiation.
- CT can be performed without, with, or without and with intravenous (IV) contrast depending on the clinical indication and body area.
  - In general, non-contrast imaging is appropriate for evaluating structures with significant tissue density differences such as lung parenchyma and bony structures, or when there is a contraindication to contrast.

  - In general, CT with contrast is the most common level of contrast and can be used when there is need for improved vascular or soft tissue resolution, including better characterization of known or suspected malignancy, as well as, infectious and inflammatory conditions.
  - CT without and with contrast has a limited role as the risks of doubling the ionizing radiation exposure rarely outweigh the benefits of multiphasic imaging, though there are some exceptions which include but are not limited to:
    - Characterization of a mass
    - Characterization of arterial and venous anatomy
    - CT with contrast may be used to better characterize findings on a very recent (within two weeks) inconclusive non-contrast CT where the guidelines would support CT without and with contrast.
  - More specific guidance for CT contrast usage, including exceptions to this general guidance can be found throughout the condition-specific guidelines.
- Shellfish allergy:
  - It is commonly assumed that an allergy to shellfish indicates iodine allergy, and that this implies an allergy to iodinated contrast media used with CT. However, this is NOT true. Shellfish allergy is due to tropomyosins. Iodine plays no role in these allergic reactions. Allergies to shellfish do not increase the risk of reaction to iodinated contrast media any more than that of other allergens.[1]
- Enteric contrast (oral or rectal) is sometimes used in abdominal imaging. There is no specific CPT® code which refers to enteric contrast.
- The appropriate contrast level and anatomic region in CT imaging is specific to the clinical indication, as listed in the condition-specific guideline sections.
- CT should not be used to replace MRI in an attempt to avoid sedation unless it is listed as a recommended study the appropriate condition-specific guideline.
- There are significant potential adverse effects associated with the use of iodinated contrast media. These include hypersensitivity reactions, thyroid dysfunction, and contrast-induced nephropathy (CIN). Individuals with impaired renal function are at increased risk for CIN.[2]
- Both contrast CT and MRI may be considered to have the same risk profile with renal failure (GFR <30 mL/min).
- The use of CT contrast should proceed with caution in pregnant and breastfeeding individuals. There is a theoretical risk of contrast toxicity to the fetal and infant thyroid. The procedure can be performed if the specific need for that contrast-enhanced procedure outweighs risk to the fetus. Breastfeeding individuals may reduce this risk by choosing to pump and discard breast milk for 12-24 hours after the contrast injection.
- CT without contrast may be appropriate if clinical criteria for CT with contrast are met AND the individual has:
  - Elevated blood urea nitrogen (BUN) and/or creatinine

  - Renal insufficiency
  - Allergies to iodinated contrast
  - Thyroid disease which could be treated with I-131
  - Diabetes
  - Very elderly
  - Urgent or emergent settings due to availability
  - Trauma
- CT is superior to other imaging modalities in certain conditions, including but not limited to the following:
  - Screening following trauma
  - Imaging pulmonary disease
  - Imaging abdominal and pelvic viscera
  - Imaging of complex fractures
  - Evaluation of inconclusive findings on Ultrasound or MRI, or if there is a contraindication to MRI
- More specific guidance for CT usage, including exceptions to this general guidance can be found throughout the condition specific guidelines.

Magnetic Resonance Imaging (MRI):

- The AMA CPT® manual does not describe nor assign any minimum or maximum number of sequences for any MRI study. MRI protocols are often influenced by the individual clinical situation of the individual and additional sequences are not uncommon. There are numerous MRI sequences that may be performed to evaluate specific clinical questions, and this technology is constantly undergoing development.
- Magnetic Resonance Imaging (MRI) utilizes the interaction between the intrinsic radiofrequency of certain Molecules in the body (hydrogen in most cases) and a strong external magnetic field.
  - MRI is often superior for advanced imaging of soft tissues and can also define physiological processes in some instances [e.g. edema, loss of circulation (AVN), and increased vascularity (tumors)].
  - MRI does not use ionizing radiation, and even non-contrast images have much higher soft tissue definition than CT or Ultrasound
  - MRI typically takes much longer than either CT or Ultrasound, and for some individuals may require sedation. It is also much more sensitive to individual motion that can degrade image quality than either CT or Ultrasound.
- MRI Breast and MRI Chest are not interchangeable, as they focus detailed sequences on different adjacent body parts.
- MRI may be utilized either as the primary advanced imaging modality, or when further definition is needed based on CT or ultrasound imaging.

- Most orthopedic and dental implants are not magnetic. These include hip and knee replacements; plates, screws, and rods used to treat fractures; and cavity fillings. Yet, all of these metal implants can distort the MRI image if near the part of the body being scanned.
  - Other implants, however, may have contraindications to MRI. These include:
    - Pacemakers
    - ICD or heart valves
    - Metal implants in the brain
    - Metal implants in the eyes or ears
    - Infusion catheters and bullets or shrapnel.
  - CT can therefore be an alternative study to MRI in these scenarios.
- The contrast level and anatomic region in MRI imaging is specific to the clinical indication, as listed in the specific guideline sections.
- MRI is commonly performed without, without and with contrast.
  - Non-contrast imaging offers excellent tissue definition
  - Imaging without and with contrast is commonly used when needed to better characterize tissue perfusion and vascularization.
    - Most contrast is gadolinium based and causes T2 brightening of the vascular and extracellular spaces.
    - Some specialized gadolinium and non-gadolinium contrast agents are available, and most commonly used for characterizing liver lesions.
  - MRI with contrast only is rarely appropriate and is usually used to better characterize findings on a recent inconclusive non-contrast MRI, commonly called a completion study.
  - MRI contrast is contraindicated in pregnant individuals
  - More specific guidance for MRI contrast usage, including exceptions to this general guidance can be found throughout the condition specific guidelines.
- MRI may be preferred in individuals with renal failure, and in individuals allergic to intravenous CT contrast.
  - Both contrast CT and MRI may be considered to have the same risk profile with renal failure (GFR <30 mL/min).[2]
  - Gadolinium can cause Nephrogenic Systemic Fibrosis (NSF). The greater the exposure to gadolinium in individuals with a low GFR (especially if on dialysis), the greater the chance of individuals developing NSF.
  - Multiple studies have demonstrated potential for gadolinium deposition following the use of gadolinium-based contrast agents (GBCAs) for MRI studies.[3,4,5,6,7] The U.S. Food and Drug Administration (FDA) has noted that there is currently no evidence to suggest that gadolinium retention in the brain is harmful and restricting gadolinium-based contrast agents (GBCAs) use is not warranted at

this time. It has been recommended that GBCA use should be limited to circumstances in which additional information provided by the contrast agent is necessary and the necessity of repetitive MRIs with GBCAs should be assessed.[8]

- A CT may be approved in place of an MRI when clinical criteria are met for MRI AND there is a contraindication to having an MRI (pacemaker, ICD, insulin pump, neurostimulator, etc.)
  - When replacing MRI with CT, contrast level matching should occur as follows:
    - MRI without contrast → CT without contrast
    - MRI without and with contrast → CT with contrast or CT without and with contrast
- The following situations may impact the appropriateness for MRI and or MR contrast
  - Caution should be taken in the use of gadolinium in individuals with renal failure
  - The use of gadolinium contrast agents is contraindicated during pregnancy unless the specific need for that procedure outweighs risk to the fetus.
  - MRI can be performed for non-ferromagnetic body metals (i.e. titanium), although some imaging facilities will consider it contraindicated if recent surgery, regardless of the metal type
- MRI should not be used as a replacement for CT for the sole reason of avoidance of ionizing radiation when MRI is not supported in the condition-based guidelines, since it does not solve the problem of overutilization.
- MRI is superior to other imaging modalities in certain conditions, including but not limited to the following:
  - Imaging the brain and spinal cord
  - Characterizing visceral and musculoskeletal soft tissue masses
  - Evaluating musculoskeletal soft tissues including ligaments and tendons
  - Evaluating inconclusive findings on ultrasound or CT
  - Individuals who are pregnant or have high radiation sensitivity
  - Suspicion, diagnosis of or surveillance of infections
- More specific guidance for MRI usage, including exceptions to this general guidance can be found throughout the condition-specific guidelines.

Positron Emission Tomography (PET):

- PET is a nuclear medicine study that uses a positron emitting radiotracer to create cross-sectional and volumetric images based on tissue metabolism.
- Conventional imaging (frequently CT, sometimes MRI or bone scan) of the affected area(s) drives much of initial and restaging and surveillance imaging for malignancy and other chronic conditions. PET is not indicated for surveillance imaging unless specifically stated in the condition-specific guideline sections.

- PET/MRI is generally not supported, see **PET-MRI (Preface-5.3)**
- PET is rarely performed as a single modality but is typically performed as a combined PET/CT.
  - The unbundling of PET/CT into separate PET and diagnostic CT CPT® codes is not supported, because PET/CT is done as a single study.
- PET/CT lacks the tissue definition of CT or MRI, but is fairly specific for metabolic activity based on the radiotracer used
  - Fluorodeoxyglucose (fluorine-18-2-fluoro-2-deoxy-D-glucose [FDG]) is the most common PET radiotracer and images glucose metabolism
  - Some specialized radiotracers including Gallium-68 DOTATATE, C-11 Choline, F-18 Fluciclovine (AXUMIN®), 68Ga PSMA-11, and 18F Piflufolastat PSMA (Pylarify®) are supported in evaluation for some oncologic conditions, while the use of other radiotracers including but not limited to F-18 Sodium Fluoride is not supported.
- Indications for PET/CT may include
  - Oncologic Imaging for evaluation of tumor metabolic activity
  - Cardiac Imaging for evaluation of myocardial metabolic activity
  - Brain Imaging for evaluation of metabolic activity for procedural planning
- More specific guidance for PET usage, including exceptions to this general guidance can be found throughout the condition-specific guidelines.

Overutilization of Advanced Imaging:

- A number of recent reports describe overutilization in many areas of advanced imaging and other procedures, which may include:
  - High level testing without consideration of less invasive, lower cost options which may adequately address the clinical question at hand
  - Excessive radiation and costs with unnecessary testing
  - Defensive medical practice
  - CT without and with contrast (so called “double contrast studies) requests, which have few current indications.
  - MRI requested in place of CT to avoid radiation without considering the primary indication for imaging
  - Adult CT settings and protocols used for smaller people and children
  - Unnecessary imaging procedures when the same or similar studies have already been conducted.
- A review of the imaging or other relevant procedural histories of all individuals presenting for studies has been recognized as one of the more important processes that can be significantly improved. By recognizing that a duplicate or questionably indicated examination has been ordered for individuals, it may be possible to avoid

exposing them to unnecessary risks.[9, 10] To avoid these unnecessary risks, the precautions below should be considered.

- The results of initial diagnostic tests or radiologic studies to narrow the differential diagnosis should be obtained prior to performing further tests or radiologic studies.
- The clinical history should include a potential indication such as a known or suspected abnormality involving the body part for which the imaging study is being requested. These potential indications are addressed in greater detail within the applicable guidelines.
- The results of the requested imaging procedures should be expected to have an impact on individual management or treatment decisions.
- Repeat imaging studies are not generally necessary unless there is evidence of disease progression, recurrence of disease, and/or the repeat imaging will affect an individual's clinical management.

- Preoperative imaging/pre-surgical planning imaging/pre-procedure imaging is not indicated if the surgery/procedure is not indicated. Once the procedure has been approved or if the procedure does not require prior authorization, the appropriate pre-procedural imaging may be approved.

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Coding Issues (Preface-4)

Guideline

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3D Rendering (Preface-4.1)

CPT® 76376 and CPT® 76377:

- Both codes require concurrent supervision of the image post-processing 3D manipulation of the volumetric data set and image rendering.
  - Concurrent supervision is defined as active physician participation in and monitoring of the reconstruction process including design of the anatomic region that is to be reconstructed; determination of the tissue types and actual structures to be displayed (e.g., bone, organs, and vessels); determination of the images or cine loops that are to be archived; and monitoring and adjustment of the 3D work product. The American College of Radiology (ACR) recommends that it is best to document the physician's supervision or participation in the 3D reconstruction of images.
- These two codes differ in the need for and use of an independent workstation for post-processing.
  - CPT® 76376 reports procedures not requiring image post-processing on an independent workstation.
  - CPT® 76377 reports procedures that require image post-processing on an independent workstation.
- These 3D rendering codes should not be used for 2D reformatting.
- Two-dimensional reconstruction (e.g. reformatting an axial scan into the coronal plane) is now included in all cross-sectional imaging base codes and is not separately reimbursable.
- The codes used to report 3D rendering for ultrasound and echocardiography are also used to report the 3D post processing work on CT, MRI, and other tomographic modalities.
- Providers may be required to obtain prior authorization on these 3D codes even if prior authorization is not required for the echocardiography and/or ultrasound procedure codes. It may appear that UnitedHealthcare pre-authorizes echocardiography and/or ultrasound when, in fact, it may only be the 3D code that needs the prior authorization.
- CPT® codes for 3D rendering should not be billed in conjunction with computer-aided detection (CAD), MRA, CTA, nuclear medicine SPECT studies, PET, PET/CT, Mammogram, MRI Breast, US Breast, CT Colonography (virtual colonoscopy), Cardiac MRI, Cardiac CT, or Coronary CTA studies.
- CPT® 76377 (3D rendering requiring image post-processing on an independent workstation) or CPT® 76376 (3D rendering not requiring image post-processing on an independent workstation) can be considered in the following clinical scenarios:
  - Bony conditions:

- Evaluation of congenital skull abnormalities in newborns, infants, and toddlers (usually for preoperative planning)
- Complex fractures (comminuted or displaced)/dislocations of any joint (For preoperative planning when conventional imaging is insufficient)
- Spine fractures, pelvic/acetabulum fractures, intra-articular fractures (For preoperative planning when conventional imaging is insufficient)
- Preoperative planning for other complex surgical cases
- Complex facial fractures

- Preoperative planning for other complex surgical cases
- Cerebral angiography
- Pelvis conditions:
  - Uterine intra-cavitary lesion when initial US is equivocal (See **Abnormal Uterine Bleeding (AUB) (PV-2.1)** and **Leiomyoma/Uterine Fibroids (PV-12.1)** in the Pelvis Imaging Guidelines)
  - Hydrosalpinxes or peritoneal cysts when initial US is indeterminate (See
  - **Complex Adnexal Masses (PV-5.3)** in the Pelvis Imaging Guidelines)
  - Lost IUD (inability to feel or see IUD string) with initial US (See **Intrauterine Device (PV-10.1)** in the Pelvis Imaging Guidelines)
  - Uterine anomalies with initial US (See **Uterine Anomalies (PV-14.1)** in the Pelvis Imaging Guidelines)
  - Infertility (See **Initial Infertility Evaluation, Female (PV-9.1)** in the Pelvis Imaging Guidelines)
- Abdomen conditions:
  - CT Urogram (See **Hematuria and Hydronephrosis (AB-39)** in the Abdomen Imaging Guidelines)
  - MRCP (See **MR Cholangiopancreatography (MRCP) (AB-27)** in the Abdomen Imaging Guidelines)

CT-, MR-, or Ultrasound-Guided Procedures (Preface-4.2)

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- CT, MR, and Ultrasound guidance procedure codes contain all the imaging necessary to guide a needle or catheter. It is inappropriate to routinely bill a diagnostic procedure code in conjunction with a guidance procedure code.
- Imaging studies performed as part of a CT-, MR-, or Ultrasound-guided procedure should be reported using the CPT® codes in the following table.

TABLE: Imaging Guidance Procedure Codes

CPT®	Description
76942	Ultrasonic guidance for needle placement
77022	MR guidance for, and monitoring of parenchymal tissue ablation
77021	MR guidance for needle placement
77013	CT guidance for, and monitoring of parenchymal tissue ablation
77012	CT guidance for needle placement
77011	CT guidance for stereotactic localization
75989	Imaging guidance for percutaneous drainage with placement of catheter (all modalities)
19086	Biopsy, breast, with placement of breast localization device(s), when performed, and imaging of the biopsy specimen, when performed, percutaneous; each additional lesion, including MR guidance
19085	Biopsy, breast, with placement of breast localization device(s), when performed, and imaging of the biopsy specimen, when performed, percutaneous; first lesion, including MR guidance

CPT® 19085 and CPT® 19086:

- The proper way to bill an MRI guided breast biopsy is CPT® 19085 (Biopsy, breast, with placement of breast localization device(s), when performed, and imaging of the biopsy specimen, when performed, percutaneous; first lesion, including MR guidance). Additional lesions should be billed using CPT® 19086.
  - **CPT® 77021 (**MR guidance for needle placement) is not an appropriate code for a breast biopsy.

CPT® 75989:

- This code is used to report imaging guidance for a percutaneous drainage procedure in which a catheter is left in place.
- This code can be used to report whether the drainage catheter is placed under fluoroscopy, ultrasound, CT, or MR guidance modality.

CPT® 77011:

- A stereotactic CT localization scan is frequently obtained prior to sinus surgery. The dataset is then loaded into the navigational workstation in the operating room for use during the surgical procedure. The information provides exact positioning of surgical instruments with regard to the individual's 3D CT images.[3]
- In most cases, the preoperative CT is a technical-only service that does not require interpretation by a radiologist.
  - The imaging facility should report CPT® 77011 when performing a scan not requiring interpretation by a radiologist.
  - If a diagnostic scan is performed and interpreted by a radiologist, the appropriate diagnostic CT code (e.g., CPT® 70486) should be used.
  - It is not appropriate to report both CPT® 70486 and CPT® 77011 for the same CT stereotactic localization imaging session.
  - 3D Rendering (CPT® 76376 or CPT® 76377) should not be reported in conjunction with CPT® 77011 (or CPT® 70486 if used). The procedure inherently generates a 3D dataset.

CPT® 77012 (CT) and CPT® 77021 (MR):

- These codes are used to report imaging guidance for needle placement during biopsy, aspiration, and other percutaneous procedures.
- They represent the radiological supervision and interpretation of the procedure and are often billed in conjunction with surgical procedure codes.
  - For example, CPT® 77012 is reported when CT guidance is used to place the needle for a conventional arthrogram.
  - Only codes representing percutaneous surgical procedures should be billed with CPT® 77012 and CPT® 77021. It is inappropriate to use with surgical codes for open, excisional, or incisional procedures.
  - **CPT® 77021** (MR guidance for needle placement) is not an appropriate code for breast biopsy.
    - CPT® 19085 would be appropriate for the first breast biopsy site, and CPT® 19086 would be appropriate for additional concurrent biopsies.

CPT® 77013 (CT) and CPT® 77022 (MR):

- These codes include the initial guidance to direct a needle electrode to the tumor(s), monitoring for needle electrode repositioning within the lesion, and as necessary for multiple ablations to coagulate the lesion and confirmation of satisfactory coagulative necrosis of the lesion(s) and comparison to pre-ablation images.
  - **NOTE**: CPT® 77013 should only be used for non-bone ablation procedures.
    - CPT® 20982 includes CT guidance for bone tumor ablations.
  - Only codes representing percutaneous surgical procedures should be billed with CPT® 77013 and CPT® 77022. It is inappropriate to use with surgical codes for open, excisional, or incisional procedures.

- CPT® 77012 and CPT® 77021 (as well as guidance codes CPT® 76942 [US], and CPT® 77002 - CPT® 77003 [fluoroscopy]) describe radiologic guidance by different modalities.
  - Only one unit of any of these codes should be reported per individual encounter (date of service). The unit of service is considered to be the individual encounter, not the number of lesions, aspirations, biopsies, injections, or localizations.

Unlisted Procedures/Therapy Treatment Planning (Preface-4.3)

PRF.CD.0004.3.UOH
v1.0.2023

CPT®	Description
78999	Unlisted procedure, diagnostic nuclear medicine
76498	Unlisted MR procedure (e.g., diagnostic or interventional)
76497	Unlisted CT procedure (e.g., diagnostic or interventional)

- These unlisted codes should be reported whenever a diagnostic or interventional CT or MR study is performed in which an appropriate anatomic site-specific code is not available.
  - A Category III code that describes the procedure performed must be reported rather than an unlisted code if one is available.
- CPT® 76497 or CPT® 76498 (Unlisted CT or MRI procedure) can be considered in the following clinical scenarios:
  - Studies done for navigation and planning for neurosurgical procedures (i.e. Stealth or Brain Lab Imaging)[1,2]
  - Custom joint Arthroplasty planning (not as Alternative Recommendation) (See **Osteoarthritis (MS-12.1)** in the Musculoskeletal Imaging Guidelines)
  - Any procedure/surgical planning if thinner cuts or different positional acquisition (than those on the completed diagnostic study) are needed. These could include navigational bronchoscopy. See **Navigational Bronchoscopy (CH-1.7)** in the Chest Imaging Guidelines

Therapy Treatment Planning

- Radiation Therapy Treatment Planning: See **Unlisted Procedure Codes in Oncology (ONC-1.5)** In the Oncology Imaging Guidelines

CPT® 76380 Limited or Follow-up CT (Preface-4.5)

PRF.CD.0004.5.UOH
v1.0.2023

- CPT® 76380 describes a limited or follow-up CT scan. The code is used to report any CT scan, for any given area of the body, in which the work of a full diagnostic code is not performed.
- Common examples include (but are not limited to):
  - Limited sinus CT imaging protocol
  - Limited or follow-up slices through a known pulmonary nodule
  - Limited slices to assess a non-healing fracture (such as the clavicle)
- Limited CT (CPT® 76380) is not indicated for treatment planning purposes. Please See **Unlisted Procedure Codes in Oncology (ONC-1.5)** in the Oncology Imaging Guidelines.
- It is inappropriate to report CPT® 76380, in conjunction with other diagnostic CT codes, to cover 'extra slices' in certain imaging protocols.
  - There is no specific number of sequences or slices defined in any CT CPT® code definition.
  - The AMA, in *CPT® 2019*, does not describe nor assign any minimum or maximum number of sequences or slices for any CT study.
    - A few additional slices or sequences are not uncommon.
    - CT imaging protocols are often influenced by the individual clinical situation of the individual. Sometimes the protocols require more time and sometimes less.

SPECT/CT Imaging (Preface-4.6)

PRF.CD.0004.6.UOH
v1.0.2023

- SPECT/CT involves SPECT (Single Photon Emission Computed Tomography) nuclear medicine imaging and CT for optimizing location, accuracy, and attenuation correction and combines functional and anatomic information.
  - Common studies using this modality include ^{123}I- or ^{131}I-Metaiodobenzylguanidine (MIBG) and octreotide scintigraphy for neuroendocrine tumors.
- Hybrid Nuclear/CT scan can be CPT® 78830 - single area and single day, CPT® 78831 - 2 or more days, or CPT® 78832 - 2 areas with one day and 2-day study.
- A procedure code for SPECT/CT parathyroid nuclear imaging, (CPT® 78072), became effective January 1, 2013.

CPT® 76140 Interpretation of an Outside Study (Preface-4.7)

PRF.CD.0004.7.UOH
v1.0.2023

- It is inappropriate to use diagnostic imaging codes for interpretation of a previously performed exam that was completed at another facility.
  - If the outside exam is being used for comparison with a current exam, the diagnostic code for the current examination includes comparison to the prior study[4]
  - CPT® 76140 is the appropriate code to use for an exam which was completed elsewhere, and a secondary interpretation of the images is requested.[5]

Quantitative MR Analysis of Tissue Composition (Preface-4.8)

PRF.CD.0004.8.UOH
v1.0.2023

- Category III CPT® codes for quantitative analysis of multiparametric MR (mp-MRI) data with and without an associated diagnostic MRI have been established. Quantitative mp-MRI uses software to analyze tissue physiology of visceral organs and other anatomic structures non-invasively. At present, these procedures are primarily being used in clinical trials and there is no widely recommended indications in clinical practice. As such, these procedures are considered to be investigational and experimental for coverage purposes.
  - CPT® 0648T (without diagnostic MRI) and CPT® 0649T (with diagnostic MRI) refer to data analysis with and without associate imaging of a single organ, with its most common use being LiverMultiScan (LMS)
    - See **Fatty Liver (AB-29.2)** in the Abdomen Imaging Guidelines
  - CPT® 0697T (without diagnostic MRI) and CPT® 0698T (with diagnostic MRI) refer to data analysis with and without associate imaging of a multiple organs, with its most common use being CoverScan.

HCPCS Codes (Preface-4.9)

PRF.CD.0004.9.UOH
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- Healthcare Common Procedure Coding System (HCPCS) codes are utilized by some hospitals in favor of the typical Level 3 CPT® Codes. These codes are typically 4 digits preceded by a C, or S[6]
  - Many of these codes have similar code descriptions to level 3 CPT® codes (i.e. C8931 – MRA with dye, Spinal Canal, and 72159-MRA Spinal canal)
  - If cases are submitted with HCPCS codes with similar code descriptions to the typical level 3 CPT® codes, those procedures should be managed in the same manner as the typical CPT® codes
  - HCPCS code management is discussed further in the applicable guideline sections
- Requests for many Healthcare Common Procedure Coding System (HCPCS) codes, including nonspecific codes such as S8042 [Magnetic resonance imaging (MRI), low-field], should be redirected to a more appropriate and specific CPT® code. Exceptions are noted in the applicable guideline sections.

References (Preface-4)

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2. Intraoperative MR. Brainlab. https://www.brainlab.com/surgery-products/overview-neurosurgery-products/intraoperative-mr/
3. Experience the Advanced 3D Sinus Surgery Planning with Scopis Building Blocks planning software. Scopis Planning. http://planning.scopis.com/
4. ACR Radiology Coding SourceTM March-April 2007 Q and A. www.acr.org. https://www.acr.org/Advocacy-and-Economics/Coding-Source/ACR-Radiology-Coding-Source-March-April-2007-Q-and-A
5. Chung CY, Alson MD, Duszak R, Degnan AJ. From imaging to reimbursement: what the pediatric radiologist needs to know about health care payers, documentation, coding and billing. *Pediatric Radiology*. 2018;48(7):904-914. doi:10.1007/s00247-018-4104-1
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Whole Body Imaging (Preface-5)

Guideline

Whole Body CT Imaging (Preface-5.1)

PRF.WB.0005.1.UOH
v1.0.2023

- Whole-body CT or LifeScan (CT Brain, Chest, Abdomen, and Pelvis) for screening of asymptomatic individuals is not indicated. The performance of whole-body screening CT examinations in healthy individuals does not meet any of the current validity criteria for screening studies and there is no clear documentation of benefit versus radiation risk.
- Whole-body low dose CT is supported for oncologic staging in Multiple Myeloma (See **Multiple Myeloma and Plasmacytomas (ONC-25)** in the Oncology Imaging Guidelines)

Whole Body MR Imaging (Preface-5.2)

PRF.WB.0005.2.UOH
v1.0.2023

- Whole-body MRI (WBMRI) is, with the exception of select cancer predisposition syndromes and autoimmune conditions discussed below, generally not supported at this time due to lack of standardization in imaging technique and lack of evidence that WBMRI improves individual outcome for any individual disease state.
  - While WBMRI has the benefit of whole-body imaging and lack of radiation exposure, substantial variation still exists in the number of images, type of sequences (STIR vs. diffusion weighting, for example), and contrast agent(s) used.
- Coding considerations:
  - There are no established CPT® or HCPCS codes for reporting WBMRI.
  - WBMRI is at present only reportable using CPT® 76498. All other methods of reporting whole-body MRI are inappropriate, including:
    - Separate diagnostic MRI codes for multiple individual body parts
    - MRI Bone Marrow Supply (CPT® 77084)
- Disease-specific considerations:
  - Cancer screening:
    - Interval WBMRI is recommended for cancer screening in individuals with select cancer predisposition syndromes. Otherwise, WBMRI has not been shown to improve outcomes for cancer screening. See **Li-Fraumeni Syndrome (LFS) (PEDONC-2.2)**, **Hereditary Paraganglioma-Pheochromocytoma (HPP) Syndromes (PEDONC-2.13)**, **Constitutional Mismatch Repair Deficiency (CMMRD or Turcot Syndrome) (PEDONC-2.15)** in the Pediatric Oncology Imaging Guidelines for additional information
  - Cancer staging and restaging
    - While the feasibility of WBMRI has been established, data remain conflicting on whether WBMRI is of equivalent diagnostic accuracy compared with standard imaging modalities such as CT, scintigraphy, and PET imaging.
    - Evidence has not been published establishing WBMRI as a standard evaluation for any type of cancer.
  - Autoimmune disease
    - WBMRI can be approved in some situations for individuals with chronic recurrent multifocal osteomyelitis. See **Chronic Recurrent Multifocal Osteomyelitis (PEDMS-10.2)** in the Pediatric Musculoskeletal Imaging Guidelines for additional information.

PET-MRI (Preface-5.3)

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- PET-MRI is generally not supported for a vast majority of oncologic and neurologic conditions due to lack of standardization in imaging technique and interpretation. However, it may be appropriate in select circumstances when the following criteria are met:
  - The individual meets guideline criteria for PET-CT **AND** PET-CT is not available at the treating institution **AND**
  - The provider requests PET-MRI in lieu of PET-CT
- When the above criteria are met, PET-MRI may be reported using the code combination of PET Whole-Body (CPT® 78813) and MRI Unlisted (CPT® 76498). All other methods of reporting PET-MRI are inappropriate.
  - When clinically appropriate, diagnostic MRI codes may be indicated at the same time as the PET-MRI code combination.
- See **PET Imaging in Pediatric Oncology (PEDONC-1.4)** in the Pediatric Oncology Imaging Guidelines, **PET Brain Imaging (PEDHD-2.3)**, and **Special Imaging Studies in Evaluation for Epilepsy Surgery (PEDHD-6.3)** in the Pediatric Head Imaging Guidelines for more information

References (Preface-5)

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7. National Comprehensive Cancer Network (NCCN) Guidelines Version 2 2022. – March 19, 2022, Genetic/Familial High Risk Assessment: Breast and Ovarian, available at: https://www.nccn.org/professionals/physician_gls/pdf/genetics_bop.pdf Referenced with permission from the NCCN Clinical Practice Guidelines in Oncology (NCCN Guidelines™) for Genetic/Familial High-Risk Assessment: Breast, Ovarian, and Pancreatic V2.2022. – March 19, 2022 ©. 2022 National Comprehensive Cancer Network, Inc. All rights reserved. The NCCN Guidelines™ and illustrations herein may not be reproduced in any form for any purpose without the express written permission of the NCCN. To view the most recent and complete version of the NCCN Guidelines™, go online to NCCN.org

References (Preface-6)

Guideline

References (Preface-6.1)

References (Preface-6.1)

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- Complete reference citations for the journal articles are embedded within the body of the guidelines and/or may be found on the Reference pages at the end of some guideline sections.
- The website addresses for certain references are included in the body of the guidelines but are not hyperlinked to the actual website.
- The website address for the American College of Radiology (ACR) Appropriateness Criteria® is **http://www.acr.org**.

Copyright Information (Preface-7)

Guideline

Copyright Information (Preface-7.1)

Copyright Information (Preface-7.1)

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Trademarks (Preface-8)

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Trademarks (Preface-8.1)

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Trademarks (Preface-8.1)

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Musculoskeletal Imaging Guidelines

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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
Ultrasound	**CPT®**
Ultrasound, complete joint (ie, joint space and peri-articular soft tissue structures) real-time with image documentation	76881
Ultrasound, limited, joint or other nonvascular extremity structure(s) (e.g., joint space, peri-articular tendon[s], muscle[s], nerve[s], other soft tissue structure[s], or soft tissue mass[es]), real-time with image documentation	76882
Ultrasound, pelvic (nonobstetric), real time with image documentation	76857

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
Radiopharmaceutical localization of tumor, inflammatory process or distribution of radiopharmaceutical agent(s) (includes vascular flow and blood pool imaging, when performed); planar, single area (e.g., head, neck, chest, pelvis), single day imaging	78800
Radiopharmaceutical localization of tumor, inflammatory process or distribution of radiopharmaceutical agent(s) (includes vascular flow and blood pool imaging, when performed); planar, 2 or more areas (eg, abdomen and pelvis, head and chest), 1 or more days imaging or single area imaging over 2 or more days	78801
Radiopharmaceutical localization of tumor, inflammatory process or distribution of radiopharmaceutical agent(s) (includes vascular flow and blood pool imaging, when performed); planar, whole body, single day imaging	78802
Radiopharmaceutical localization of tumor, inflammatory process or distribution of radiopharmaceutical agent(s) (includes vascular flow and blood pool imaging, when performed); tomographic (SPECT), single area (e.g., head, neck, chest, pelvis), single day imaging	78803
Radiopharmaceutical localization of tumor, inflammatory process or distribution of radiopharmaceutical agent(s) (includes vascular flow and blood pool imaging, when performed); tomographic (SPECT) with concurrently acquired computed tomography (CT) transmission scan for anatomical review, localization and determination/detection of pathology, single area (e.g., head, neck, chest, pelvis), single day imaging	78830
Radiopharmaceutical localization of tumor, inflammatory process or distribution of radiopharmaceutical agent(s) (includes vascular flow and blood pool imaging, when performed); tomographic (SPECT), minimum 2 areas (e.g., pelvis and knees, abdomen and pelvis), single day imaging, or single area imaging over 2 or more days	78831
Radiopharmaceutical localization of tumor, inflammatory process or distribution of radiopharmaceutical agent(s) (includes vascular flow and blood pool imaging, when performed); tomographic (SPECT) with concurrently acquired computed tomography (CT) transmission scan for anatomical review, localization and determination/detection of pathology, minimum 2 areas (e.g., pelvis and knees, abdomen and pelvis), single day imaging, or single area imaging over 2 or more days	78832

General Guidelines (MS-1)

General Guidelines (MS-1.0)

- Before advanced diagnostic imaging can be considered, there must be an in-person clinical evaluation as well as a clinical re-evaluation after a trial of failed conservative treatment; the clinical re-evaluation may consist of an in-person evaluation or other meaningful contact with the provider's office such as email, web, or telephone communications.
- An in-person clinical evaluation for the current episode of the condition is required to have been performed before advanced imaging can be considered. This may have been either the initial clinical evaluation or the clinical re-evaluation.
- The in-person 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, telemedicine, or messaging) are not acceptable as an in-person evaluation.
- Prior to advanced imaging consideration, the results of plain x-rays performed after the current episode of symptoms started or changed need to be available to the requesting provider of the advanced imaging study for all musculoskeletal conditions, unless otherwise noted in the guidelines.
  - Initial plain x-ray can 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.
  - X-ray may provide complementary clinical information regarding detailed bony anatomy, and may assist with preoperative planning when surgery is being contemplated.
  - X-ray may provide clinically significant details for soft tissue masses, such as soft tissue calcification, presence or absence of phleboliths, radiographic density, and effect on adjacent bone.
  - X-ray often has a larger field of view than MRI or CT and has the potential to identify more proximal or distal pathology in an extremity.
- 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 in-person encounter or documentation of other meaningful contact with the requesting provider's office by the individual (e.g. telephone call, electronic mail, telemedicine, 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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Imaging Techniques (MS-2)
Plain X-Ray (MS-2.1)
MRI or CT (MS-2.2)
Ultrasound (MS-2.3)
Contrast Issues (MS-2.4)
Positron Emission Tomography (PET/CT) (MS-2.5)
Nuclear Medicine (MS-2.6)

Plain X-Ray (MS-2.1)

- The results of plain x-rays performed after the current episode of symptoms started or changed need to be available to the requesting provider of the advanced imaging study for all musculoskeletal conditions, 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.

MRI or CT (MS-2.2)

- 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 individuals who cannot undergo an MRI, such as those with pacemakers.

Positional MRI

- Positional MRI is also referred to as dynamic, standing, weight-bearing, or kinetic MRI. Currently, there is inadequate scientific evidence to support the medical necessity of this study. As such, it should be considered experimental or investigational.

Positional CT

- Positional CT, also referred to as weight-bearing or cone beam CT, may be useful in imaging of the foot and ankle.
  - If a request for foot or ankle imaging with positional CT meets medical necessity criteria for standard CT imaging (as defined in the condition-specific guidelines), the request may be approved.
    - Positional CT of anatomic areas other than the foot and ankle are considered experimental or investigational.

dGEMRIC Evaluation of Cartilage

- Delayed gadolinium enhanced Magnetic Resonance Imaging of Cartilage (dGEMRIC) is a technique where an MRI estimates joint cartilage glycosaminoglycan content after penetration of the contrast agent in order to detect cartilage breakdown. Currently, there is inadequate scientific evidence to support the medical necessity of this study. As such, it should be considered experimental or investigational for the diagnosis and surveillance of, or preoperative planning related to chondral pathology.

Ultrasound (MS-2.3)

- Ultrasound (US) uses sound waves to produce images that can be used to evaluate a variety of musculoskeletal disorders. As with US in general, musculoskeletal US is highly operator-dependent, and proper training and experience are required to perform consistent, high-quality evaluations.

Contrast Issues (MS-2.4)

- 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 individuals 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.

Positron Emission Tomography (PET/CT) (MS-2.5)

- PET/CT is a nuclear medicine/computed tomography (CT) fusion study that uses a positron emitting radiotracer to create cross-sectional and volumetric images based on tissue metabolism. PET imaging fusion with CT allows for better anatomic localization of the areas of abnormal increased tissue activity seen on PET.
- PET/CT is indicated for imaging of certain musculoskeletal conditions when MRI or CT is equivocal or cannot be performed. See: **Nuclear Medicine (MS-28)** for specific indications.
  - At this time, FDG is the only indicated radiotracer for use with PET/CT in the imaging of musculoskeletal conditions.

Nuclear Medicine (MS-2.6)

- A bone scan is a nuclear medicine imaging study in which an amount of radioactive material is injected and images are obtained at different time intervals, depending on the condition. A bone scan is done to reveal problems with bone metabolism. Areas where bone cells are repairing themselves show the most activity. It can help diagnose a number of bone conditions, including cancer of the bone or metastasis, location of bone inflammation, fracture, and bone infection.
- Nuclear Medicine WBC Scan is performed using radioactive material which is tagged to the white blood cells. When injected into the body, the material attaches to sites of inflammation/infection. Once distributed in these areas, the sites of suspected infection/inflammation can be seen on nuclear imaging equipment. These can be imaged as a planar study, SPECT study, or SPECT/CT study.
- Bone Marrow Imaging is used in combination with a WBC Scan to help differentiate between true infection and physiological marrow uptake. The bone marrow scan provides a map of the normal physiological white cell uptake that is then compared to the white blood cell scan. Any discordance in white cell uptake (e.g., more WBC uptake than marrow uptake) between the two studies indicates a focus of infection.
- See: **Nuclear Medicine (MS-28)** and condition specific guidelines for specific indications.

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3D Rendering (MS-3)

- Indications for musculoskeletal 3-D image post-processing for preoperative planning when conventional imaging is insufficient for:
  - Complex fractures (comminuted or displaced)/dislocations) of any joint.
  - Spine fractures, pelvic/acetabulum fractures, intra-articular fractures.
  - Preoperative planning for other complex surgical cases.
- 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 indicated 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.

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Avascular Necrosis (AVN)/Osteonecrosis (MS-4)

AVN (MS-4.1)

- MRI without contrast, MRI without and with contrast, or CT without contrast of the area of interest 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 for treatment planning in the following situations:
  - Femoral head:
    - MRI Hip without contrast (CPT® 73721) or CT Hip without contrast (CPT® 73700)
  - Distal femur:
    - MRI Knee without contrast (CPT® 73721) or CT Knee without contrast (CPT® 73700)
  - Talus:
    - MRI Ankle without contrast (CPT® 73721) or CT Ankle without contrast (CPT® 73700)
  - Tarsal navicular (Kohler Disease):
    - MRI Foot without contrast (CPT® 73718) or CT Foot without contrast (CPT® 73700)
  - Metatarsal head (Frieberg's Infraction):
    - MRI Foot without contrast (CPT® 73718) or CT Foot without contrast (CPT® 73700)
  - Humeral head:
    - MRI Shoulder without contrast (CPT® 73221) or CT Shoulder without contrast (CPT® 73200)
  - Lunate (Kienbock's Disease)/Scaphoid (Preiser's Disease):
    - CT Wrist without contrast (CPT® 73200) or MRI Wrist without contrast (CPT® 73221)
- Individuals with acute lymphoblastic leukemia and known or suspected osteonecrosis should be imaged according to guidelines in **Acute Lymphoblastic Leukemia (PEDONC-3.2)**
- Known or suspected osteonecrosis in long-term cancer survivors should be imaged according to guidelines in **Osteonecrosis in Long Term Cancer Survivors (PEDONC-19.4)**

Background and Supporting Information

- Classification systems use a combination of plain radiographs, MRI, and clinical features to stage avascular necrosis.

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Fractures (MS-5)
Acute (MS-5.1)
Suspected Occult/Stress/Insufficiency Fracture/Stress Reaction and Shin Splints (MS-5.2)
Other Indications (MS-5.3)

Acute (MS-5.1)

- CT or MRI without contrast if **ANY** of the following:
  - 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.
  - Individual 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: **Suspected Occult/ Stress/ Insufficiency Fracture/ Stress Reaction and Shin Splints (MS-5.2)**.
- MRI without contrast, MRI with contrast (arthrogram), or CT with contrast (arthrogram) of the area of interest if:
  - Plain x-rays are negative and an osteochondral fracture is suspected, OR
  - Plain x-ray and clinical exam suggest an unstable osteochondral injury. See: **Chondral/ Osteochondral Lesions, Including Osteochondritis Dissecans and Fractures (MS-13.1)**

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

- MRI without contrast can be performed 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 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 occult/insufficiency fractures of the pelvis/hip and suspected atypical femoral shaft fractures related to bisphosphonate see: **Pelvis (MS-23)** and **Hip (MS-24)**, and suspected occult fractures of the scaphoid see: **Wrist (MS-21)**.
  - For suspected fractures, when MRI cannot be performed, any one of the following is indicated:
    - Tc-99m Bone scan whole-body (CPT® 78306) with SPECT of the area of interest (CPT® 78803) OR
    - Bone scan (CPT® 78315, 78300) OR
    - SPECT/CT (CPT® 78830)
    - See: **Nuclear Medicine (MS-28)**.
  - 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: **Foot (MS-27)**.

- MRI or CT without contrast can be performed for all other suspected occult/stress/insufficiency fractures with either of the following:
  - 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
- MRI of the lower leg without contrast (CPT® 73718) for suspected shin splints when **BOTH** of the following are met:
  - Initial plain x-ray
  - Failure of a 6-week trial of provider-directed conservative treatment.
- 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.
- MRI without contrast of the area of interest for stress fracture follow-up imaging for "return to play" evaluation at least 3 months after the initial imaging study for stress fracture.
- For periprosthetic fractures related to joint replacement see: **Post-Operative Joint Replacement Surgery (MS-16.1)**, **Shoulder (MS-19)**, **Elbow (MS-20)**, **Hip (MS-24)**, **Knee (MS-25)**, and **Ankle (MS-26)**.

Other Indications (MS-5.3)

- CT or MRI without contrast after recent (within 30 days) plain x-ray if **ONE** of the following is present:
  - Concern for delayed union or non-union of fracture, osteotomy, or joint fusions.
  - Part of preoperative evaluation for a planned surgery of a complex fracture with or without dislocation.

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Foreign Body (MS-6)

Foreign Body – General (MS-6.1)

- Ultrasound (CPT® 76881 or 76882) or CT without contrast or MRI without and with contrast or MRI without contrast of the area of interest can be approved after plain x-rays rule out the presence of radiopaque foreign bodies.
  - Ultrasound (CPT® 76881 or 76882) is the preferred imaging modality for radiolucent (non-radiopaque) foreign bodies (e.g. wood, plastic).
  - CT without contrast is recommended when plain x-rays are negative and a radiopaque foreign body is still suspected, as CT is favored over MRI for the identification of foreign bodies.
  - MRI without and with contrast is an alternative to US and CT for assessing the extent of infection associated with a suspected foreign body.

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Ganglion Cysts (MS-7)

Ganglion Cysts – General (MS-7.1)

- Plain x-ray is the initial imaging study for ganglion cysts.
  - Results of plain x-rays performed after the current episode of symptoms started or changed need to be available to the requesting provider
- MRI without contrast or MRI without and with contrast or US (CPT® 76881 or 76882) is appropriate for surgical planning.
- Advanced imaging is not indicated for ganglions that can be diagnosed by history and physical examination.

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

Gout – General (MS-8.1)
CPPD (Pseudogout/Chondrocalcinosis) – General (MS-8.2)

Gout – General (MS-8.1)

- CT without contrast, MRI without contrast, or MRI without and with contrast of the area of interest is indicated when **BOTH** of the following are met:
  - Initial plain x-ray to rule out other potential disease processes
  - Infection or neoplasm is in the differential diagnosis for soft-tissue tophi.

Background and Supporting Information

- Early stages of gout can be diagnosed clinically since radiographic findings are not present early in the disease course.

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

- Calcium pyrophosphate deposition disease (CPPD), also called pseudogout, can often be diagnosed from plain x-rays; advanced diagnostic imaging is generally not medically necessary.

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Infection/Osteomyelitis (MS-9)

Infection – General (MS-9.1)
Septic Joint (MS-9.2)

Infection – General (MS-9.1)

- 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
- Individuals with suspected spinal infections
  - See: **Red Flag Indications (SP-1.2)** for advanced imaging guidelines
- Individuals with diabetic foot infections after plain x-ray(s)
  - See: **Foot (MS-27)** for advanced imaging guidelines
- For nuclear medicine studies appropriate in specific scenarios, see: **Nuclear Medicine (MS-28)**

Septic Joint (MS-9.2)

- MRI without and with contrast, MRI without contrast, CT without contrast, or CT with contrast of the affected joint 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
    - Results of plain x-rays performed after the current episode of symptoms started or changed need to be available to the requesting provider
- MRI without and with contrast, MRI without contrast, CT without contrast, or CT with contrast of the affected joint 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.
  - Results of plain x-rays performed after the current episode of symptoms started or changed need to be available to the requesting provider

Background and Supporting Information

- Analysis of joint fluid is most often sufficient to diagnose a septic joint.

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Soft Tissue Mass or Lesion of Bone (MS-10)

Soft Tissue Mass (MS-10.1)
Lesion of Bone (MS-10.2)

Soft Tissue Mass (MS-10.1)

- 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 is indicated as the initial imaging study, with the exception of individuals with cancer predisposition syndrome.
  - Results of plain x-rays performed after the current episode of symptoms started or changed need to be available to the requesting provider
- MRI without and with contrast or without contrast or US of the area of interest (CPT® 76881 or 76882) is appropriate when ANY of the following are met after plain x-ray:
  - Soft tissue mass(es)
  - Surgical planning
  - Known or suspected soft tissue mass in an individual with a cancer predisposition syndrome if a recent ultrasound is inconclusive. Plain x-ray is not required for these individuals. See: **Screening Imaging in Cancer Predisposition Syndromes (PEDONC-2)** in the Pediatric Oncology Imaging Guidelines.
- CT with contrast or CT without and with contrast is appropriate when MRI is contraindicated or after a metal limiting MRI evaluation.
- Advanced imaging is not indicated for:
  - Subcutaneous lipoma with no surgery planned
  - Ganglia, see: **Ganglion Cysts (MS-7)**
  - Sebaceous cyst

Background and Supporting Information

- Plain x-rays can 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.

Lesion of Bone (MS-10.2)

- 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: **Nuclear Medicine (MS-28)**) 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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Muscle/Tendon Unit Injuries/Diseases (MS-11)

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

Muscle/Tendon Unit Injuries/Diseases (MS-11.1)

- Plain x-ray is the initial imaging study for muscle/tendon unit injuries.
  - Results of plain x-rays performed after the current episode of symptoms started or changed need to be available to the requesting provider
- MRI without contrast or US (CPT® 76881 or 76882) is supported for **EITHER** of the following:
  - Suspected partial tendon rupture of a specific (named) tendon.
  - Complete tendon rupture of a specific named tendon for preoperative planning.
- MRI is not medically necessary for muscle belly strains/muscle tears.
- See: **Shoulder (MS-19)** for clinical suspicion of a partial or complete rotator cuff tear.
- See: **Inflammatory Muscle Diseases (PN-6.2)** in the Peripheral Nerve Disorders Imaging Guidelines and **Inflammatory Muscle Diseases (PEDMS-10.3)** in the Pediatric Musculoskeletal Imaging Guidelines.

Acute Compartment Syndrome (MS-11.2)

- Advanced imaging is not indicated. Diagnosis is made clinically and by direct measurement of compartment pressure and is a surgical emergency.

Background and Supporting Information

- Noninvasive methods of measuring compartment pressures and diagnosing acute compartment syndrome are under study but are currently experimental, investigational, and unproven.

Chronic Exertional Compartment Syndrome (MS-11.3)

- 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.
  - Results of plain x-rays performed after the current episode of symptoms started or changed need to be available to the requesting provider

Background and Supporting Information

- 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.

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Osteoarthritis (MS-12)

Osteoarthritis (MS-12.1)
Treatment Planning (Non-Surgical and Surgical, Other Than Joint Replacement) (MS-12.2)
Imaging Prior to Non-Customized-to-Patient Joint Replacement Surgery/Not for intraoperative Navigation (MS-12.3)
Customized-to-Patient Joint Replacement Surgery/Intraoperative Navigation (MS-12.4)

Osteoarthritis (MS-12.1)

- Plain x-ray is the initial imaging study for osteoarthritis.
  - Results of plain x-rays performed after the current episode of symptoms started or changed need to be available to the requesting provider

Background and Supporting Information

- Plain x-rays are performed initially and will reveal characteristic joint space narrowing, osteophyte formation, cyst formation, and subchondral sclerosis.

Treatment Planning (Non-Surgical and Surgical, Other Than Joint Replacement) (MS-12.2)

- Results of plain x-rays performed after the current episode of symptoms started or changed need to be available to the requesting provider, unless otherwise specified below.
- CT without contrast is appropriate when ALL of the following apply:
  - Requested for treatment planning, AND
  - Congenital or significant atypical post-traumatic arthritic deformities are identified on plain x-ray, AND
  - The aforementioned deformities require further evaluation of their clinical significance, AND
  - The request is related to the shoulder, elbow, wrist, hip, knee, or ankle
- MRI Knee without contrast (CPT® 73721) is appropriate in an individual with osteoarthritis for clinical suspicion of a symptomatic degenerative meniscus tear following plain x-rays and conservative treatment. See: **Knee (MS-25)**
- 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: **Shoulder (MS-19)**
  - Suspected concomitant labral tear of the shoulder - See: **Shoulder (MS-19)**
  - Suspected concomitant labral tear of the hip - See: **Hip (MS-24)**
  - Suspected concomitant internal derangement of the knee - See: **Knee (MS-25)**

Imaging Prior to Non-Customized-to-Patient Joint Replacement Surgery/Not for intraoperative Navigation (MS-12.3)

- The following imaging studies are appropriate per the listed criteria after plain x-ray has been performed
  - Results of plain x-rays performed after the current episode of symptoms started or changed need to be available to the requesting provider
    - CT Shoulder without contrast (CPT® 73200) and/or MRI Shoulder without contrast (CPT® 73221) are appropriate for preoperative planning prior to shoulder replacement
    - For the clinical imaging criteria regarding preoperative joint replacement surgery for each anatomic area, refer to the anatomic area tables:
      - **Shoulder (MS-19)**
      - **Elbow (MS-20)**
      - **Wrist (MS-21)**
      - **Hip (MS-24)**
      - **Knee (MS-25)**
      - **Ankle (MS-26)**

Customized-to-Patient Joint Replacement Surgery/Intraoperative Navigation (MS-12.4)

- The following imaging studies are appropriate per the listed criteria after plain x-ray has been performed
  - Results of plain x-rays performed after the current episode of symptoms started or changed need to be available to the requesting provider
- CT without contrast or MRI without contrast of the shoulder, elbow, wrist, hip, knee, or ankle is appropriate* when the request is for:
  - Treatment planning for customized-to-patient joint replacement surgery, OR
  - Surgical planning using intraoperative navigation for joint replacement surgery (e.g. MAKOplasty)

  AND
  - The joint replacement surgery has been approved or does not require prior authorization
- *The preoperative imaging listed above is considered **not medically necessary** if any of the following are deemed not medically necessary, not a covered benefit, or experimental, investigational, or unproven by the health plan:
  - Joint replacement surgery
  - Customized-to-patient implant
  - Computer assisted surgical navigation (e.g. MAKOplasty)
- See: **Unlisted Procedures/Therapy Treatment Planning (Preface-4.3)** in the Preface Imaging Guidelines

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Chondral/Osteochondral Lesions (MS-13)

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

- MRI without contrast, MRI with contrast (arthrogram), or CT with contrast (arthrogram) of the area of interest is indicated when **EITHER** of the following are met:
  - Plain x-rays are negative and an osteochondral fracture is still suspected
  - Plain x-ray and clinical exam suggest an unstable osteochondral injury
- See: **Ankle (MS-26)** for suspected osteochondral injury of the ankle
- See: **Elbow (MS-20)** for suspected osteochondral injury of the elbow
- 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 (including post-operative fixation) cannot be adequately assessed on follow-up plain x-rays.

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Osteoporosis (MS-14)

- Plain x-ray is not required for Osteoporosis (MS-14).
- 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 individual over the weight limit of the dual-energy x-ray absorptiometry (DXA) exam table
  - Severely obese individuals (BMI >35kg/m2)
  - Extremes in body height (i.e. very large and very small individuals)
  - Individuals 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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Rheumatoid Arthritis (RA) and Inflammatory Arthritis (MS-15)

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

Rheumatoid Arthritis (RA) and Inflammatory Arthritis (MS-15.1)

- Plain x-ray, physical exam and appropriate laboratory studies* are required prior to advanced imaging.
  - Results of plain x-rays performed after the current episode of symptoms started or changed need to be available to the requesting provider
- MRI without contrast or MRI without and with contrast or US (CPT® 76881 or 76882) is appropriate for the most symptomatic joint, or of the dominant hand or wrist, in **ALL** of 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 individuals 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 or US should NOT be considered for routine follow-up of treatment.

Background and Supporting Information

- *Examples of appropriate laboratory studies may include: 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

Pigmented Villonodular Synovitis (PVNS) (MS-15.2)

- MRI of the affected joint without contrast, or CT of the affected joint with contrast (arthrogram) if MRI contraindicated is supported following plain x-rays.
  - Results of plain x-rays performed after the current episode of symptoms started or changed need to be available to the requesting provider

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Post-Operative Joint Replacement Surgery (MS-16)

Post-Operative Joint Replacement Surgery – General (MS-16.1)

- CT without contrast or bone scan (CPT® 78315) or Distribution of Radiopharmaceutical Agent SPECT (CPT® 78803 or 78831)* or hybrid SPECT/CT (CPT® 78830)* with **ALL** of the following:
  - Recent plain x-ray is nondiagnostic
  - Suspected aseptic loosening of orthopaedic joint replacements
    - CT shoulder without contrast (CPT® 73200) can be performed as additional imaging following plain x-rays regardless of plain x-ray findings. See: **Shoulder (MS-19)**
      - Results of plain x-rays performed after the current episode of symptoms started or changed need to be available to the requesting provider
- CT without contrast with **ALL** of the following:
  - Negative plain x-ray
  - High suspicion for a periprosthetic fracture
    - CT shoulder without contrast (CPT® 73200) can be performed as additional imaging following plain x-rays regardless of plain x-ray findings. See: **Shoulder (MS-19)**
      - Results of plain x-rays performed after the current episode of symptoms started or changed need to be available to the requesting provider
- Joint aspiration is the initial evaluation after plain x-ray for a painful joint replacement when periprosthetic infection is suspected.
  - Results of plain x-rays performed after the current episode of symptoms started or changed need to be available to the requesting provider
  - For suspected infection with negative or inconclusive joint aspiration culture see: **Nuclear Medicine (MS-28)**
- MRI Hip without contrast (CPT® 73721) or Ultrasound (CPT® 76881 or 76882) are both appropriate for **EITHER** of the following:
  - 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: **Soft Tissue Mass or Lesion of Bone (MS-10.1)**
  - Metal-On-Metal (MoM) Hip Prostheses that are considered high-risk for implant performance issues from THA cup-neck impingement and subsequent ALTR (adverse local tissue reaction) with Co and Cr ion levels greater than 10 ppb.
- CT Hip without contrast (CPT® 73700) or MRI Hip without contrast (CPT® 73721):
  - Evaluate suspected particle disease (aggressive granulomatous disease) of the hip when infection has been excluded.

- For specific joints post-operative from replacement surgery:
  - See: **Shoulder (MS-19)**
  - See: **Elbow (MS-20)**
  - See: **Hip (MS-24)**
  - See: **Knee (MS-25)**
  - See: **Ankle (MS-26)**

Background and Supporting Information

- Complications following joint replacement surgery include (not limited to) periprosthetic fracture, infection, aseptic loosening, failure of fixation/component malposition, and wear.
- *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.

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Limb Length Discrepancy (MS-17)

Limb Length Discrepancy (MS-17.1)

- 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.

Reference

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Anatomical Area Tables – General Information (MS-18)

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 **Shoulder (MS-19)** through **Foot (MS-27)**.

After an **initial plain x-ray has been obtained**, and **results are available to the provider**, the following advanced imaging is indicated (as described in **General Guidelines (MS-1.0)**)			
Condition (Individual's Condition)	**Conservative Treatment** (Is failure of 6 weeks of provider-directed conservative treatment within the past 12 weeks with clinical re-evaluation required?) (Yes or No)	**Advanced Imaging** (The appropriate advanced imaging indicated for this condition. In some scenarios, advanced imaging may not be indicated.)	**Comments** (Additional comments related to the condition.)

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Shoulder (MS-19)

After an **initial plain x-ray has been obtained**, and **results are available to the provider**, the following advanced imaging is indicated (as described in **General Guidelines (MS-1.0)**)			
Condition (Individual's condition)	**Conservative Treatment** (Is failure of 6 weeks of provider-directed conservative treatment within the past 12 weeks with clinical re-evaluation required?) (Yes or No)	**Advanced Imaging** (The appropriate advanced imaging indicated for this condition. In some scenarios, advanced imaging may not be indicated.)	**Comments** (Additional comments related to the condition.)
General Shoulder Pain	Yes	➢ MRI shoulder without contrast (CPT® 73221) OR ➢ US shoulder (CPT® 76881 or 76882) OR ➢ CT shoulder with contrast (arthrogram) (CPT® 73201) if MRI contraindicated	
Symptomatic Loose Bodies	No	➢ MRI shoulder without contrast (CPT® 73221)	
Impingement	Yes	➢ MRI shoulder without contrast (CPT® 73221) OR ➢ MRI shoulder with contrast (arthrogram) (CPT® 73222) OR ➢ US shoulder (CPT® 76881 or 76882) ➢ CT shoulder with contrast (CPT® 73201) if MRI is contraindicated	
Tendonitis/ Bursitis	Yes	➢ MRI shoulder without contrast (CPT® 73221) OR ➢ US shoulder (CPT® 76881 or 76882)	
Tendon Rupture (Biceps Long Head)	No	➢ When clinical exam is inconclusive due to inability to visualize a "Popeye" sign clinically, or for preoperative planning: ◆ MRI shoulder without contrast (CPT® 73221) OR ◆ US shoulder (CPT® 76881 or 76882)	
Tendon Rupture (Pectoralis Major/Minor)	No	➢ When clinical exam is inconclusive, or for preoperative planning: ◆ MRI Shoulder without contrast (CPT® 73221) OR ◆ MRI Chest without contrast (CPT® 71550) OR ◆ US shoulder (CPT® 76881 or 76882)	
Shoulder Rotator Cuff Tear (Complete and Partial)	Yes*	➢ MRI shoulder without contrast (CPT® 73221) OR ➢ MRI shoulder with contrast (arthrogram) (CPT® 73222) OR ➢ US shoulder (CPT® 76881 or 76882) ➢ CT shoulder with contrast (arthrogram) (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. If surgery is being considered, MRI without contrast, MRI with contrast (arthrogram), or CT arthrogram are required per **CMM-315: Shoulder Surgery-**

After an **initial plain x-ray has been obtained**, and **results are available to the provider**, the following advanced imaging is indicated (as described in **General Guidelines (MS-1.0)**)			
Condition (Individual's condition)	**Conservative Treatment** (Is failure of 6 weeks of provider-directed conservative treatment within the past 12 weeks with clinical re-evaluation required?) (Yes or No)	**Advanced Imaging** (The appropriate advanced imaging indicated for this condition. In some scenarios, advanced imaging may not be indicated.)	**Comments** (Additional comments related to the condition.)
			Arthroscopic and Open Procedures.
Partial Tendon Rupture (Excluding Partial Rotator Cuff Tears)	No	➢ For a suspected partial tendon rupture of a specific named tendon not otherwise specified: ◆ MRI Shoulder without contrast (CPT® 73221) OR ◆ US Shoulder (CPT® 76881 or 76882)	MRI is *NOT* needed for muscle belly strains/ muscle tears.
Complete Rupture – Tear of a Specific Named Tendon	No	➢ For preoperative planning: ◆ MRI Shoulder without contrast (CPT® 73221) OR ◆ US Shoulder (CPT® 76881 or 76882)	
Shoulder Labral Tear (e.g., SLAP, ALPSA, HAGL)	Yes	➢ MRI shoulder with contrast (arthrogram) (CPT® 73222) OR ➢ MRI shoulder without contrast (CPT® 73221) OR ➢ CT shoulder with contrast (arthrogram) (CPT® 73201)	For surgery criteria, see: **CMM-315: Shoulder Surgery-Arthroscopic and Open Procedures**.
Shoulder Dislocation/ Subluxation/ Instability, or Bankart/ Hill-Sachs Lesions	Yes*	➢ Individuals 40 years of age or younger with a first time dislocation, and in individuals with recurrent dislocations, conservative treatment not required: ◆ MRI Shoulder with contrast (arthrogram) (CPT® 73222) or ◆ MRI Shoulder without contrast (CPT® 73221) ➢ CT Shoulder with contrast (arthrogram) (CPT® 73201) or CT Shoulder without contrast (CPT® 73200) if MRI is	*Conservative treatment is required in individuals over age 40 with a first time dislocation. For surgery criteria, see: **CMM-315: Shoulder Surgery-Arthroscopic and Open Procedures**.

After an **initial plain x-ray has been obtained**, and **results are available to the provider**, the following advanced imaging is indicated (as described in **General Guidelines (MS-1.0)**)			
Condition (Individual's condition)	**Conservative Treatment** (Is failure of 6 weeks of provider-directed conservative treatment within the past 12 weeks with clinical re-evaluation required?) (Yes or No)	**Advanced Imaging** (The appropriate advanced imaging indicated for this condition. In some scenarios, advanced imaging may not be indicated.)	**Comments** (Additional comments related to the condition.)
		contraindicated	
Frozen Shoulder/ Adhesive Capsulitis	Yes	➢ MRI Shoulder without contrast (CPT® 73221)	For surgery criteria, see: **CMM-310: Manipulation Under Anesthesia** and **CMM-315: Shoulder Surgery-Arthroscopic**
Avascular Necrosis (AVN) of the Humeral Head	No	➢ See: **AVN (MS-4.1)**	
Acromio-clavicular (AC) Separation	No	➢ MRI Shoulder without contrast (CPT® 73221) to rule out possible rotator cuff tear following AC separation	
Sterno-clavicular (SC) Dislocation	No	➢ CT Chest without contrast (CPT® 71250) if posterior SC dislocation is evident or suspected	
Post-Operative Shoulder Surgery for Impingement, Rotator Cuff Tear, and/or Labral Tear	Yes	➢ In symptomatic individuals: ◆ MRI Shoulder without contrast (CPT® 73221) OR ◆ MRI Shoulder with contrast (arthrogram) (CPT® 73222) ➢ US Shoulder (CPT® 76881 or 76882) is also appropriate in symptomatic individuals following rotator cuff repair ➢ CT Shoulder with contrast (arthrogram) (CPT® 73201) if MRI contraindicated	
Preoperative Shoulder (Glenohumeral) Replacement Surgery	Yes	➢ CT Shoulder without contrast (CPT® 73200) and/or MRI Shoulder without contrast (CPT® 73221) for preoperative planning prior to shoulder replacement	See also: **Osteoarthritis (MS-12)** For joint surgery criteria, see: **CMM-318: Shoulder**

After an **initial plain x-ray has been obtained**, and **results are available to the provider**, the following advanced imaging is indicated (as described in **General Guidelines (MS-1.0)**)			
Condition (Individual's condition)	**Conservative Treatment** (Is failure of 6 weeks of provider-directed conservative treatment within the past 12 weeks with clinical re-evaluation required?) (Yes or No)	**Advanced Imaging** (The appropriate advanced imaging indicated for this condition. In some scenarios, advanced imaging may not be indicated.)	**Comments** (Additional comments related to the condition.)
			Arthroplasty/ Arthrodesis
Post-Operative Shoulder (Glenohumeral) Replacement Surgery	No	➢ For suspected aseptic loosening or fracture as additional imaging following plain x-rays: ◆ CT Shoulder without contrast (CPT® 73200) OR ◆ MRI Shoulder without contrast (CPT® 73221) OR ◆ US Shoulder (CPT® 76881 or 76882) OR ◆ Distribution Of Radiopharmaceutical Agent SPECT (CPT® 78803 or 78831) OR ◆ Hybrid SPECT/CT (CPT® 78830) ➢ For suspected infection with negative or inconclusive joint aspiration culture: ◆ MRI Shoulder without contrast (CPT® 73321) OR ◆ MRI Shoulder without and with contrast (CPT® 73223) OR ◆ CT Shoulder with contrast (CPT® 73201) ◆ US Shoulder (CPT® 76881 or 76882) OR ◆ See also: **Nuclear Medicine (MS-28)** ➢ For possible rotator cuff tear: ◆ CT Shoulder with contrast (arthrogram) (CPT® 73201) OR ◆ MRI Shoulder without contrast (CPT® 73221) OR ◆ US Shoulder (CPT® 76881	See also: **Post-Operative Joint Replacement (MS-16)**

After an **initial plain x-ray has been obtained**, and **results are available to the provider**, the following advanced imaging is indicated (as described in **General Guidelines (MS-1.0)**)			
Condition (Individual's condition)	**Conservative Treatment** (Is failure of 6 weeks of provider-directed conservative treatment within the past 12 weeks with clinical re-evaluation required?) (Yes or No)	**Advanced Imaging** (The appropriate advanced imaging indicated for this condition. In some scenarios, advanced imaging may not be indicated.)	**Comments** (Additional comments related to the condition.)
		or 76882) ➢ For possible nerve injury: ◆ MRI Shoulder without contrast (CPT® 73221) OR ◆ US Shoulder (CPT® 76881 or 76882)	

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Elbow (MS-20)

After an **initial plain x-ray has been obtained**, and **results are available to the provider**, the following advanced imaging is indicated (as described in **General Guidelines (MS-1.0)**)

Condition (Individual's condition)	**Conservative Treatment** (Is failure of 6 weeks of provider-directed conservative treatment within the past 12 weeks with clinical re-evaluation required?) (Yes or No)	**Advanced Imaging** (The appropriate advanced imaging indicated for this condition. In some scenarios, advanced imaging may not be indicated.)	**Comments** (Additional comments related to the condition.)
General Elbow Pain	Yes	➢ MRI Elbow without contrast (CPT® 73221) OR ➢ US Elbow (CPT® 76881 or 76882)	
Symptomatic Loose Bodies	No	➢ MRI Elbow without contrast (CPT® 73221) OR ➢ MRI Elbow with contrast (arthrogram) (CPT® 73222) OR ➢ CT Elbow without contrast (CPT® 73200) OR ➢ CT Elbow with contrast (arthrogram) (CPT® 73201)	
Tendonitis	Yes	➢ MRI Elbow without contrast (CPT® 73221) or US Elbow (CPT® 76881 or 76882)	
Bursitis	Yes	➢ MRI Elbow without and with contrast (CPT® 73223) or MRI Elbow without contrast (CPT® 73221) or US Elbow (CPT® 76881 or 76882)	
Lateral (tennis elbow) or Medial (golfer's elbow) Epicondylitis	Yes	➢ To confirm clinical diagnosis of epicondylitis if symptoms persist for longer than 6 months despite at least 6 weeks conservative treatment in the last 3 months: ◆ MRI Elbow without contrast (CPT® 73221) OR ◆ US Elbow (CPT® 76881 or 76882)	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.
Suspected Osteochondral Injury	No	➢ If plain x-rays are negative and an osteochondral fracture is still suspected: ◆ MRI Elbow without contrast (CPT® 73221) OR ◆ MRI Elbow with contrast (arthrogram) (CPT® 73222) OR	See: **Chondral/ Osteochondral Lesions (MS-13)** for other osteochondral injury scenarios

After an **initial plain x-ray has been obtained**, and **results are available to the provider**, the following advanced imaging is indicated (as described in **General Guidelines (MS-1.0)**)			
Condition (Individual's condition)	**Conservative Treatment** (Is failure of 6 weeks of provider-directed conservative treatment within the past 12 weeks with clinical re-evaluation required?) (Yes or No)	**Advanced Imaging** (The appropriate advanced imaging indicated for this condition. In some scenarios, advanced imaging may not be indicated.)	**Comments** (Additional comments related to the condition.)
		◆ CT Elbow without contrast (CPT® 73200) OR ◆ CT Elbow with contrast (arthrogram) (CPT® 73201)	
Ruptured Biceps Insertion at Elbow	No	➢ When clinical exam is inconclusive or for preoperative planning: ◆ MRI Elbow without contrast (CPT® 73221) OR ◆ US Elbow (CPT® 76881 or 76882)	
Ruptured Triceps Insertion at Elbow	No	➢ When clinical exam is inconclusive or for preoperative planning: ◆ MRI Elbow without contrast (CPT® 73221) OR ◆ US Elbow (CPT® 76881 or 76882)	
Partial Tendon Rupture	No	➢ For a suspected partial tendon rupture of a specific named tendon not otherwise specified: ◆ MRI Elbow without contrast (CPT® 73221) OR ◆ US Elbow (CPT® 76881 or 76882)	MRI is *NOT* needed for muscle belly strains/muscle tears.
Complete Rupture – Tear of a Specific Named Tendon	No	➢ For preoperative planning: ◆ MRI Elbow without contrast (CPT® 73221) OR ◆ US Elbow (CPT® 76881 or 76882)	
Trauma	No	➢ When surgery is being considered: ◆ MRI Elbow without contrast (CPT® 73221) OR ◆ CT Elbow without contrast (CPT® 73200)	
Ulnar Collateral	No	➢ Following acute or repetitive (including overhead throwing athletes) elbow trauma:	

After an **initial plain x-ray has been obtained**, and **results are available to the provider**, the following advanced imaging is indicated (as described in **General Guidelines (MS-1.0)**)			
Condition (Individual's condition)	**Conservative Treatment** (Is failure of 6 weeks of provider-directed conservative treatment within the past 12 weeks with clinical re-evaluation required?) (Yes or No)	**Advanced Imaging** (The appropriate advanced imaging indicated for this condition. In some scenarios, advanced imaging may not be indicated.)	**Comments** (Additional comments related to the condition.)
Ligament (UCL) Tear		◆ MRI Elbow with contrast (arthrogram) (CPT® 73222) OR ◆ MRI Elbow without contrast (CPT® 73221) OR ◆ US Elbow (CPT® 76881 or 76882) OR ◆ CT Elbow with contrast (arthrogram) (CPT® 73201)	
Suspected Nerve Abnormality	NA	➤ This condition is imaged according to the criteria found in the Peripheral Nerve Disorder Guidelines. See: **Focal Neuropathy (PN-2)** in the Peripheral Nerve Disorders Imaging Guidelines	
Post-Operative	Yes	➤ CT Elbow without contrast (CPT® 73200) in symptomatic post-operative individuals following surgical treatment of complex fractures; OR ➤ MRI Elbow without contrast (CPT® 73221) in symptomatic post-operative individuals following soft-tissue surgery	
Preoperative Elbow Replacement Surgery	Yes	➤ CT Elbow without contrast (CPT® 73200) for preoperative planning prior to elbow replacement when congenital or post-traumatic deformities exist	See: **Osteoarthritis (MS-12)**
Post-Operative Elbow	No	➤ For suspected aseptic loosening or periprosthetic	

After an **initial plain x-ray has been obtained**, and **results are available to the provider**, the following advanced imaging is indicated (as described in **General Guidelines (MS-1.0)**)			
Condition (Individual's condition)	**Conservative Treatment** (Is failure of 6 weeks of provider-directed conservative treatment within the past 12 weeks with clinical re-evaluation required?) (Yes or No)	**Advanced Imaging** (The appropriate advanced imaging indicated for this condition. In some scenarios, advanced imaging may not be indicated.)	**Comments** (Additional comments related to the condition.)
Replacement Surgery		fracture when recent plain x-ray is nondiagnostic: ◆ CT Elbow without contrast (CPT® 73200) OR ◆ Bone scan (CPT® 78315) OR ◆ Distribution Of Radiopharmaceutical Agent SPECT (CPT® 78803 or 78831) OR ◆ Hybrid SPECT/CT (CPT® 78830) ➤ For suspected infection with negative or inconclusive joint aspiration culture: ◆ MRI Elbow without contrast (CPT® 73221) OR ◆ MRI Elbow without and with contrast (CPT® 73223) OR ◆ CT Elbow with contrast (CPT® 73201) ◆ US Elbow (CPT® 76881 or 76882) OR ◆ See also: **Nuclear Medicine (MS-28)**	

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Wrist (MS-21)

After an **initial plain x-ray has been obtained**, and **results are available to the provider**, the following advanced imaging is indicated (as described in **General Guidelines (MS-1.0)**)

Condition (Individual's condition)	**Conservative Treatment** (Is failure of 6 weeks of provider-directed conservative treatment within the past 12 weeks with clinical re-evaluation required?) (Yes or No)	**Advanced Imaging** (The appropriate advanced imaging indicated for this condition. In some scenarios, advanced imaging may not be indicated.)	**Comments** (Additional comments related to the condition.)
General Wrist Pain	Yes	➢ MRI Wrist without contrast (CPT® 73221) OR ➢ US Wrist (CPT® 76881 or 76882)	
Tendonitis	Yes	➢ MRI Wrist without contrast (CPT® 73221) OR ➢ US Wrist (CPT® 76881 or 76882)	
Kienbock's Disease (Avascular Necrosis (AVN) of the Lunate)/ Preiser's Disease (Avascular Necrosis (AVN) of the Scaphoid)	No	➢ See: **AVN (MS-4.1)**	
Suspected Navicular/ Scaphoid Fracture	No	➢ When suspected based on history and physical exam: ◆ MRI Wrist without contrast (CPT® 73221) OR ◆ CT Wrist without contrast (CPT® 73200)	See also: **Suspected Occult/ Stress/ Insufficiency Fracture/ Stress Reaction and Shin Splints (MS-5.2)**
Distal Radioulnar Joint (DRUJ) Instability	No	➢ CT of both wrists without contrast (CPT® 73200) (should include wrists in supination and pronation)	
Complex Distal Radius/ Ulna Fracture	No	➢ CT Wrist without contrast (CPT® 73200)	

After an **initial plain x-ray has been obtained**, and **results are available to the provider**, the following advanced imaging is indicated (as described in **General Guidelines (MS-1.0)**)			
Condition (Individual's condition)	**Conservative Treatment** (Is failure of 6 weeks of provider-directed conservative treatment within the past 12 weeks with clinical re-evaluation required?) (Yes or No)	**Advanced Imaging** (The appropriate advanced imaging indicated for this condition. In some scenarios, advanced imaging may not be indicated.)	**Comments** (Additional comments related to the condition.)
Carpal Tunnel Syndrome/ Ulnar Tunnel Syndrome	NA	➢ This condition is imaged according to the criteria found in the Peripheral Nerve Disorder Guidelines. See: **Focal Neuropathy (PN-2)** in the Peripheral Nerve Disorders Imaging Guidelines	
Intrinsic Ligament (e.g. scapholunate)/ Triangular Fibrocartilage Complex (TFCC) Injuries	Yes	➢ MRI Wrist with contrast (arthrogram) (CPT® 73222) OR ➢ CT Wrist with contrast (arthrogram) (CPT® 73201)	
Complete Rupture – Tear of a Specific Named Tendon	No	➢ For preoperative planning: ◆ MRI Wrist without contrast (CPT® 73221) OR ◆ US Wrist (CPT® 76881 or 76882)	
Partial Tendon Rupture	No	➢ For a suspected partial tendon rupture of a specific named tendon not otherwise specified: ◆ MRI Wrist without contrast (CPT® 73221) OR ◆ US Wrist (CPT® 76881 or 76882)	MRI is NOT needed for muscle belly strains/muscle tears.

After an **initial plain x-ray has been obtained**, and **results are available to the provider**, the following advanced imaging is indicated (as described in **General Guidelines (MS-1.0)**)			
Condition (Individual's condition)	**Conservative Treatment** (Is failure of 6 weeks of provider-directed conservative treatment within the past 12 weeks with clinical re-evaluation required?) (Yes or No)	**Advanced Imaging** (The appropriate advanced imaging indicated for this condition. In some scenarios, advanced imaging may not be indicated.)	**Comments** (Additional comments related to the condition.)
Post-Operative	Yes	➢ CT Wrist without contrast (CPT® 73200) in symptomatic individuals following surgery for navicular/scaphoid fractures and complex distal radius/ulna fractures; or ➢ MRI Wrist with contrast (arthrogram) (CPT® 73222) in symptomatic individuals following DRUJ or TFCC surgery	
Preoperative Wrist Replacement Surgery	Yes	➢ CT Wrist without contrast (CPT® 73200) for preoperative planning prior to wrist replacement when congenital or post-traumatic deformities exist	See: **Osteoarthritis** (MS-12)

After an **initial plain x-ray has been obtained**, and **results are available to the provider**, the following advanced imaging is indicated (as described in **General Guidelines (MS-1.0)**)			
Condition (Individual's condition)	**Conservative Treatment** (Is failure of 6 weeks of provider-directed conservative treatment within the past 12 weeks with clinical re-evaluation required?) (Yes or No)	**Advanced Imaging** (The appropriate advanced imaging indicated for this condition. In some scenarios, advanced imaging may not be indicated.)	**Comments** (Additional comments related to the condition.)
Post-Operative Wrist Replacement Surgery	No	➢ For suspected aseptic loosening or periprosthetic fracture when recent plain x-ray is nondiagnostic: ◆ CT Wrist without contrast (CPT® 73200) OR ◆ Bone scan (CPT® 78315, 78300, or 78306) OR ◆ Distribution Of Radiopharmaceutical Agent SPECT (CPT® 78803 or 78831) OR ◆ Hybrid SPECT/CT (CPT® 78830) ➢ For suspected infection with negative or inconclusive joint aspiration culture: ◆ MRI Wrist without contrast (CPT® 73221) OR ◆ MRI Wrist without and with contrast (CPT® 73223) OR ◆ CT Wrist with contrast (CPT® 73201) ◆ US Wrist (CPT® 76881 or 76882) ◆ See also: **Nuclear Medicine (MS-28)**	

One Study/Area Only

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

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1. Bruno MA, Weissman BN, Kransdorf MJ, et. al. Expert Panel on Musculoskeletal Imaging. ACR Appropriateness Criteria® Acute Hand and Wrist Trauma*. Am Coll Radiol (ACR);* Date of Origin: 1995. Revised: 2018. https://acsearch.acr.org/docs/69418/Narrative/.
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Hand (MS-22)

After an **initial plain x-ray has been obtained**, and **results are available to the provider**, the following advanced imaging is indicated (as described in **General Guidelines (MS-1.0)**)

Condition (Individual's condition)	**Conservative Treatment** (Is failure of 6 weeks of provider-directed conservative treatment within the past 12 weeks with clinical re-evaluation required?) (Yes or No)	**Advanced Imaging** (The appropriate advanced imaging indicated for this condition. In some scenarios, advanced imaging may not be indicated.)	**Comments** (Additional comments related to the condition.)
General Hand Pain	Yes	➢ MRI Hand or Finger without contrast (CPT® 73218) OR ➢ US Hand (CPT® 76881 or 76882)	
Tendonitis	Yes	➢ MRI Hand or Finger without contrast (CPT® 73218) OR ➢ US Hand or Finger (CPT® 76881 or 76882)	
Occult Fracture	No	➢ Advanced imaging guided by: **Suspected Occult/ Stress/ Insufficiency Fracture/ Stress Reaction and Shin Splints (MS-5.2)**	
Complex Fracture	No	➢ CT Hand or Finger without contrast (CPT® 73200) when plain x-ray shows a complex fracture	
Ulnar Collateral Ligament (UCL) Thumb Injury	No	➢ If rule out for Stener lesion or complete tear of UCL of the thumb MCP joint: ◆ MRI Thumb without contrast (CPT® 73218) OR ◆ US Thumb (CPT® 76881 or 76882)	Also called "Gamekeeper's Thumb" or "Skier's Thumb"
Complete Rupture – Tear of a Specific Named Tendon	No	➢ For preoperative planning: ◆ MRI Hand or Finger without contrast (CPT® 73218) OR ◆ US Hand or Finger (CPT® 76881 or 76882)	
Partial Tendon Rupture	No	➢ For a suspected partial tendon rupture of a specific named tendon not otherwise specified: ◆ MRI Hand or Finger without contrast (CPT® 73218) OR ◆ US Hand or Finger (CPT® 76881 or 76882)	MRI is *NOT* needed for muscle belly strains/muscle tears.

After an **initial plain x-ray has been obtained**, and **results are available to the provider**, the following advanced imaging is indicated (as described in **General Guidelines (MS-1.0)**)			
Condition (Individual's condition)	**Conservative Treatment** (Is failure of 6 weeks of provider-directed conservative treatment within the past 12 weeks with clinical re-evaluation required?) (Yes or No)	**Advanced Imaging** (The appropriate advanced imaging indicated for this condition. In some scenarios, advanced imaging may not be indicated.)	**Comments** (Additional comments related to the condition.)
Post-Operative	Yes	➢ In symptomatic post-operative individuals following surgical treatment for complex hand or finger fractures or following soft-tissue surgery: ◆ CT Hand or Finger without contrast (CPT® 73200) OR ◆ MRI Hand or Finger without contrast (CPT® 73218)	

One Study/Area Only

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

References

1. Bruno MA, Weissman BN, Kransdorf MJ, et. al. Expert Panel on Musculoskeletal Imaging. ACR Appropriateness Criteria® Acute Hand and Wrist Trauma. *Am Coll Radiol (ACR);* Date of Origin: 1995. Revised: 2018. https://acsearch.acr.org/docs/69418/Narrative/.
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Pelvis (MS-23)

After an **initial plain x-ray has been obtained**, and **results are available to the provider**, the following advanced imaging is indicated (as described in **General Guidelines (MS-1.0)**)

Condition (Individual's condition)	**Conservative Treatment** (Is failure of 6 weeks of provider-directed conservative treatment within the past 12 weeks with clinical re-evaluation required?) (Yes or No)	**Advanced Imaging** (The appropriate advanced imaging indicated for this condition. In some scenarios, advanced imaging may not be indicated.)	**Comments** (Additional comments related to the condition.)
General Pain-Pelvis	Yes	➢ MRI Pelvis without contrast (CPT® 72195) OR ➢ MRI RT and/or LT Hip without contrast (CPT® 73721)	
Tendonitis	Yes	➢ MRI Pelvis without contrast (CPT® 72195) OR ➢ MRI RT and/or LT Hip without contrast (CPT® 73721)	
Occult/ Insufficiency Fracture	No	➢ MRI Pelvis without contrast (CPT® 72195) OR ➢ CT Pelvis without contrast (CPT® 72192)	See also: **Suspected Occult/ Stress/ Insufficiency Fracture/ Stress Reaction and Shin Splints (MS-5.2)** for occult and stress fractures of the pelvis
Complex Fracture/ Dislocation - Pelvis, Sacrum and Acetabulum	No	➢ CT Pelvis without contrast (CPT® 72192)	Additionally, 3D rendering may be appropriate for preoperative planning. See: **3D Rendering (MS-3)**
Sacro-iliac (SI) Joint Pain, Sacroiliitis, Coccydynia	Yes	➢ Advanced imaging guided by: ◆ **Sacroiliac (SI) Joint Pain/ Sacroiliitis (SP-10.1)** ◆ **Coccydynia without Neurological Features (SP-5.2)**	

After an **initial plain x-ray has been obtained**, and **results are available to the provider**, the following advanced imaging is indicated (as described in **General Guidelines (MS-1.0)**)			
Condition (Individual's condition)	**Conservative Treatment** (Is failure of 6 weeks of provider-directed conservative treatment within the past 12 weeks with clinical re-evaluation required?) (Yes or No)	**Advanced Imaging** (The appropriate advanced imaging indicated for this condition. In some scenarios, advanced imaging may not be indicated.)	**Comments** (Additional comments related to the condition.)
Piriformis Syndrome	NA	➢ This condition is imaged according to the criteria found in the Peripheral Nerve Disorder Guidelines. See: **Focal Neuropathy (PN-2)** in the Peripheral Nerve Disorders Imaging Guidelines	
Partial Tendon Rupture	No	➢ MRI Pelvis without contrast (CPT® 72195) for a suspected partial tendon rupture of a specific named tendon not otherwise specified	MRI is *NOT* needed for muscle belly strains/muscle tears.
Osteitis Pubis/ Symphysis Pubis Diastasis	Yes	➢ MRI Pelvis without contrast (CPT® 72195)	
Athletic Pubalgia (Sports Hernia)	Yes	➢ To evaluate for the cause of suspected athletic pubalgia: ◆ MRI Pelvis without contrast (athletic pubalgia protocol) (CPT® 72195) OR ◆ Dynamic pelvic ultrasound (CPT® 76857)	
Post-Operative	Yes	➢ CT Pelvis without contrast (CPT® 72192) in symptomatic individuals following surgery for complex pelvic ring/acetabular fractures	

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Hip (MS-24)

After an **initial plain x-ray has been obtained**, and **results are available to the provider**, the following advanced imaging is indicated (as described in **General Guidelines (MS-1.0)**)

Condition (Individual's condition)	**Conservative Treatment** (Is failure of 6 weeks of provider-directed conservative treatment within the past 12 weeks with clinical re-evaluation required?) (Yes or No)	**Advanced Imaging** (The appropriate advanced imaging indicated for this condition. In some scenarios, advanced imaging may not be indicated.)	**Comments** (Additional comments related to the condition.)
General Hip Pain	Yes	➢ MRI Hip without contrast (CPT® 73721) OR ➢ US Hip (CPT® 76881 or 76882)	
Symptomatic Loose Bodies	No	➢ MRI Hip without contrast (CPT® 73721)	
Tendonitis/ Bursitis	Yes	➢ MRI Hip without contrast (CPT® 73721) OR ➢ US Hip (CPT® 76881 or 76882)	
Hip Abductor Tendon Tear/ Avulsion	No	➢ MRI Hip without contrast (CPT® 73721) OR ➢ US Hip (CPT® 76881 or 76882)	
Complete Rupture – Tear of a Specific Named Tendon	No	➢ For preoperative planning: ◆ MRI Hip without contrast (CPT® 73721) OR ◆ US Hip (CPT® 76881 or 76882)	
Partial Tendon Rupture	No	➢ For a suspected partial tendon rupture of a specific named tendon not otherwise specified: ◆ MRI Hip without contrast (CPT® 73721) OR ◆ US Hip (CPT® 76881 or 76882)	MRI is *NOT* needed for muscle belly strains/ muscle tears.
Occult/ Insufficiency Fracture	No	➢ MRI Hip without contrast (CPT® 73721) OR ➢ CT Hip without contrast (CPT® 73700)	See also: **Suspected Occult/ Stress/ Insufficiency Fracture/ Stress Reaction and Shin Splints (MS-5.2)** for occult and stress fractures of the hip

After an **initial plain x-ray has been obtained**, and **results are available to the provider**, the following advanced imaging is indicated (as described in **General Guidelines (MS-1.0)**)			
Condition (Individual's condition)	**Conservative Treatment** (Is failure of 6 weeks of provider-directed conservative treatment within the past 12 weeks with clinical re-evaluation required?) (Yes or No)	**Advanced Imaging** (The appropriate advanced imaging indicated for this condition. In some scenarios, advanced imaging may not be indicated.)	**Comments** (Additional comments related to the condition.)
Avascular Necrosis (AVN) of the Femoral Head	No	➢ See: **AVN (MS-4.1)**	
Labral Tear	Yes	➢ MRI Hip with contrast (arthrogram) (CPT® 73722) OR ➢ CT Hip with contrast (arthrogram) (CPT® 73701) OR ➢ MRI Hip without contrast (CPT® 73721)	For surgery criteria, see: **CMM-314: Hip Surgery-Arthroscopic and Open Procedures**
Femoroacetabular Impingement	Yes	➢ For preoperative planning for femoroacetabular impingement: ◆ MRI Hip without contrast (CPT® 73721) OR ◆ MRI Hip with contrast (arthrogram) (CPT® 73722) IN ADDITION TO: ◆ CT Hip without contrast (CPT® 73700) OR ◆ CT Pelvis without contrast (CPT® 72192)	For surgery criteria, see: **CMM-314: Hip Surgery-Arthroscopic and Open Procedures**
Piriformis Syndrome	NA	➢ This condition is imaged according to the criteria found in the Peripheral Nerve Disorder Guidelines. See: **Focal Neuropathy (PN-2)** in the Peripheral Nerve Disorders Imaging Guidelines	

After an **initial plain x-ray has been obtained**, and **results are available to the provider**, the following advanced imaging is indicated (as described in **General Guidelines (MS-1.0)**)			
Condition (Individual's condition)	**Conservative Treatment** (Is failure of 6 weeks of provider-directed conservative treatment within the past 12 weeks with clinical re-evaluation required?) (Yes or No)	**Advanced Imaging** (The appropriate advanced imaging indicated for this condition. In some scenarios, advanced imaging may not be indicated.)	**Comments** (Additional comments related to the condition.)
Post-Operative	Yes	➢ Symptomatic individuals following surgery for labral tears and femoroacetabular impingement: ◆ MRI Hip with contrast (arthrogram) (CPT® 73722) ➢ Symptomatic individuals following surgery for hip fracture and/or hip avascular necrosis: ◆ CT Hip without contrast (CPT® 73700) OR ◆ MRI Hip without contrast (CPT® 73721)	
Preoperative Hip Replacement Surgery	Yes	➢ CT Hip without contrast (CPT® 73700) for preoperative planning prior to hip replacement when congenital or post-traumatic deformities exist	See: **Osteoarthritis (MS-12)** For surgery criteria, see: **CMM-313: Hip Arthroplasty-Total and Partial**
Post-Operative Hip Replacement Surgery	No*	➢ For suspected aseptic loosening of hip replacement when recent plain x-ray is nondiagnostic: ◆ CT Hip without contrast (CPT® 73700) OR ◆ Bone scan (CPT® 78315) OR ◆ Distribution Of Radiopharmaceutical Agent SPECT (CPT® 78803 or 78831) OR ◆ Hybrid SPECT/CT (CPT® 78830) ➢ For suspected infection with negative or inconclusive joint aspiration culture:	See: **Post-Operative Joint Replacement Surgery (MS-16)**

After an **initial plain x-ray has been obtained**, and **results are available to the provider**, the following advanced imaging is indicated (as described in **General Guidelines (MS-1.0)**)			
Condition (Individual's condition)	**Conservative Treatment** (Is failure of 6 weeks of provider-directed conservative treatment within the past 12 weeks with clinical re-evaluation required?) (Yes or No)	**Advanced Imaging** (The appropriate advanced imaging indicated for this condition. In some scenarios, advanced imaging may not be indicated.)	**Comments** (Additional comments related to the condition.)
Post-Operative Hip Replacement Surgery (continued)	No*	◆ MRI Hip without contrast (CPT® 73721) OR ◆ MRI Hip without and with contrast (CPT® 73723) OR ◆ CT Hip with contrast (CPT® 73701) ◆ US Hip (CPT® 76881 or 76882) OR ◆ See also: **Nuclear Medicine (MS-28)** ➢ For suspicion of a periprosthetic fracture when recent plain x-ray is nondiagnostic: ◆ CT Hip without contrast (CPT® 73700) OR ◆ Bone scan (CPT® 78315) OR ◆ Distribution Of Radiopharmaceutical Agent SPECT (CPT® 78803 or 78831) OR ◆ Hybrid SPECT/CT (CPT® 78830) ➢ To evaluate component malposition or heterotopic bone after plain x-ray: ◆ CT Hip without contrast (CPT® 73700) ➢ For possible nerve injury: ◆ MRI Hip without contrast (CPT® 73721) ➢ For suspected for suspected tendinitis/bursitis (*requires conservative treatment): ◆ MRI Hip without contrast (CPT® 73721) OR ◆ US Hip (CPT® 76881 or 76882)	

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Knee (MS-25)

After an **initial plain x-ray has been obtained**, and **results are available to the provider**, the following advanced imaging is indicated (as described in **General Guidelines (MS-1.0)**)

Condition (Individual's condition)	**Conservative Treatment** (Is failure of 6 weeks of provider-directed conservative treatment within the past 12 weeks with clinical re-evaluation required?) (Yes or No)	**Advanced Imaging** (The appropriate advanced imaging indicated for this condition. In some scenarios, advanced imaging may not be indicated.)	**Comments** (Additional comments related to the condition.)
General Knee Pain	Yes	➢ MRI Knee without contrast (CPT® 73721) OR ➢ US Knee (CPT® 76881 or 76882)	
Symptomatic Loose Bodies	No	➢ MRI Knee without contrast (CPT® 73721) ➢ CT Knee with contrast (arthrogram) (CPT® 73701) if MRI cannot be performed	
Tendonitis	Yes	➢ MRI Knee without contrast (CPT® 73721) OR ➢ US Knee (CPT® 76881 or 76882)	
Complex Knee Fracture	No	➢ MRI Knee without contrast (CPT® 73721) OR ➢ CT Knee without contrast (CPT® 73700)	See: **Fractures (MS-5)**
Meniscus Tear	Yes*	➢ MRI Knee without contrast (CPT® 73721) ➢ CT Knee with contrast (arthrogram) (CPT® 73701) if MRI cannot be performed *Conservative treatment is not required if at least 2 of following 4 criteria are met: 1) Positive McMurray's, positive Thessaly, or positive Apley's Compression Test 2) twisting or acute injury of the knee 3) locked knee/inability to fully extend the knee on exam 4) knee effusion ➢ MRI Knee without contrast (CPT® 73721) for clinical suspicion of a symptomatic degenerative meniscus tear in an individual with osteoarthritis following conservative treatment	For surgery criteria, see: **CMM-312: Knee Surgery-Arthroscopic and Open Procedures**

After an **initial plain x-ray has been obtained**, and **results are available to the provider**, the following advanced imaging is indicated (as described in **General Guidelines (MS-1.0)**)

Condition (Individual's condition)	**Conservative Treatment** (Is failure of 6 weeks of provider-directed conservative treatment within the past 12 weeks with clinical re-evaluation required?) (Yes or No)	**Advanced Imaging** (The appropriate advanced imaging indicated for this condition. In some scenarios, advanced imaging may not be indicated.)	**Comments** (Additional comments related to the condition.)
Ligament Tear	Yes*	➢ MRI Knee without contrast (CPT® 73721) *Conservative treatment is not required if any of the following signs are positive in comparison to the normal knee: ◆ 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	No	➢ Following significant trauma to evaluate for ligament and vascular injury: ◆ MRI Knee without contrast (CPT® 73721) AND EITHER ◆ MR Angiography lower extremity without and with contrast (CPT® 73725) OR ◆ CT Angiography lower extremity without and with contrast (CPT® 73706)	
Patellar Dislocation/ Subluxation	No	➢ 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: **CMM-312: Knee Surgery-Arthroscopic and Open Procedures**
Recurrent Patellar Instability	Yes	➢ MRI Knee without contrast (CPT® 73721) if consideration for surgery	For surgery criteria, see: **CMM-312: Knee Surgery-Arthroscopic and Open Procedures**

After an **initial plain x-ray has been obtained**, and **results are available to the provider**, the following advanced imaging is indicated (as described in **General Guidelines (MS-1.0)**)			
Condition (Individual's condition)	**Conservative Treatment** (Is failure of 6 weeks of provider-directed conservative treatment within the past 12 weeks with clinical re-evaluation required?) (Yes or No)	**Advanced Imaging** (The appropriate advanced imaging indicated for this condition. In some scenarios, advanced imaging may not be indicated.)	**Comments** (Additional comments related to the condition.)
Patellofemoral Pain Syndrome/ Anterior Knee Pain/ Tracking Disorder	Yes	➢ MRI Knee without contrast (CPT® 73721) if consideration for surgery	
Suspected Osteochondral Injury	No	➢ If plain x-rays are negative and an osteochondral fracture is still suspected: ◆ MRI Knee without contrast (CPT® 73721) OR ◆ MRI Knee with contrast (arthrogram) (CPT® 73722) OR ◆ CT Knee with contrast (arthrogram) (CPT® 73701)	See: **Chondral Osteochondral Lesions (MS-13)** for other osteochondral injury scenarios. For surgery criteria, see: **CMM-312: Knee Surgery-Arthroscopic and Open Procedures**
Avascular Necrosis (AVN) of the Distal Femur	No	➢ See: **AVN (MS-4.1)**	
Baker's Cyst (Popliteal Cyst)	Yes	➢ US Knee (CPT® 76881 or 76882) is the initial imaging study ➢ MRI Knee without contrast (CPT® 73721) for preoperative planning	See also: **Acute Limb Swelling (PVD-12)** in the Peripheral Vascular Disease Imaging Guidelines

After an **initial plain x-ray has been obtained**, and **results are available to the provider**, the following advanced imaging is indicated (as described in **General Guidelines (MS-1.0)**)

Condition (Individual's condition)	**Conservative Treatment** (Is failure of 6 weeks of provider-directed conservative treatment within the past 12 weeks with clinical re-evaluation required?) (Yes or No)	**Advanced Imaging** (The appropriate advanced imaging indicated for this condition. In some scenarios, advanced imaging may not be indicated.)	**Comments** (Additional comments related to the condition.)
Plica (Symptomatic Synovial Plica/ Medial Synovial Shelf)	Yes	➢ MRI Knee without contrast (CPT® 73721)	
Hemarthrosis	No	➢ 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	No	➢ For preoperative planning: ◆ MRI Knee without contrast (CPT® 73721) OR ◆ US Knee (CPT® 76881 or 76882)	
Partial Tendon Rupture	No	➢ For a suspected partial tendon rupture of a specific named tendon not otherwise specified: ◆ MRI Knee without contrast (CPT® 73721) OR ◆ US Knee (CPT® 76881 or 76882)	MRI is NOT needed for muscle belly strains/ muscle tears.
Complete Rupture – Tear of a Specific Named Tendon	No	➢ For preoperative planning: ◆ MRI Knee without contrast (CPT® 73721) OR ◆ US Knee (CPT® 76881 or 76882)	

After an **initial plain x-ray has been obtained**, and **results are available to the provider**, the following advanced imaging is indicated (as described in **General Guidelines (MS-1.0)**)			
Condition (Individual's condition)	**Conservative Treatment** (Is failure of 6 weeks of provider-directed conservative treatment within the past 12 weeks with clinical re-evaluation required?) (Yes or No)	**Advanced Imaging** (The appropriate advanced imaging indicated for this condition. In some scenarios, advanced imaging may not be indicated.)	**Comments** (Additional comments related to the condition.)
Post-Operative	Yes	➢ In symptomatic individuals following surgery for meniscus tears and reconstruction of the anterior cruciate ligament: ◆ MRI Knee with contrast (arthrogram) (CPT® 73722) OR ◆ MRI Knee without contrast (CPT® 73721) ➢ In symptomatic individuals following surgery for fracture/dislocation: ◆ CT Knee without contrast (CPT® 73700)	
Preoperative Knee Replacement Surgery	Yes	➢ 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: **Osteoarthritis (MS-12)** For surgery criteria, see: **CMM-311: Knee Arthroplasty-Total and Partial**
Post-Operative Knee Replacement Surgery	No*	➢ For suspected aseptic loosening when recent plain x-ray is nondiagnostic: ◆ CT Knee without contrast (CPT® 73700) OR ◆ Bone scan (CPT® 78315) OR ◆ Distribution Of Radiopharmaceutical Agent SPECT (CPT® 78803 or 78831) OR	See also: **Post-Operative Joint Replacement Surgery (MS-16)**

After an **initial plain x-ray has been obtained**, and **results are available to the provider**, the following advanced imaging is indicated (as described in **General Guidelines (MS-1.0)**)			
Condition (Individual's condition)	**Conservative Treatment** (Is failure of 6 weeks of provider-directed conservative treatment within the past 12 weeks with clinical re-evaluation required?) (Yes or No)	**Advanced Imaging** (The appropriate advanced imaging indicated for this condition. In some scenarios, advanced imaging may not be indicated.)	**Comments** (Additional comments related to the condition.)
Post-Operative Knee Replacement Surgery (continued)	No*	◆ Hybrid SPECT/CT (CPT® 78830) ➤ For suspected infection with negative or inconclusive joint aspiration culture: ◆ ◆ MRI Knee without contrast (CPT® 73721) OR ◆ MRI Knee without and with contrast (CPT® 73723) OR ◆ CT Knee with contrast (CPT® 73701) ◆ US Knee (CPT® 76881 or 76882) OR ◆ See also: **Nuclear Medicine (MS-28)** ➤ Following plain x-ray for suspected periprosthetic fracture: ◆ CT Knee without contrast (CPT® 73700) OR ◆ Bone scan (CPT® 78315) OR ◆ Distribution Of Radiopharmaceutical Agent SPECT (CPT® 78803 or 78831) OR ◆ Hybrid SPECT/CT (CPT® 78830) ➤ For suspected osteolysis or component instability, rotation, or wear: ◆ CT Knee without contrast (CPT® 73700) OR ◆ MRI Knee without contrast (CPT® 73721)	

After an **initial plain x-ray has been obtained**, and **results are available to the provider**, the following advanced imaging is indicated (as described in **General Guidelines (MS-1.0)**)			
Condition (Individual's condition)	**Conservative Treatment** (Is failure of 6 weeks of provider-directed conservative treatment within the past 12 weeks with clinical re-evaluation required?) (Yes or No)	**Advanced Imaging** (The appropriate advanced imaging indicated for this condition. In some scenarios, advanced imaging may not be indicated.)	**Comments** (Additional comments related to the condition.)
		➢ 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: ◆ MRI Knee without contrast (CPT® 73721) OR ◆ US Knee (CPT® 76881 or 76882)	

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Ankle (MS-26)

After an **initial plain x-ray has been obtained**, and **results are available to the provider**, the following advanced imaging is indicated (as described in **General Guidelines (MS-1.0)**)

Condition (Individual's condition)	**Conservative Treatment** (Is failure of 6 weeks of provider-directed conservative treatment within the past 12 weeks with clinical re-evaluation required?) (Yes or No)	**Advanced Imaging** (The appropriate advanced imaging indicated for this condition. In some scenarios, advanced imaging may not be indicated.)	**Comments** (Additional comments related to the condition.)
General Ankle Pain	Yes	➢ MRI Ankle without contrast (CPT® 73721) OR ➢ US Ankle (CPT® 76881 or 76882)	
Symptomatic Loose Bodies	No	➢ MRI Ankle without contrast (CPT® 73721)	
Complex Fracture	No	➢ MRI Ankle without contrast (CPT® 73721) OR ➢ CT Ankle without contrast (CPT® 73700)	
Ankle Sprain, Including Avulsion Fracture	Yes	➢ MRI Ankle Without Contrast (CPT® 73721) OR ➢ CT Ankle without contrast (CPT® 73700)	
High Ankle Sprain (Syndesmosis Injury)	No	➢ MRI Ankle without contrast (CPT® 73721) OR ➢ CT Ankle without contrast (CPT® 73700)	
Suspected Osteochondral Injury	No	➢ If plain x-rays are negative and an osteochondral fracture is still suspected, ONE of the following: ◆ MRI Ankle without contrast (CPT® 73721) ◆ CT Ankle without contrast (CPT® 73700)	See: **Chondral/ Osteochondral Lesions (MS-13)** for other osteochondral injury scenarios
Avascular Necrosis (AVN) of the Talus	No	➢ See: **AVN (MS-4.1)**	

After an **initial plain x-ray has been obtained**, and **results are available to the provider**, the following advanced imaging is indicated (as described in **General Guidelines (MS-1.0)**)			
Condition (Individual's condition)	**Conservative Treatment** (Is failure of 6 weeks of provider-directed conservative treatment within the past 12 weeks with clinical re-evaluation required?) (Yes or No)	**Advanced Imaging** (The appropriate advanced imaging indicated for this condition. In some scenarios, advanced imaging may not be indicated.)	**Comments** (Additional comments related to the condition.)
Anterior Impingement Anterior-Lateral Impingement Posterior Impingement (e.g., Os Trigonum Syndrome)	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	➢ For suspected posterior tibial dysfunction, peroneal tendon or subluxation, Achilles tendonitis: ◆ MRI Ankle without contrast (CPT® 73721) OR ◆ US Ankle (CPT® 76881 or 76882)	
Complete Rupture of Achilles Tendon	No	➢ For preoperative evaluation: ◆ MRI Ankle without contrast (CPT® 73721) OR ◆ US Ankle (CPT® 76881 or 76882)	
Complete Rupture -Tear of a Specific Named Tendon	No	➢ For preoperative planning: ◆ MRI Ankle without contrast (CPT® 73721) OR ◆ US Ankle (CPT® 76881 or 76882)	
Partial Tendon Rupture	No	➢ For a suspected partial tendon rupture of a specific named tendon not otherwise specified: ◆ MRI Ankle without contrast (CPT® 73721) OR ◆ US Ankle (CPT® 76881 or 76882)	MRI is *NOT* needed for muscle belly strains/ muscle tears.
Instability	Yes	➢ For preoperative evaluation: ◆ MRI Ankle without contrast (CPT® 73721) OR ◆ MRI Ankle with contrast (arthrogram) (CPT® 73722)	
Charcot Ankle	Yes	➢ MRI Ankle without contrast (CPT® 73721)	

After an **initial plain x-ray has been obtained**, and **results are available to the provider**, the following advanced imaging is indicated (as described in **General Guidelines (MS-1.0)**)			
Condition (Individual's condition)	**Conservative Treatment** (Is failure of 6 weeks of provider-directed conservative treatment within the past 12 weeks with clinical re-evaluation required?) (Yes or No)	**Advanced Imaging** (The appropriate advanced imaging indicated for this condition. In some scenarios, advanced imaging may not be indicated.)	**Comments** (Additional comments related to the condition.)
Post-Operative	Yes	➢ In symptomatic individuals following surgery for ligament/tendon injuries, one of the following: ◆ MRI Ankle without contrast (CPT® 73721) OR ◆ US Ankle (CPT® 76881 or 76882) ➢ For symptomatic individuals following surgery for complex fractures: ◆ CT Ankle without contrast (CPT® 73700)	
Preoperative Ankle Replacement Surgery	Yes	➢ CT Ankle without contrast (CPT® 73700) for preoperative planning prior to ankle replacement when congenital or post-traumatic deformities exist	See: **Osteoarthritis (MS-12)**

After an **initial plain x-ray has been obtained**, and **results are available to the provider**, the following advanced imaging is indicated (as described in **General Guidelines (MS-1.0)**)			
Condition (Individual's condition)	**Conservative Treatment** (Is failure of 6 weeks of provider-directed conservative treatment within the past 12 weeks with clinical re-evaluation required?) (Yes or No)	**Advanced Imaging** (The appropriate advanced imaging indicated for this condition. In some scenarios, advanced imaging may not be indicated.)	**Comments** (Additional comments related to the condition.)
Post-Operative Ankle Replacement Surgery	No	➢ For suspected aseptic loosening or periprosthetic fracture when recent plain x-ray is nondiagnostic: ◆ CT Ankle without contrast (CPT® 73700) OR ◆ Bone scan (CPT® 78315, 78300, or 78306) OR ◆ Distribution Of Radiopharmaceutical Agent SPECT (CPT® 78803 or 78831) OR ◆ Hybrid SPECT/CT (CPT® 78830) ➢ For suspected infection with negative or inconclusive joint aspiration culture: ◆ MRI Ankle without contrast (CPT® 73721) OR ◆ MRI Ankle without and with contrast (CPT® 73723) OR ◆ CT Ankle with contrast (CPT® 73701) ◆ US Ankle (CPT® 76881 or 76882) OR ◆ See also: **Nuclear Medicine (MS-28)**	See: **Post-Operative Joint Replacement Surgery (MS-16)**

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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Foot (MS-27)

After an **initial plain x-ray has been obtained**, and **results are available to the provider**, the following advanced imaging is indicated (as described in **General Guidelines (MS-1.0)**)

Condition (Individual's condition)	**Conservative Treatment** (Is failure of 6 weeks of provider-directed conservative treatment within the past 12 weeks with clinical re-evaluation required?) (Yes or No)	**Advanced Imaging** (The appropriate advanced imaging indicated for this condition. In some scenarios, advanced imaging may not be indicated.)	**Comments** (Additional comments related to the condition.)
General Foot Pain	Yes	➢ MRI Foot without contrast (CPT® 73718)	
Complex Fractures	No	➢ CT Foot without contrast (CPT® 73700)	
Plantar Plate Disorders, Including Turf Toe Injuries	Yes	➢ MRI Foot without contrast (CPT® 73718)	
Sesamoid Disorders	Yes	➢ MRI Foot without contrast (CPT® 73718) OR ➢ CT Foot without contrast (CPT® 73700)	
Lisfranc Tarsometatarsal Fracture or Dislocation	No	➢ MRI Foot without contrast (CPT® 73718) OR ➢ CT Foot without contrast (CPT® 73700)	
Tarsal Navicular Stress/Occult Fracture	No	➢ 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: **Suspected Occult/ Stress/ In-sufficiency Fracture/ Stress Reaction and Shin Splints (MS-5.2)**
Avascular Necrosis (AVN) of the Tarsal Navicular (Kohler Disease) or Metatarsal Head (Frieberg's Infraction)	No	➢ See: **AVN (MS-4.1)**	

After an **initial plain x-ray has been obtained**, and **results are available to the provider**, the following advanced imaging is indicated (as described in **General Guidelines (MS-1.0)**)

Condition (Individual's condition)	**Conservative Treatment** (Is failure of 6 weeks of provider-directed conservative treatment within the past 12 weeks with clinical re-evaluation required?) (Yes or No)	**Advanced Imaging** (The appropriate advanced imaging indicated for this condition. In some scenarios, advanced imaging may not be indicated.)	**Comments** (Additional comments related to the condition.)
Tendonitis	Yes	➢ MRI Foot without contrast (CPT® 73718) OR ➢ US Foot (CPT® 76881 or 76882)	
Complete Rupture – Tear of a Specific Named Tendon	No	➢ For preoperative planning: ◆ MRI Foot without contrast (CPT® 73718) OR ◆ US Foot (CPT® 76881 or 76882)	
Partial Tendon Rupture	No	➢ For a suspected partial tendon rupture of a specific named tendon not otherwise specified: ◆ MRI Foot without contrast (CPT® 73718) OR ◆ US Foot (CPT® 76881 or 76882)	MRI is *NOT* needed for muscle belly strains/muscle tears.
Morton's Neuroma	Yes	➢ For preoperative planning: ◆ MRI Foot without contrast (CPT® 73718) OR ◆ MRI Foot without and with contrast (CPT® 73720) OR ◆ US Foot (CPT® 76881 or 76882)	
Plantar Fasciitis	Yes*	➢ For preoperative planning: ◆ MRI Foot without contrast (CPT® 73718) OR ◆ US Foot (CPT® 76881 or 76882)	*Provider-directed conservative treatment must be for 6 months or more.
Suspected Plantar Fascia Rupture or Tear	Yes	➢ MRI Foot without contrast (CPT® 73718) OR ➢ US Foot (CPT® 76881 or 76882)	
Diabetic Foot Infection	No	➢ For suspected osteomyelitis or soft tissue infection as a complement to plain x-ray (both plain x-ray and MRI are indicated): ◆ MRI Foot without and with contrast (CPT® 73720) OR ◆ MRI Foot without contrast (CPT® 73718)	See: **Infection-General (MS-9.1)**

After an **initial plain x-ray has been obtained**, and **results are available to the provider**, the following advanced imaging is indicated (as described in **General Guidelines (MS-1.0)**)			
Condition (Individual's condition)	**Conservative Treatment** (Is failure of 6 weeks of provider-directed conservative treatment within the past 12 weeks with clinical re-evaluation required?) (Yes or No)	**Advanced Imaging** (The appropriate advanced imaging indicated for this condition. In some scenarios, advanced imaging may not be indicated.)	**Comments** (Additional comments related to the condition.)
Tarsal Tunnel Syndrome including Baxter's Neuropathy	Yes	➢ For preoperative planning if mass/lesion is suspected as etiology of entrapment: ◆ MRI Foot without contrast (CPT® 73718) OR ◆ US Foot (CPT® 76881 or 76882)	
Tarsal Coalition	Yes	➢ For preoperative planning: ◆ MRI Ankle without contrast (CPT® 73721) OR ◆ CT Ankle without contrast (CPT® 73700)	
Sinus Tarsi Syndrome	Yes	➢ MRI Ankle without contrast (CPT® 73721) if diagnosis is unclear or for preoperative evaluation	
Charcot Foot	Yes	➢ MRI Foot without contrast (CPT® 73718) OR ➢ MRI Foot without and with contrast (CPT® 73720)	
CRPS Type I	Yes	➢ Triple phase bone scan (CPT® 78315) OR ➢ MRI Foot without contrast (CPT® 73718)	
Post-Operative	Yes	➢ In symptomatic individuals following surgery for conditions including the tendons, ligaments, and plantar plate, ONE of the following: ◆ MRI Foot without contrast (CPT® 73718) OR ◆ US Foot (CPT® 76881 or 76882) ➢ In symptomatic individuals following surgery for complex fractures, sesamoid fractures, and subtalar arthrodesis: ◆ CT Foot without contrast (CPT® 73700)	

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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Nuclear Medicine (MS-28)

Results of plain x-rays performed after the current episode of symptoms started or changed need to be available to the requesting provider, unless otherwise specified below.

- 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® 78803, then only CPT® 78803 is to be approved if medical necessity is established.
  - If the request is for CPT® 78305 or CPT® 78306 and CPT® 78803, then two CPT® codes may be approved if medical necessity is established.
- Nuclear Medicine may be used in the evaluation of some musculoskeletal disorders, and other rare indications exist as well.
  - Evaluation of suspected aseptic loosening of orthopedic prostheses when recent plain x-ray is nondiagnostic:
    - Bone scan (CPT® 78315) OR
    - Distribution Of Radiopharmaceutical Agent SPECT (CPT® 78803, or 78831) OR
    - Hybrid SPECT/CT (CPT® 78830)
    - See: **Post-Operative Joint Replacement Surgery (MS-16)** and anatomic tables
  - For detection of ischemic or infarcted regions in sickle cell disease:
    - Nuclear medicine bone marrow imaging (CPT® 78102, 78103, 78104) OR
    - SPECT (CPT® 78803) OR
    - Hybrid SPECT/CT (CPT® 78830)
    - See also: **Modality General Considerations (PEDMS-1.3)**
  - Evaluation of complex regional pain syndrome or reflex sympathetic dystrophy, after failure of six weeks provider-directed conservative treatment (per **General Guidelines (MS-1.0)**):
    - Triple phase bone scan (CPT® 78315)
    - See: **Foot (MS-27)** for imaging criteria of CRPS of the foot
    - For interventional pain criteria see: **CMM-209: Regional Sympathetic Blocks** and **CMM-211: Spinal Cord Stimulators**
  - Evaluation of Paget's disease
    - Bone scan (CPT® codes: 78300, 78305, 78306) OR
    - Distribution Of Radiopharmaceutical Agent SPECT (CPT® 78803) OR
    - Hybrid SPECT/CT (CPT® 78830)
    - See: **Soft Tissue Mass or Lesion of Bone (MS-10)**

- Suspected fractures
  - If criteria per **Suspected Occult/Stress/Insufficiency Fracture/Stress Reaction and Shin Splints (MS-5.2)** are met but MRI cannot be performed:
    - Tc-99m bone scan whole-body (CPT® 78306) with SPECT of the area of interest (CPT® 78803) OR
    - Hybrid SPECT/CT (CPT® 78830) OR
    - Bone scan (CPT® 78315, 78305, or 78300)
- Evaluation of suspected bone infection if MRI or CT 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
  - FDG PET/CT (CPT® 78815 for multifocal infection, or CPT® 78811 for unifocal/limited area of interest)
    - At this time, FDG is the only indicated radiotracer for use with PET/CT in the imaging of musculoskeletal conditions.
  - Bone scan (CPT® 78315, 78300, 78305, or 78306) OR
  - Distribution Of Radiopharmaceutical Agent SPECT (CPT® 78803 or 78831) OR
  - Hybrid SPECT/CT (CPT® 78830 or 78832)
    - Combining bone scintigraphy with a labeled leukocyte scan enhances sensitivity. A labeled leukocyte scan (radiopharmaceutical inflammatory imaging - one of CPT® codes: 78800, 78801, 78802, or 78803) in concert with Tc-99m sulfur colloid marrow imaging (one of CPT® codes: 78102, 78103, or 78104) or Hybrid SPECT/CT (CPT® 78830) is particularly useful in cases with altered bone marrow distribution, such as joint prosthesis.
  - See: **Post-Operative Joint Replacement Surgery (MS-16)**
  - For specific joints post-operative from replacement surgery:
    - See: **Shoulder (MS-19)**
    - See: **Elbow (MS-20)**
    - See: **Hip (MS-24)**
    - See: **Knee (MS-25)**
    - See: **Ankle (MS-26)**

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4. Bencardino JT, Stone TJ, Roberts CC, et. al. Expert Panel on Musculoskeletal Imaging. ACR Appropriateness Criteria® Stress (Fatigue/Insufficiency) Fracture, Including Sacrum, Excluding Other Vertebrae. *Am Coll Radiol (ACR);* Revised: 2016. https://acsearch.acr.org/docs/69435/Narrative/.

Policy History and Instructions for Use

Guideline

Policy History and Instructions for Use

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Policy History and Instructions for Use

Instructions for Use

This Medical Policy provides assistance in interpreting United HealthCare Services, Inc. standard benefit plans. When deciding coverage, the federal, state (Ohio Administrative Code [OAC]) or contractual requirements for benefit plan coverage must be referenced as the terms of the federal, state (OAC) or contractual requirements for benefit plan coverage may differ from the standard benefit plan. In the event of a conflict, the federal, state (OAC) or contractual requirements for benefit plan coverage govern.

Before using this policy, please check the federal, state (OAC) or contractual requirements for benefit plan coverage. United HealthCare Services, Inc. reserves the right to modify its Policies and Guidelines as necessary. This Medical Policy is provided for informational purposes. It does not constitute medical advice.

United HealthCare Services, Inc. uses InterQual® for the primary medical/surgical criteria, and the American Society of Addiction Medicine (ASAM) for substance use, in administering health benefits. If InterQual® does not have applicable criteria, United HealthCare Services, Inc. may also use United HealthCare Services, Inc.'s Medical Policies, Coverage Determination Guidelines, and/ or Utilization Review Guidelines that have been approved by the Ohio Department for Medicaid Services. The United HealthCare Services, Inc.'s Medical Policies, Coverage Determination Guidelines, and Utilization Review Guidelines are intended to be used in connection with the independent professional medical judgment of a qualified health care provider and do not constitute the practice of medicine or medical advice.

Policy History/Revision Information

Date	Summary of Changes
XX/XX/202X	
XX/XX/202X	