UNITEDHEALTHCARE® COMMUNITY PLAN:
RADIOLOGY IMAGING COVERAGE DETERMINATION GUIDELINE

Adult Musculoskeletal Imaging Guidelines (For Ohio Only)

V2.0.2026

Guideline Number: CSRAD007OH.F

Effective Date: September 1, 2026

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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Guideline Development (Preface-1)

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- These 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. These clinical guidelines are based on current evidence supported by major national and international association and society guidelines and criteria, peer-reviewed literature, and 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.
- These guidelines provide evidence-based, clinical benefits with a focus on health care quality and patient safety.
- 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.

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

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Benefits, Coverage Policies, and Eligibility Issues (Preface-2.1)
References (Preface-2)

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

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Investigational and Experimental Studies

- Certain studies, treatments, procedures, or devices may be considered experimental, investigational, or unproven for any condition, illness, disease, injury being treated if one of the following is present:
  - if there is a paucity of supporting evidence;
  - if the evidence has not matured to exhibit improved health parameters;
  - if clinical utility has not been demonstrated in any condition; OR
  - if the study, treatment, procedure, or device lacks a collective opinion of support
- Supporting evidence includes standards that are based on credible scientific evidence published in peer-reviewed medical literature (such as well conducted randomized clinical trials or cohort studies with a sample size of sufficient statistical power) generally recognized by the relevant medical community. Collective opinion of support includes physician specialty society recommendations and the views of physicians practicing in relevant clinical areas when physician specialty society recommendations are not available.

Clinical and Research Trials

- Similar to investigational and experimental studies, clinical trial imaging requests are reviewed to determine whether they meet these evidence-based clinical 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 medically necessary.

CPT Codes

- The inclusion of any CPT code in the clinical guidelines does not imply that the code is under management or requires prior authorization.

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References (Preface-2)

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1. 2.42 USC 300gg-8: Coverage for individuals participating in approved clinical trials. House.gov. Published 2024.

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Clinical Information (Preface-3)

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Clinical Information (Preface-3.1)
References (Preface-3)

Clinical Information (Preface-3.1)

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Clinical Documentation and Age Considerations

- These clinical 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. These clinical 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 including, but not limited to, the following:
    - Pertinent clinical evaluation since the onset or change in symptoms including a detailed history, physical examination, appropriate laboratory studies, and appropriate 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.
      - 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.
  - The 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 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.

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.

Ultrasound

- Diagnostic ultrasound uses high-frequency sound waves to evaluate soft tissue structures and vascular structures utilizing grey scale 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 in evaluating 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, the following:
  - 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's clinical situation 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, the following:
    - 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.
- 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 in 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.
- Both contrast CT and MRI are considered to have the same risk profile with renal failure (GFR <30mL/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 is medically necessary if clinical criteria for CT with contrast are met AND the individual has/is:
  - 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's clinical situation 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 the following:
    - 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 utilizing Xenon Xe 129 (CPT® C9791) for contrast is considered investigational and experimental at this time. MRI with or with and without contrast in these guidelines refers to MRI utilizing gadolinium for contrast.
- MRI is commonly performed without, and 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 are 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 relatively 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 are considered to have the same risk profile with renal failure (GFR <30mL/min).
  - 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. 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 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.
- A CT is medically necessary in place of an MRI when clinical criteria are met for MRI AND there is a contraindication to having an MRI (e.g., 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 relatively 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 medically necessary 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, 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 medically necessary for surveillance imaging unless specifically stated in the condition-specific guideline sections.
- PET/MRI is generally not medically necessary, 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 medically necessary, 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.
- Indications for PET/CT may include the following:
  - 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 reports describe overutilization in many areas of advanced imaging and other procedures, which may include the following:
  - 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 medically necessary imaging study has been ordered for individuals, it may be possible to avoid exposing them to unnecessary risks. 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.
- Pre-operative imaging/pre-surgical planning imaging/pre-procedure imaging is not medically necessary if the surgery/procedure is not medically necessary. Once the procedure has been approved or if the procedure does not require prior authorization, the appropriate pre-procedural imaging may be approved.

Health Equity Considerations

Health equity is the highest level of health for all individuals; health inequity is the avoidable difference in health status or distribution of health resources due to the social

conditions in which individuals are born, grow, live, work, and age. Social determinants of health are the conditions in the environment that affect a wide range of health, functioning, and quality of life outcomes and risks. Examples include the following: safe housing, transportation, and neighborhoods; racism, discrimination, and violence; education, job opportunities, and income; access to nutritious foods and physical activity opportunities; access to clean air and water; and language and literacy skills.

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Coding Issues (Preface-4)

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3D Rendering (Preface-4.1)

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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) recommended 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, stereotactic localization (CPT® 77011 or CPT® 70486 if used), 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 pre-operative planning)
    - Complex fractures (comminuted or displaced)/dislocations of any joint (for pre-operative planning when conventional imaging is insufficient)
    - Spine fractures, pelvic/acetabulum fractures, intra-articular fractures (for pre-operative planning when conventional imaging is insufficient)
    - Pre-operative planning for other complex surgical cases
    - Complex facial fractures
  - Pre-operative 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.

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

PRF.CD.0004.2.A

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- CT-, MR-, and Ultrasound-guidance procedure codes contain all of 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
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
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
75989	Imaging guidance for percutaneous drainage with placement of catheter (all modalities)
76942	Ultrasonic guidance for needle placement
77011	CT guidance for stereotactic localization
77012	CT guidance for needle placement
77013	CT guidance for, and monitoring of parenchymal tissue ablation
77021	MR guidance for needle placement
77022	MR guidance for, and monitoring of parenchymal tissue ablation
C8001	3D anatomical segmentation imaging for preoperative planning, data preparation and transmission, obtained from previous diagnostic CT or MR examination of the same anatomy

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.
- In most cases, the pre-operative 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 or prostate 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
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Unlisted Procedures

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

- For general information related to unlisted procedures, please refer to **Management of Unlisted Codes**.
- 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) is medically necessary in the following clinical scenarios:
  - Studies done for navigation and planning for neurosurgical procedures (i.e., Stealth or Brain Lab Imaging)
  - Custom joint arthroplasty planning (not as an 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 and Biopsy (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.

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

PRF.CD.0004.5.UOH

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- 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, the following:
  - 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 medically necessary for treatment planning purposes. 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's clinical situation. Sometimes the protocols require more time and sometimes less.

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SPECT/CT Imaging (Preface-4.6)

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- 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 reported as 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).
- CPT® 78072 became effective January 1, 2013 for SPECT/CT parathyroid nuclear imaging.

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

PRF.CD.0004.7.UOH

v2.0.2026

- 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.
  - CPT® 76140 is the appropriate code to use for an exam which was completed elsewhere and a secondary interpretation of the images is requested.

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Quantitative MR Analysis (Preface-4.8)

PRF.CD.0004.8.A

v2.0.2026

- 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.
- For criteria associated with these types of studies, please see the condition-specific guidelines.

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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-III CPT® codes. These codes are typically 4 digits preceded by a C or S.
  - Many of these codes have similar code descriptions to Level-III CPT® codes (i.e., C8931 – MRA with dye, Spinal Canal; and, CPT® 72159 – MRA Spinal Canal).
  - If cases are submitted with HCPCS codes with similar code descriptions to the typical Level-III 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 non-specific 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. Neves CA, Vaisbuch Y, Leuze C, et al. Application of holographic augmented reality for external approaches to the frontal sinus. *Int Forum Allergy Rhinol*. 2020;10(7):920-925. doi:10.1002/alr.22546
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Whole-Body Imaging (Preface-5)

Guideline

Whole-Body CT Imaging (Preface-5.1)

PRF.WB.0005.1.UOH

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- Whole-body CT or LifeScan (CT Brain, Chest, Abdomen, and Pelvis) for screening of asymptomatic individuals is not a covered benefit. 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 skeletal 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.A

v2.0.2026

- Whole-body MRI (WBMRI) is, with the exception of select cancer predisposition syndromes and autoimmune conditions discussed below, generally not medically necessary at this time due to lack of standardization in imaging technique and lack of evidence that WBMRI improves 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 the following:
    - 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.
      - For additional information, see **Li-Fraumeni Syndrome (LFS) (PEDONC-2.2)**, **Neurofibromatosis 1 and 2 (NF1 and NF2) (PEDONC-2.3)**, **Rhabdoid Tumor Predisposition Syndrome (PEDONC-2.11)**, **Hereditary Paraganglioma-Pheochromocytoma (HPP) Syndromes (PEDONC-2.13)**, **Constitutional Mismatch Repair Deficiency (CMMRD or Turcot Syndrome) (PEDONC-2.15)**, **Infantile Myofibromatosis (PEDONC-2.18)**, or **Bloom Syndrome (PEDONC-2.19)** in the Pediatric and Special Populations Oncology Imaging Guidelines.
  - Cancer staging and restaging:
    - Whole-body MRI has limited indications in staging and restaging of multiple myeloma. See **Multiple Myeloma and Plasmacytomas (ONC-25)** in the Oncology Imaging Guidelines for additional details.
    - Evidence has not been published establishing WBMRI as a standard evaluation for any other type of cancer.
  - Autoimmune disease:
    - WBMRI can be approved in some situations for individuals with chronic recurrent multifocal osteomyelitis.

- For additional information, see **Chronic Recurrent Multifocal Osteomyelitis (PEDMS-10.2)** in the Pediatric Musculoskeletal Imaging Guidelines.

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PET/MRI (Preface-5.3)

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- PET/MRI is generally not medically necessary for a vast majority of oncologic and neurologic conditions due to lack of standardization in imaging technique and interpretation. However, it is medically necessary in select circumstances when the following criteria are met:
  - The individual meets condition-specific guidelines for PET/MRI OR
  - The individual meets ALL of the following:
    - 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 is 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 can be medically necessary at the same time as the PET/MRI code combination.
- For more information, please see the appropriate condition-based guideline.

References (Preface-5)

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8. National Comprehensive Cancer Network® (NCCN®). NCCN Clinical Practice Guidelines in Oncology (NCCN Guidelines®): Multiple Myeloma. Version 4.2026 - November 26, 2025. Referenced with permission from the NCCN Clinical Practice Guidelines in Oncology (NCCN Guidelines®) for Multiple Myeloma V4.2026. ©2024 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.

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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.

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General Guidelines (MS-1)

Guideline

Procedure Codes Associated with Musculoskeletal Imaging (MS)
General Guidelines (MS-1.0)
Evidence Discussion (MS-1)
References (MS-1)

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Procedure Codes Associated with Musculoskeletal Imaging (MS)

MS.GG.ProcedureCodes.A
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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/MRA	CPT®
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
Bone Mineral Density CT, one or more sites, axial skeleton	77078

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	CPT®
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

Nuclear Medicine	CPT®
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-1.0)

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General Criteria

Information regarding the purpose, development, management and review/revision of these guidelines can be found in the **Preface to the Imaging Guidelines** (the Preface). The Preface provides guidance on the clinical documentation and information that should be submitted in order to establish the medical necessity of advanced imaging. The Preface also contains information on special considerations that may be pertinent to criteria-based reviews for advanced imaging (e.g., pediatric vs. adult, gender identity, health plan policies, national or local mandates). Providers should review and be familiar with all information in the Preface.

These musculoskeletal (MSK) imaging guidelines are intended for the further investigation of non-spinal, MSK conditions or concerns (e.g., shoulder, elbow, wrist, hand, arm, pelvis, hip, knee, ankle, leg, foot). Imaging guidelines for spinal conditions or concerns are located in **Spine Imaging Guidelines.**

Before any request for advanced diagnostic imaging of musculoskeletal concerns will be considered ALL of the following must be complete and clearly documented. The following criteria apply to all requests for advanced imaging, details, or exceptions, will be provided within each specific section throughout the guideline:

- There must be an in-person clinical evaluation, as well as a clinical re-evaluation following any required conservative care as outlined throughout the guideline.
- An in-person clinical evaluation that includes a complete relevant medical history, physical examination, appropriate laboratory studies and initial non-advanced imaging (e.g., plain radiographs) should have been completed after the current episode of symptoms began. The in-person clinical evaluation may be, at least, either the initial or the re-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 provider that is requesting the advanced imaging.
- When necessary, a failed trial of provider directed conservative treatment following the initial clinical evaluation and non-advanced imaging may be required:
    - The trial of conservative care lasting at least six weeks in duration
    - A clinical re-evaluation or documentation of other meaningful contact (e.g., email, telephone, video consult) with the provider's office following the initial evaluation

- Details will be in the specific criteria sections throughout this publication regarding when conservative treatment is required.

Repeat, Serial or Multiple Studies

The need for repeat or serial advanced imaging, whether CT or MRI, should be considered carefully and may not be medically necessary. This includes serial imaging for surveillance of healing or recovery from musculoskeletal disease. In the majority of musculoskeletal conditions, the medical evidence (i.e., documentation) does not support the need for repeat imaging.

In hand and wrist advanced imaging, as well as in foot and ankle imaging, studies are frequently ordered of both areas. This is not medically necessary since wrist imaging will capture from above the wrist to the mid-metacarpal area, and ankle imaging will capture from above the ankle to the mid-metatarsal area. Only one CPT® code per area should be reported.

Health Equity Considerations

Health equity is the highest level of health for all people; health inequity is the avoidable difference in health status or distribution of health resources due to the social conditions in which people are born, grow, live, work, and age. Social determinants of health are the conditions in the environment that affect a wide range of health, functioning, and quality of life outcomes and risks. Examples include safe housing, transportation, and neighborhoods; racism, discrimination and violence; education, job opportunities and income; access to nutritious foods and physical activity opportunities; access to clean air and water; and language and literacy skills.

Evidence Discussion (MS-1)

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Advanced imaging is typically not necessary for the initial evaluation of individuals with a musculoskeletal complaint. A diagnosis can often be made based on a detailed history, physical examination, appropriate laboratory tests and/or plain radiographs or initial ultrasound (US).[1-5] Many individual's complaints can improve within a few weeks to months with conservative care.

The American College of Radiology Appropriateness Criteria recommended that x-rays, or US in a few select scenarios, as the initial imaging modality for most musculoskeletal complaints.[1,3] These initial images can be helpful in determining if a course of conservative treatment is recommended. In some instances, the initial x-rays or US may help determine a diagnosis or that more advanced images or procedures are appropriate.[6] If conservative treatment is unsuccessful or more advanced study is needed the initial images can be helpful in determining the next course of action.[6,7] These initial images can be helpful in pre-operative planning when surgery is being considered.[1,3]

Advanced imaging can often demonstrate abnormalities that have no relevance to the patient's symptoms. Studies have shown that advanced imaging of asymptomatic middle age individuals commonly demonstrate musculoskeletal abnormalities that do not affect their quality of life.[8] Focusing on incidental findings can lead to overtreatment through unnecessary referral to medical specialists or unneeded medical procedures. Advanced imaging can have additional risks to the individual beyond those of initial plain images. There are risks associated with additional exposure to radiation. There can also be complications due to implantable devices or metallic foreign bodies in the individual. Risk mitigation needs to be weighed when advanced imaging is being considered, especially in relation to repeat or serial advanced imaging.[9]

In many instances for musculoskeletal complaints, current evidence has supported the recommendation of obtaining initial plain x-rays, or US when appropriate, and having the individual follow a course of provider directed conservative care prior to seeking advanced imaging studies.[1] The potential clinical benefit of starting conservative care and not needing advanced images or additional procedures may outweigh the potential harm of a brief delay of obtaining said imaging. It may also help to reduce the risk of unnecessary exposures to radiation/chemicals associated with the advanced imaging techniques.[7,9]

References (MS-1)

MS.GG.0001.0

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Imaging Techniques (MS-2)

Guideline

Imaging Techniques (MS-2)

Imaging Techniques (MS-2)

MS.IM.0002.0
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Plain Radiograph

Plain radiographs (x-ray) are often the initial imaging for musculoskeletal conditions. The results of plain x-rays performed after the current episode of symptoms started or changed need to be available to the provider requesting advanced imaging, unless otherwise noted, to rule out those situations that do not often require advanced imaging, such as: osteoarthritis, acute/healing fracture, dislocation, osteomyelitis and bone tumor amenable to biopsy or radiation therapy (in known metastatic disease). Unless otherwise noted in the guidelines, x-rays should be performed before requesting advanced imaging.

Magnetic Resonance Imaging

Magnetic resonance imaging (MRI) is often a preferred advanced imaging modality in MSK conditions because it can be superior in visualizing the soft tissues and physiological processes happening due to an injury or medical condition. As MRI uses magnetic fields, it does not expose the individual to ionizing radiation and may be a better choice when exposure is a concern. However, individuals with implanted devices may not be able to undergo MRI.

Currently there is inadequate scientific evidence to support the necessity of positional MRI (also referred to as dynamic, weight-bearing, standing or kinetic MRI) and delayed gadolinium enhanced MRI of cartilage (dGEMRIC). These imaging modalities should be considered not medically necessary.

Computed Tomography

Computed tomography (CT) is preferred for imaging cortical bone anatomy. It is useful for studying complex fractures, dislocations, and assessing delayed union or non-union of fractures when x-rays are equivocal. CT can also be the imaging choice in individuals who cannot undergo an MRI.

Positional CT (also referred to as weight-bearing or cone beam CT) may be useful in imaging of the foot and ankle. Requests for positional CT for the foot and ankle are subject to the same condition-specific criteria as contained throughout this guideline publication. Positional CT of anatomic areas other than the foot and ankle are considered not medically necessary.

Ultrasound

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

Nuclear Medicine

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.

Positron Emission Tomography

Positron Emission Tomography (PET/CT) is a nuclear medicine/CT fusion study that uses a positron emitting radiotracer to create cross-sectional and volumetric images based on tissue metabolism. PET/CT allows for better anatomic localization of the areas of abnormal increased tissue activity. PET/CT can be helpful for imaging certain musculoskeletal conditions when MRI or CT is equivocal or cannot be performed.

- See: **Nuclear Medicine (MS-28)** and condition specific guidelines for specific indications.

Contrast Issues

Most musculoskeletal imaging (MRI or CT) is completed without contrast media; however, contrast may be useful and will be indicated throughout the condition-specific criteria in these guidelines. Some examples may be tumors, osteomyelitis, infection, arthrograms, detection of rheumatoid arthritis. For individuals with contrast contraindication, the corresponding advanced imaging without contrast may be approved as an alternative. However, in some cases the non-contrast study may not

provide as adequate evaluation of the condition of concern and would therefore not be necessary.

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3D Rendering (MS-3)

Guideline

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3D Rendering (MS-3.1)

MS.TD.0003.1
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3-D image post-processing of conventional images is medically necessary for preoperative planning when conventional imaging is insufficient for the following:

- 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 medically necessary 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
- Additionally - If multiple CPT codes are performed for the same indication on the same day, one 3D rendering code is required. If they are performed on separate days, 3D rendering codes are required for each study on each day.
- The 3-D rendering codes require concurrent supervision of image post-processing 3-D manipulation of volumetric data set and image rendering.

Evidence Discussion (MS-3)

MS.TD.0003.0
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In some complex clinical scenarios, initial and conventional advanced images alone may not sufficiently reveal bony displacement and other incongruities. Accurate radiographic characterization of complex fractures and injuries is important for appropriate treatment decisions. The American College of Radiology, in multiple of their Appropriateness Criteria (ACR) publications, supports the use of 3D image post-processing of conventional images of complex fractures and injuries when said images are insufficient to visualize bone displacement and/or incongruity, and further clarification will aid in treatment decisions. [1-3]

Evidence has shown that 3D modeling can improve the accuracy of fracture classification. In a cohort study comparing the use of 2D CT images alone or combined with 3D segmentation or 3D models, both trauma surgeons and residents were more accurate with their classification of proximal humerus fractures when they used digital 3D models.[4] In a systematic review, inter- and intra-observer agreement in proximal humeral fracture classification increased as image technology advanced from radiographs to 2D CT to 3D CT.[5] Fracture gaps of 100µm were identified at a consistent rate of 80-100% in CT images with displacements of up to 400µm visible in digital 3D models. However, rates were dependent on CT technology and post-processing effects of rendering, thus original CT images should still be used along with any 3D rendering for verification of fractures prior to surgery.[6]

In their Appropriateness Criteria for acute trauma to the hand and wrist, the ACR supports the use of 3D rendering as a visualization tool for more accurate preoperative planning in the management of some complex surgical procedures.[7] Additional evidence demonstrated the utility of 3D rendering in preoperative planning for various complex musculoskeletal conditions. In a retrospective study of the planning of reinforcement cages for total-hip replacement revision surgery 3D templating accurately predicted cage size in 29/27 surgeries, compared to only 15/27 using conventional 2D templating.[8] 3D preoperative planning for reverse total shoulder arthroplasty has been shown to result in minimal deviation of the procedure from the plan with high levels of agreement in screw angle, length and prosthetic component size.[9] In a comparison of 2D versus 3D preoperative planning in total hip arthroplasty, 3D templating was found to result in higher accuracy restoration of native joint mechanics.[10]

References (MS-3)

MS.TD.0003.0

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Nuclear Medicine (MS-28)

Guideline

Nuclear Medicine (MS-28.1)

MS.NM.0028.1
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As mentioned in General Guidelines (MS-1.0), results of plain x-rays after the current episode of symptoms started or changed must be available to the requesting provider, unless otherwise specified below, prior to advanced imaging. A trial of conservative care may also be required, as specified below.

NOTE: SPECT scan may be medically necessary for any of the same criteria for which a bone scan is medically necessary as listed in this section if:

- The request is for CPT® 78300 and CPT® 78803, then only CPT® 78803 is to be approved if medical necessity is established.
- 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 medically necessary in the evaluation of some musculoskeletal disorders, and other rare criteria as follows:

- 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)
  - Criteria for non-nuclear medicine imaging can be found in: **Joint Replacement Post-Operative Follow-Up (MS-16.1)**
- For detection of ischemic or infarcted regions in sickle cell disease:
  - Nuclear medicine bone marrow imaging (CPT® 78102, 78103, or 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, including re-evaluation:
  - Triple phase bone scan (CPT® 78315)
  - Criteria for non-nuclear medicine imaging of CRPS of the foot can be found in: **General Pain (MS-32.1)**
- Evaluation of Paget's disease
  - Bone scan (CPT® codes: 78300, 78305, or 78306) OR
  - Distribution Of Radiopharmaceutical Agent SPECT (CPT® 78803) OR

- Hybrid SPECT/CT (CPT® 78830)
- Criteria for non-nuclear medicine imaging can be found in: **Bone Lesion (MS-10.2)**

- Suspected fractures
  - If the following criteria listed below (as also found in **Occult, Stress or Insufficiency Fracture or Reaction (MS-5.2)**) (**excluding peri-prosthetic fractures**) are met:
    - 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 when ALL the following apply:
      - The initial evaluation, history, and physical exam fails to establish a definitive diagnosis AND
      - The initial plain x-ray findings are negative or equivocal
      - 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 and suspected occult fractures of the scaphoid
    - Or for all other suspected occult/stress/insufficiency fractures when ANY of the following apply:
      - Initial plain x-rays obtained a minimum of 14 days after the onset of symptoms are non-diagnostic for fracture OR
      - Repeat plain x-rays remain non-diagnostic for fracture after a minimum of 10 days of provider-directed conservative treatment
      - For suspicion of shin splints, a 6-week trial of provider-directed conservative treatment, including clinical re-evaluation, is also required prior to requesting advanced imaging.
      - For stress reaction surveillance or "return to play" decisions, advanced imaging is not medically necessary regarding a stress reaction identified on an initial imaging study.
      - For stress fracture follow-up imaging for "return to play" evaluation at least 3 months after the initial imaging study.
  - **And MRI cannot be performed**, the following imaging is medically necessary:
    - 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)
  - **Or for peri-prosthetic fractures when MRI cannot be performed**, the following imaging is medically necessary:

    - 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:
    - **Note** - For suspected infection following joint replacement, joint aspiration is the initial evaluation after plain x-ray for a painful joint replacement. Joint aspiration should be negative or inconclusive prior to requesting advanced imaging.
        - Criteria for non-nuclear medicine imaging regarding specific joints post-operative from replacement surgery can be found in: **Joint Replacement Post-Operative Follow-Up (MS-16.1)**
    - FDG PET/CT (CPT® 78815 for multifocal infection, or CPT® 78811 for unifocal/ limited area of interest) if MRI or CT is equivocal or cannot be done
        - 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)
    - 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)

Evidence Discussion (MS-28)

MS.NM.0028.0
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Many musculoskeletal complaints can be diagnosed based on a detailed history, physical examination and initial x-rays. In more complex clinical situations, x-rays can be useful in determining whether advanced diagnostic imaging is needed and which specific advanced diagnostic imaging study is warranted. MRI or CT are typically the study of choice if x-rays are non-diagnostic or equivocal in evaluating musculoskeletal complaints. While nuclear medicine scans may demonstrate high sensitivity to certain diagnoses, the increased exposure to radiation must be considered in comparison to other advanced imaging options.[1,2]

The American College of Radiology (ACR) has recommended the use of MRI, when possible, as the next image after x-rays for investigation of suspected infection, stress fracture and post-surgical complications following joint replacement. MRI can be as sensitive as nuclear medicine scans but also considerably more specific, while creating less radiation exposure. However, there may be situations where MRI or CT are not available, contraindicated or image results would be unclear. [1, 3-7]

Implanted hardware, devices, or foreign objects may create image artifacts making diagnosis uncertain. In these situations, nuclear medicine scans may be the next best option in imaging. Practical planning to keep radiation exposure as low as possible must be taken into account.[2] Bone scans have been shown to be as sensitive to stress fracture as MRI, allowing earlier detection than may be shown on plain x-ray.[3] When an alternative imaging modality to other advanced imaging is necessary to evaluate suspected infection, bone scans have demonstrated high sensitivity to osteomyelitis. However, their specificity has been shown to be limited (45%), especially when there are other underlying conditions (e.g., arthritis), recent fracture, or recent surgery.[4,5] Bone scan may also have similar sensitivity and specificity as MRI when evaluating suspected complex regional pain syndrome, type 1 and may be useful to rule-out the diagnosis.[8]

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MS.NM.0028.0

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Arthritis and Joint Degeneration (MS-12)

Guideline

Osteoarthritis (MS-12.1)

MS.OT.0012.1
v2.0.2026

As outlined in General Guidelines (MS-1.0), initial images and physical exam are required prior to requesting advanced imaging for further investigation and/or treatment planning of osteoarthritis. See specific details below regarding any requirements for conservative care prior to requesting advanced imaging.

Non-surgical and surgical treatment planning, other than joint replacement

- Osteoarthritis - CT without contrast for further investigation of osteoarthritis is medically necessary 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
- Reconstructive joint sparing/salvage surgery planning - MRI arthrogram or CT arthrogram for joint sparing/salvage reconstructive surgery planning is medically necessary for the following:
  - Suspected concomitant rotator cuff tear of the shoulder
  - Suspected concomitant labral tear of the shoulder or hip
  - Suspected concomitant internal derangement of the knee

Joint replacement planning, non-customized-to-patient (not for intra-operative navigation)

- **Elbow, wrist, hip, knee or ankle** - CT without contrast of the elbow (CPT® 73200), wrist (CPT® 73200), hip (CPT® 73700 or 72192), knee (CPT® 73700) or ankle (CPT® 73700) for non-customized-to-patient joint replacement planning (prior to surgery/not for intra-operative navigation) is medically necessary when ALL of the following apply:
  - Initial x-rays have been performed after the current episode of symptoms started or changed and results are available to the requesting provider 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

- **Shoulder** - CT without contrast (CPT® 73200) and/or MRI without contrast (CPT® 73221) of the shoulder for non-customized-to-patient joint replacement planning (prior to surgery/not for intra-operative navigation) is medically necessary when ALL of the following apply:
  - Initial x-rays have been performed after the current episode of symptoms started or changed and results are available to the requesting provider

Joint replacement planning and intraoperative navigation, customized-to-patient

- CT without contrast or MRI without contrast of the **shoulder, elbow, wrist, hip, knee, or ankle** for customized-to-patient joint replacement surgery planning and intraoperative navigation (e.g., MAKOplasty) is medically necessary when ALL of the following apply:
  - Initial x-rays have been performed after the current episode of symptoms started or changed and results are available to the requesting provider 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

Inflammatory Arthritis (MS-12.2)

MS.OT.0012.2
v2.0.2026

As outlined in General Guidelines (MS-1.0), initial images and physical exam are required prior to requesting advanced imaging for further investigation and/or treatment planning of inflammatory arthritis (e.g., Gout, Pseudogout, Pigmented Synovitis, Rheumatoid arthritis).

Gout/Pseudogout

CT without contrast, MRI without contrast, or MRI without and with contrast of the area of interest is medically necessary for investigation of suspected gout/pseudogout when ALL 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

Pigmented Villonodual Synovitis (PVNS)

Results of plain x-rays performed after the current episode of symptoms started or changed need to be available to the requesting provider prior to requesting advanced imaging for PVNS

MRI without contrast of the affected joint, or CT with contrast if MRI contraindicated, is medically necessary for the investigation of PVNS following plain x-rays.

Rheumatoid Arthritis

Plain x-ray, physical exam, and appropriate laboratory studies are required prior to advanced imaging for rheumatoid arthritis

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

US (CPT® 76881 or CPT® 76882), MRI without contrast OR MRI without and with contrast is medically necessary for investigation of rheumatoid arthritis in 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 is not medically necessary for routine follow-up of treatment

Evidence Discussion (MS-12)

MS.OT.0012.0
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Current ACR appropriateness criteria for chronic pain in the shoulder, knee, and hip all recommended plain x-ray as the initial image of choice when investigating suspected osteoarthritis (OA).[1-3] Advanced imaging is typically not necessary for the initial evaluation of OA, a diagnosis can be made based on history, physical exam and plain x-rays.[4] For most individuals diagnosed with OA, treatment does not rely on advanced imaging findings, and many can improve with conservative care.[5-8]

When individuals with OA poorly respond to conservative care or there is a concern for concomitant joint pathology, advanced imaging may be able to identify additional sources of symptoms.[9] MRI is generally considered the next appropriate imaging study for chronic joint pain when x-rays are inconclusive or further investigation is warranted. CT may be appropriate in specific situations to provide additional bony detail for treatment planning or when MRI is contraindicated.[1-3]

Plain x-rays are typically sufficient for preoperative planning for the majority of patients undergoing joint replacement surgery. However, for those with congenital or significant atypical post-traumatic arthritic deformities, CT scan can be of value for further evaluation/planning.[10] Advanced imaging will also be required prior to the replacement surgery if there will be the use of custom implants, patient specific instrumentation or computer assisted navigation.[11]

The American College of Radiology (ACR) Appropriateness Criteria for Chronic Extremity Joint Pain-Suspected Inflammatory Arthritis, Crystalline Arthritis, or Erosive Osteoarthritis (revised 2022) has recommended plain radiography as the initial imaging study for chronic extremity joint pain where crystalline arthritis is suspected.[12] X-ray sensitivity can be lower than other imaging modalities, however they may contain sufficient findings for the diagnosis of gout or calcium pyrophosphate deposition disease (CPPD). The benefits to using x-rays as an initial imaging study is to potentially avoid the need for further testing, treatment delays. Early onset gout/pseudogout may not be evident on any imaging, so reliance on a complete clinical history, evaluation and synovial fluid testing is important in any initial examination when gout/pseudogout is suspected.[13]

Advanced imaging is typically not required for the evaluation of patients with suspected crystalline arthropathy. The presence of monosodium urate crystals or calcium pyrophosphate crystals on synovial fluid microscopy can be definitive of a diagnosis of gout. However, additional imaging can be helpful in the evaluation of an individual's symptoms when differential diagnoses are suspected.[13]

Significant advances in imaging have made the visualization of gout/pseudogout much better than in previous years, especially when using US and CT technology. The 2018 EULAR recommendations stated that US offers the best potential for diagnosis of gout and dual-energy CT is showing great promise in its utility when compared to other imaging options.[13] Research since those recommendations have added more support that US and dual-energy CT are modalities of choice. A small cross-sectional study demonstrated that US is more specific in detecting early stage gout and that both US and CT have similar accuracy for middle and late stage disease identification.[14] A systematic review in 2022 of 28 studies determined that the sensitivity and specificity for US to detect gout was 84% and 84% respectively for both early and late staged, and for dual-energy CT to be 89% and 91% for chronic gout (75% and 85% for earlier staged disease).[15] A 2019 meta-analysis found that dual-energy CT was only less sensitive for as early as 6 weeks since the start of symptoms.[16] In 2018, two systematic reviews analyzing the accuracy of and comparing dual energy CT other imaging modalities concluded it was better than x-ray or normal CT and equal to US in diagnosing gout.[17,18] There is limited evidence to lend any support of the utility of other advanced image options in the investigation of gout/pseudogout. The most recent ACR recommended that CT with contrast or MRI of any method are usually not appropriate when investigating gout/pseudogout.[12] The 2018 EULAR recommendations are similar, that while MRI has some ability to detect crystalline deposit there is limited research in the diagnostic utility of the images, especially when compared to other imaging options.[13] The utility of MRI may change as research and technology continue to advance.

The ACR Appropriateness Criteria for Chronic Extremity Joint Pain-Suspected Inflammatory Arthritis, Crystalline Arthritis, or Erosive Osteoarthritis (revised 2022) recommended plain radiography as the initial imaging study for chronic extremity joint pain where Rheumatoid arthritis (RA) is suspect.[12] Clinical and laboratory assessment of RA remains the cornerstone of diagnosis and determining a response to treatment.[19] Inconclusive or non-diagnostic imaging results can be further evaluated with advanced imaging. MRI allows assessment of all structures as well as bone edema and baseline bone edema on low and high field MRI in patients with early RA is predictive of future radiographic damage.[20] Joints and bones in the hand are often affected in RA and assessing changes in these joints can help in therapy monitoring.[21] MRI and US play important roles in detecting subclinical disease in patients with inflammatory arthritis. These modalities have higher sensitivity in detecting subclinical synovitis, tenosynovitis, osteitis, and early erosive disease compared with physical exam and xray, therefore useful in early diagnosis and evaluating response to treatment.[22]

Investigation of Pigmented Villonodular Synovitis (PVNS) may be further aided with advanced imaging. Radiographs are non-specific and may appear normal 20% of the time but joint effusion, soft-tissue swelling, extrinsic erosion of bone, absence of calcification, preservation of joint space, and/or normal bone mineralization may be seen

in diffuse intraarticular PVNS. Localized form my appear normal on plain radiographs.[23] MRI may be necessary for diagnosis.[24] A retrospective review of 122 histologically confirmed PVNS cases demonstrated that MRI was helpful in obtaining a correct diagnosis 83% of the time.[25] MRI is also optimal for demonstrating the relationship of extraarticular lesions to the tendon sheath to suggest the diagnosis.[23]

References (MS-12)

MS.OT.0012.0

v2.0.2026

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Capsular/Synovial and Meniscal Dysfunction (MS-29)

Guideline

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Capsular/Synovial and Meniscal Dysfunction (MS-29.1)

MS.CS.0029.1
v2.0.2026

As outlined in General Guidelines (MS-1.0), initial images and physical exam are required prior to requesting advanced imaging for further investigation and/or treatment planning for capsular and/or synovial dysfunction. See specific details below regarding any requirements for conservative care prior to requesting advanced imaging.

- Initial plain x-ray imaging of the suspected area must first be performed after the current episode of symptoms started or changed and results available to the requesting provider.
- Failure of 6 weeks of provider-directed conservative treatment, including clinical re-evaluation, occurring after the current episode of symptoms started, **EXCEPT** as noted below

When the above criteria has been met, the following advanced imaging is medically necessary:

- **Shoulder**
  - Labral tear or dysfunction (e.g. SLAP, ALPSA, HAGL) – CT with contrast (CPT®73201), MRI without contrast (CPT®73221), or MRI with contrast (CPT®73222).
  - Adhesive capsulitis (frozen shoulder) – MRI without contrast (CPT®73221)
- **Hip**
  - Labral tear or dysfunction - CT with contrast (CPT® 73701), MRI without contrast (CPT® 73721), or MRI with contrast (CPT® 73722)
- **Knee**
  - Hemarthrosis, non-traumatic or spontaneous – MRI without contrast (CPT® 73721)
    - **trial of conservative care not required**
  - Hemarthrosis, traumatic – see specific section related to the tissue trauma (e.g., fracture, joint stability, ligament, osteochondral injury, etc)
  - Meniscus tear - MRI without contrast (CPT® 73721), or CT with contrast (CPT® 73701) if MRI cannot be performed, is medically necessary for further investigation of suspected meniscal tear when all of the following have been met:
    - Plain x-rays have been performed after the beginning of the current episode of symptoms started

- Failure of 6 weeks of provider-directed conservative treatment, including clinical re-evaluation, occurring after the current episode of symptoms started OR at least 2 of the following 4 criteria met:
  - positive McMurray's, Thessaly, or Apley's compression test
  - twisting or acute injury of the knee
  - locked knee: inability to fully extend knee on exam in comparison to the opposite knee
  - knee effusion
- For degenerative meniscal tear - MRI without contrast (CPT® 73721) is medically necessary for further investigation of suspected degenerative meniscus tear in an individual with osteoarthritis when all of the following have been met:
  - Plain x-rays have been performed after the beginning of the current episode of symptoms started
  - Failure of 6 weeks of provider-directed conservative treatment, including clinical re-evaluation, occurring after the current episode of symptoms started

◦ Synovial Plica or Medial Shelf – MRI without contrast (CPT® 73721)

Evidence Discussion (MS-29)

MS.CS.0029.0
v2.0.2026

Advanced imaging of synovial joint symptoms is typically not recommended as an initial diagnostic study. Research has demonstrated that asymptomatic individuals may commonly have tears or other findings on advanced images of capsular and synovial tissues (e.g., labrum, capsule, synovial lining).[1,2] Abnormal findings could lead to a cascade of unnecessary treatment or even surgery as asymptomatic tissues typically do not require any treatment. The American College of Radiology (ACR) Appropriateness criteria recommended that plain x-ray is the initial imaging study for investigation of joint pain.[3-6] When initial x-rays are inconclusive or conservative care does not result in amelioration more advanced images may be necessary.

Both CT and MRI technology, when necessary, may be useful for further investigation of labral tear at either the shoulder or hip. MR arthrography is considered the standard for labral imaging due to its high sensitivity and improved soft tissue contrast. However, there may be times, such as with acute trauma, effusion and pain, that MRI without contrast is preferred.[3,5] MRI without contrast can show if capsular thickening is present in the investigation of suspected adhesive capsulitis at the shoulder. It has a relatively high sensitivity for detection of adhesive capsulitis. The introduction of contrast fluid within the rotator interval or along the axillary recess can create limitations in detecting findings of adhesive capsulitis, for this reason MRA is not recommended as next imaging when investigating adhesive capsulitis.[4]

When additional investigation of knee pain is appropriate following initial x-rays and possible conservative care, MRI without contrast is the recommended next image for suspicion of capsular or synovial pathology. MRI has been demonstrated to show the presence of medial plica.[6] Further evaluation of suspected hemarthrosis may involve the use of advanced imaging to help identify the cause of bleeding, especially in recurring cases.[7,8]

References (MS-29)

MS.CS.0029.0

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Foreign and Loose Bodies (MS-6)

Guideline

Foreign and Loose Bodies (MS-6.1)

MS.FB.0006.1
v2.0.2026

As outlined in General Guidelines (MS-1.0), initial images and physical exam are required prior to requesting advanced imaging for further investigation and/or treatment planning.

Foreign Body

US (CPT® 76881 or CPT® 76882), CT without contrast or MRI without contrast or MRI without and with contrast for further investigation of foreign bodies is medically necessary after plain x-rays have ruled out the presence of radiopaque foreign bodies as follows:

- US is the preferred imaging for radiolucent 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
- MRI without and with contrast is an alternative to US and CT for assessing the extent of infection associated with a suspected foreign body

Loose Body

When the initial x-rays have been taken and the results are available to the provider, advanced imaging of symptomatic loose bodies in a joint is medically necessary as follows:

- **Shoulder** - MRI without contrast (CPT®73221)
- **Elbow** - CT without contrast (CPT® 73200) , CT with contrast (CPT® 73201), MRI without contrast (CPT® 73221) or MRI with contrast (CPT® 73222)
- **Hip** - MRI without contrast (CPT® 73721)
- **Knee** - MRI without contrast (CPT® 73721) or CT Knee with contrast (arthrogram) (CPT® 73701) if MRI cannot be performed
- **Ankle** - MRI without contrast (CPT® 73721)

Evidence Discussion (MS-6)

MS.FB.0006.0
v2.0.2026

Initial x-rays are recommended as a first imaging examination following acute trauma or when evaluating infection of the musculoskeletal system and there is suspicion of foreign objects or loose bodies.[1-3] X-rays are highly sensitive to embedded radiopaque materials, especially metals. X-rays provide an excellent overview of the anatomic area of interest allowing for a better overall assessment of symptoms.[4]

When a foreign body is not visualized on x-rays, ultrasound may be helpful to further evaluation.[1-3] Ultrasound has high sensitivity and specificity in detecting radiolucent objects like wood, and plastic. It has also been demonstrated as useful in detecting glass and metal.[4-6] Ultrasound is widely available, accessible, and does not involve ionizing radiation. Ultrasound can also help to evaluate complications of foreign body such as infections and vascular or tendon injuries. Ultrasound does have limitations, such as, visualization will be limited to more superficial tissue depths and variability of the technology available during the assessment may limit image quality.[5,6]

More advanced imaging may be necessary when suspected bodies are out of the range of ultrasound or are not clearly visualized on x-ray and ultrasound. CT has been shown as useful in detecting wood, aluminum, copper and some glass.[5] MRI is recommended when there is suspicion of infection or soft tissue and osseous change in relation to a foreign or loose body.[3] MRI is better than CT in the assessment of infection, however it was found to be less sensitive to actually visualizing a foreign body. There may also be image artifacts on an MRI if there are metallic foreign bodies.[4,5]

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MS.FB.0006.0

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Fractures (MS-5)

Guideline

Acute Fractures (MS-5.1)

MS.FX.0005.1
v2.0.2026

As outlined in General Guidelines (MS-1.0), initial images and physical exam are required prior to requesting advanced imaging for further investigation and/or treatment planning.

CT or MRI without contrast of the area of interest is medically necessary for the investigation of suspected acute complex fracture when ANY of the following apply:

- The initial plain x-ray findings demonstrate a complex (comminuted or displaced) fracture with or without dislocation
  - CT is preferred unless there is a known or suspected association of the fracture with neoplastic disease or other contraindication of CT imaging. If CT is contraindicated, then MRI without/with contrast is preferred
- Preoperative planning - Refer to **3D Rendering (MS-3.1)** for medical necessity criteria of 3D processing

For suspected Lisfranc (tarsometatarsal) fracture (with or without dislocation), CT or MRI without contrast of the foot is medically necessary for further investigation when the following apply:

- Initial plain x-rays have been obtained and results are available to the ordering provider
- For suspicion of Lisfranc dislocation, or ligament, injury (without fracture) see: J**oint Instability and Dysfunction (MS-30.1)** for dislocation or **Ligament and Fascia Injury (MS-31.1)** for ligament injury

For osteochondral fracture or osteochondral injury, see: **Osteochondral Lesions and Fractures (MS-13.1)**

Occult, Stress, Insufficiency Fracture or Reaction (MS-5.2)

MS.FX.0005.2
v2.0.2026

As outlined in General Guidelines (MS-1.0), initial images and physical exam are required prior to requesting advanced imaging for further investigation and/or treatment planning. See specific details below regarding any requirements for conservative care prior to requesting advanced imaging.

MRI without contrast is medically necessary 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** when ALL of the following apply:

- The initial evaluation, history, and physical exam fails to establish a definitive diagnosis AND
- The initial plain x-ray findings are negative or equivocal
- 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 and suspected occult fractures of the scaphoid

CT or MRI without contrast of the area is medically necessary for the investigation of all other suspected occult/stress/insufficiency fractures when ANY of the following apply, except as otherwise noted:

- Initial plain x-rays obtained a minimum of 14 days after the onset of symptoms are non-diagnostic for fracture OR
- Repeat plain x-rays remain non-diagnostic for fracture after a minimum of 10 days of provider-directed conservative treatment
- **For Tarsal navicular stress/occult fracture** - MRI Foot without contrast (CPT® 73718)
  - CT Foot without contrast (CPT® 73700) for follow-up of healing fractures
  - X-ray results are available to the requesting provider
- **Note** - When MRI cannot be performed to investigate suspected fractures see: **Nuclear Medicine (MS-28.1)**

MRI without contrast (CPT® 73718) is medically necessary for suspicion of shin splints when both of the following are met:

- Initial plain x-ray results are available to the requesting provider AND

- Failure of 6 weeks of provider-directed conservative treatment, including clinical re-evaluation, occurring after the current episode of symptoms started

For **stress fracture follow-up** imaging for "return to play" evaluation at least 3 months after the initial imaging study, MRI without contrast of the area of interest is medically necessary

For **stress reaction surveillance** or "return to play" decisions, advanced imaging is not medically necessary regarding a stress reaction identified on an initial imaging study.

Periprosthetic fractures related to joint replacement see: **Joint Replacement Post-Operative Follow-Up (MS-16.1)**

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Other Indications (e.g., Delayed Union, Preoperative) (MS-5.3)

MS.FX.0005.3
v2.0.2026

As outlined in General Guidelines (MS-1.0), initial images and physical exam are required prior to requesting advanced imaging for further investigation and/or treatment planning.

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

Evidence Discussion (MS-5)

MS.FX.0005.0
v2.0.2026

It is widely accepted that the initial imaging for a patient with a suspected fracture should be plain radiographs. The American College of Radiology (ACR) has recommended plain x-ray as the initial image for a majority of both acute and chronic musculoskeletal pain situations, including suspected fractures.[1] When the initial x-rays are negative or unclear, yet fracture is still suspected the ACR has recommended CT as the next method of investigation as it can provide detailed information on bony structure and allow for further evaluation and treatment planning.[1] MRI may be an alternative image to CT in a situation where CT is contraindicated or there has been complex and/or extensive trauma and surrounding tissues also need to be evaluated.[2-4]

The American College of Radiology also recommended that x-rays should be the initial imaging for a suspected stress fracture. Initial x-rays may not identify the fracture and if there is continued suspicion repeat x-ray imaging in 10 - 14 days is supported.[5] Repeat radiographs may show osseous reaction confirming the presence of an occult or stress fracture. However, if repeat x-rays remain negative and there is still suspicion of an occult or stress fracture, MRI is recommended as it has been shown to be the most sensitive and specific imaging modality for workup of suspected stress injuries.[5,6] In addition, there exists a subset of occult/stress/insufficiency fractures that have an increased risk of fracture progression, delayed healing, non-union and avascular necrosis. For these high-risk injuries, advanced imaging is recommended if initial x-rays are negative or indeterminate as these injuries require early diagnosis and immediate treatment.[5,7,8]

The evaluation of patients with chronic stress syndromes (e.g., shin splints) includes a detailed history, physical examination and plain x-rays.[5] Many individuals can improve with conservative care. If the individual fails to respond to an adequate trial of conservative care, MRI is recommended as the next imaging option for further investigation.[9]

For the assessment of bony healing, serial x-ray imaging is usually sufficient. However, if there are still concerns for delayed union or non-union, CT scanning can provide detail as to the presence or absence of bridging callus. MRI can also assist in the evaluation of bone healing.

References (MS-5)

MS.FX.0005.0

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Infection (MS-9)

Guideline

General Infection/Osteomyelitis (MS-9.1)

MS.OI.0009.1
v2.0.2026

As outlined in General Guidelines (MS-1.0), initial images and physical exam are required prior to requesting advanced imaging for further investigation and/or treatment planning.

US (CPT® 76881 or CPT® 76882), MRI without contrast, MRI without and with contrast, CT without contrast, or CT with contrast of the affected area for further investigation of infection is medically necessary after plain x-ray(s) have been obtained in the following scenarios:

- Plain x-ray(s) do not demonstrate infection, AND
- Plain x-ray(s) do not suggest alternative diagnoses such as neuropathic arthropathy (see **Charcot Joint (MS-9.2)**) or fracture, AND
- Soft tissue or bone infection (osteomyelitis) is suspected

OR

- Plain x-ray(s) are positive for infection, AND
- The extent of infection into the soft tissues and any skip lesions require evaluation

For Individuals with **diabetic foot infections** after plain x-rays - as a compliment to plain x-ray - MRI without and with contrast (CPT® 73720), MRI without contrast (CPT® 73718), CT without contrast (CPT® 73700) or CT with contrast (CPT® 73701)

For individuals with suspected spinal infections please use the spine imaging guidelines, see: **Red Flag Indications (SP-1.2)**

For nuclear medicine studies appropriate in specific scenarios, see: **Nuclear Medicine (MS-28)**

Charcot and Septic Joint (MS-9.2)

MS.OI.0009.2
v2.0.2026

As outlined in General Guidelines (MS-1.0), initial images and physical exam are required prior to requesting advanced imaging for further investigation and/or treatment planning. See specific details below regarding any requirements for conservative care prior to requesting advanced imaging.

Charcot Joint

Following the initial x-ray and the failure of the required 6 weeks of provider-directed conservative treatment, including clinical re-evaluation, occurring after the current episode of symptoms started, the following advanced imaging is medically necessary for the investigation of suspected Charcot joint:

- Charcot ankle - MRI without contrast (CPT® 73721)
- Charcot foot - MRI without contrast (CPT® 73718) or MRI without and with contrast (CPT® 73720)

Septic Joint

MRI without and with contrast, MRI without contrast, CT without contrast, CT with contrast, or Ultrasound (CPT® 76881 or CPT® 76882) of the affected joint for further investigation of joint sepsis is medically necessary 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 to evaluate the extent of infection into the soft tissues and any skip lesions that would require evaluation is medically necessary after plain x-rays if

the arthrocentesis is diagnostic and if there is a confirmed septic joint. Results of plain x-rays performed after the current episode of symptoms started or changed need to be available to the requesting provider.

For the criteria for further investigation of post-operative joint replacement septic infection please see joint specific criteria in **Joint Replacement Post-Operative Follow-Up (MS-16.1)**

Evidence Discussion (MS-9)

MS.OI.0009.0
v2.0.2026

The American College of Radiology (ACR) has recommended that x-rays should be used for the initial evaluation of musculoskeletal infections, including osteomyelitis, septic arthritis, and soft tissue infection.[1] They also recommended x-rays as the initial image for the evaluation of feet in individuals with Diabetes Mellitus, which often present with symptoms consistent with infection.[2] Initial radiographs can provide an excellent overview of the anatomic area of interest and can help to exclude other causes of swelling or pain.[3] Radiographs can help with the interpretation of future imaging studies such as CT, MRI, US, and nuclear medicine scans.

The clinical presentation of a suspected infected area or joint has a wide differential diagnosis. Infection is primarily a clinical diagnosis based on physical examination and laboratory testing of blood and/or synovial fluid, which may require prompt arthrocentesis and culture.[3-5] In select situations when a full examination and initial imaging is unclear, advanced imaging may be necessary to better visual the extent of suspected infection and associated effusion or other tissue damage or injury.[3,4]

US, MRI, or CT can be appropriate as the next imaging study for suspected septic arthritis, soft tissue infection, or osteomyelitis following normal radiographs.[1,2] MRI is often the next image of choice for suspect musculoskeletal infection due to its superior contrast resolution of soft tissues which can be helpful in detecting the spread of infection.[3,4,6] They may also be helpful to evaluate the adjacent soft tissues for infection. MRI is also recommended as the next image for evaluation of suspected Charcot joint of the foot. Charcot joints often present with complex symptoms including infection and potential ulceration that may be best visualized with MRI.[2] US can be helpful in detecting effusion and for guiding aspiration for more superficial areas in question.[3,7] CT may also be appropriate in situations when MRI is contraindicated, such as in areas with implanted metal or suspected foreign metal, or MRI is unavailable.[3,4]

References (MS-9)

MS.OI.0009.0

v2.0.2026

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Joint Instability and Dysfunction (MS-30)

Guideline

Joint Instability and Dysfunction (MS-30.1)

MS.IN.0030.1
v2.0.2026

As outlined in General Guidelines (MS-1.0), initial images and physical exam are required, **EXCEPT** for situations specifically listed as not required in this section, prior to requesting advanced imaging for further investigation and/or treatment planning. See specific details throughout the section regarding any requirements for when conservative care prior to requesting advanced imaging is required.

- Initial x-rays must have been performed after the current episode of symptoms started or changed and the results are available to the requesting provider

Advanced imaging for further investigation of joint instability and/or articular dysfunction is medically necessary as follows:

- **Shoulder**:
  - Glenohumeral dislocation/subluxation and/or Bankart or Hill-Sachs lesion – MRI with contrast (CPT®73222), MRI without contrast (CPT®73221), CT with contrast (CPT®73201) or CT without contrast (CPT®73200)
    - Failure of 6 weeks of provider-directed conservative treatment, including clinical re-evaluation, occurring after the current episode of symptoms started is required in individuals over age 40 with a first time dislocation
    - Conservative treatment is not required for individuals 40 years of age or younger with a first-time dislocation, and individuals with recurrent dislocations
  - Acromioclavicular dislocation/separation when ruling out possible rotator cuff tear – MRI without contrast (CPT® 73221)
  - Sternoclavicular (SC) dislocation/separation
    - **Initial x-rays are not required**
    - For evident or suspected SC dislocations - CT chest without contrast (CPT® 71250) or CT chest with contrast (CPT® 71260)
    - For differentiating physeal injury from SC dislocation in individuals 25 years of age or younger OR planning for operative repair - MRI chest without contrast (CPT® 71550) or MRI without and with contrast (CPT® 71552)
    - Proximal 1/3rd (one-third) clavicle fracture – CT chest with contrast (CPT® 71260), CT chest without contrast (CPT® 71250), MRI chest without contrast or MRI chest without and with contrast (CPT® 71552)
- **Wrist**:

- Distal Radioulnar joint instability – CT of both wrists, pronated and supinated positions, without contrast (CPT® 73200)

- **Pelvis**:
  - Osteitis Pubis/ Symphysis Pubis Diastasis – MRI without contrast (CPT® 72195)
    - Failure of 6 weeks of provider-directed conservative treatment, including re-evaluation, occurring after the current episode of symptoms started is required
- **Hip**:
  - Femoroacetabular Impingement, for preoperative planning – MRI without contrast (CPT® 73721) or MRI with contrast (CPT® 73722) and CT without contrast (CPT® 73700) or CT Pelvis without contrast (CPT® 72192)
    - Failure of 6 weeks of provider-directed conservative treatment, including re-evaluation, occurring after the current episode of symptoms started is required
- **Knee**:
  - Tibiofemoral dislocation following a significant trauma to evaluate for ligament and vascular injury – MRI without contrast (CPT® 73721) and/either MRA lower extremity without and with contrast (CPT® 73725) or CTA lower extremity without and with contrast (CPT® 73706)
  - Patellar dislocation/subluxation following an acute injury with consideration of surgery and concern for osteochondral fragment – MRI without contrast (CPT® 73721) or CT without contrast (CPT® 73700)
  - Recurrent Patellar instability if consideration for surgery – MRI without contrast (CPT® 73721) or CT without contrast (CPT® 73700)
    - Failure of 6 weeks of provider-directed conservative treatment, including re-evaluation, occurring after the current episode of symptoms started is required
- **Ankle**:
  - Impingement, anterior, anterior-lateral or posterior – MRI without contrast (CPT® 73721), MRI with contrast (CPT® 73722), or CT with contrast (CPT® 73701)
    - Failure of 6 weeks of provider-directed conservative treatment, including re-evaluation, occurring after the current episode of symptoms started is required
  - Instability, preoperative planning – MRI without contrast (CPT® 73721) or MRI with contrast (CPT® 73722)
    - Failure of 6 weeks of provider-directed conservative treatment, including re-evaluation, occurring after the current episode of symptoms started is required
- **Foot**:
  - Lisfranc (tarsometatarsal) dislocation - MRI Foot without contrast (CPT® 73718) or CT Foot without contrast (CPT® 73700)

    - For suspicion of Lisfranc ligament injury or fracture (with out without dislocation) see: **Ligament and Fascia Injury (MS-31.1)** for ligament injury or **Acute Fracture (MS-5.1)** for fracture
  - Tarsal Coalition, preoperative planning – MRI Ankle without contrast (CPT® 73721) or CT Ankle without contrast (CPT® 73700)
    - Failure of 6 weeks of provider-directed conservative treatment, including re-evaluation, occurring after the current episode of symptoms started is required is required
  - Sinus Tarsi Syndrome, if diagnosis is unclear of for preoperative evaluation – MRI Ankle without contrast (CPT® 73721)
    - Failure of 6 weeks of provider-directed conservative treatment, including re-evaluation, occurring after the current episode of symptoms started is required

Evidence Discussion (MS-30)

MS.IN.0030.0
v2.0.2026

The American College of Radiology (ACR) has recommended that x-rays be the initial image of choice for evaluation of acute and chronic joint instability symptoms (e.g., dislocation, subluxation) and articular dysfunction or abnormality (e.g., bony impingement, coalition).[1-6] X-rays, along with a full history and clinical examination, may be sufficient to determine a diagnosis and treatment plan. In many instances, having an individual follow a course of provider directed conservative care may be sufficient to reduce symptoms and aid in the return of normal function.[7,8]Early advanced imaging could expose individuals to unnecessary risks and additional healthcare costs.

Some acute injuries involving significant trauma may require advanced imaging prior to conservative care. Damage to surrounding anatomy can occur that would need prompt treatment. MRI is typically recommended as the next image for many acute joint injuries as it has excellent capability in discriminating soft tissues and surrounding anatomy. CT may also be appropriate when MRI is contraindicated, unavailable or better visualization of bony alignment is required, such as in surgical planning.[1,2,4,6,9]

When conservative care has not been effective at improving function, or an individual presents with re-occurring and chronic problems, both MRI and CT are recommended as next images to further investigate joint instability and dysfunction.[3,5,7,10] MRI is recommended as useful in assessing the integrity of tissues that support the joint (e.g., labrum, capsule, ligament) and damage that may have occurred over time to chondral surfaces of both the hip and shoulder.[7,10] MRI was shown to have good inter- and intra-rater reliability in assessing patellofemoral instability.[11]

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MS.IN.0030.0

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Ligament and Fascia Injury (MS-31)

Guideline

Ligament and Fascia Injury (MS-31.1)

MS.LM.0031.1
v2.0.2026

As outlined in General Guidelines (MS-1.0), initial images and physical exam are required prior to requesting advanced imaging for further investigation and/or treatment planning. See specific details throughout the section regarding any requirements for when conservative care prior to requesting advanced imaging is required.

- Initial plain x-ray imaging of the suspected area must first be performed after the current episode of symptoms started or changed with results available to the requesting provider

Advanced imaging for further investigation of ligament and fascia injury is medically necessary as follows:

- **Elbow**
  - Ulnar Collateral Ligament tear, following acute or repetitive trauma (including overhead throwing athletes) – US (CPT® 76881 or CPT® 76882), MRI without contrast (CPT® 73221), MRI with contrast (CPT® 73222) or CT with contrast (CPT® 73201)
- **Wrist**
  - Intrinsic ligament tear and/or Triangular Fibrocartilage Complex injury – MRI with contrast (CPT® 73222) or CT with contrast (CPT® 73201).
    - Failure of 6 weeks of provider-directed conservative treatment, including clinical re-evaluation, occurring after the current episode of symptoms started is required
- **Hand**
  - Ulnar Collateral Ligament tear, if ruling out a Stener lesion or a complete ligament tear – US (CPT® 76881 or CPT® 76882), or MRI without contrast (CPT® 73218)
- **Knee**
  - Cruciate and/or collateral ligament tear – MRI without contrast (CPT® 73721)
    - A failed trial of conservative treatment is not required if any of the following signs are positive in comparison to the opposite knee:
      - Anterior Drawer
      - Lachman
      - Pivot Shift
      - Posterior Drawer or Posterior Sag
      - Valgus Stress

- Varus Stress
- Otherwise, failure of 6 weeks of provider-directed conservative treatment, including clinical re-evaluation, occurring after the current episode of symptoms started is required

◦ Patellofemoral and Patellotibial ligament tear – MRI without contrast (CPT® 73721)

- Failure of 6 weeks of provider-directed conservative treatment, including clinical re-evaluation, occurring after the current episode of symptoms started is required

• **Ankle**

◦ Lateral/Medial Ligament injury (e.g., sprained ankle), including avulsion fracture – MRI without contrast (CPT® 73721) or CT without contrast (CPT® 73700)

- Failure of 6 weeks of provider-directed conservative treatment, including clinical re-evaluation, occurring after the current episode of symptoms started is required

◦ Syndesmosis Injury (e.g., high ankle sprain) – MRI without contrast (CPT® 73721) or CT without contrast (CPT® 73700)

• **Foot**

◦ Lisfranc (tarsometatarsal) ligament injury - MRI Foot without contrast (CPT® 73718) or CT Foot without contrast (CPT® 73700)

- For suspicion of Lisfranc dislocation injury or fracture (with out without dislocation) see: Joint Instability and Dysfunction (MS-30.1) for dislocation or Acute Fracture (MS-5.1) for fracture.

◦ Plantar Fascia

- Fascia tear (partial or complete) – US (CPT® 76881 or CPT® 76882), MRI without contrast (CPT® 73718)
  - Failure of 6 weeks of provider-directed conservative treatment, including clinical re-evaluation, occurring after the current episode of symptoms started is required
- Fasciitis preoperative planning – US (CPT® 76881 or CPT® 76882), MRI without contrast (CPT® 73718)
  - Failure of provider-directed conservative treatment lasting at least 6 months or more, including clinical re-evaluation, occurring after the current episode of symptoms started is required
- Plantar plate (e.g., Turf Toe injury) – MRI without contrast (CPT® 73718)
  - Failure of 6 weeks of provider-directed conservative treatment, including clinical re-evaluation, occurring after the current episode of symptoms started is required

Evidence Discussion (MS-31)

MS.LM.0031.0
v2.0.2026

Initial imaging of MSK injuries where ligament or fascia is suspected to be involved is typically done with plain x-rays. The American College of Radiology has recommended x-ray as the initial image for evaluation of most acute injuries.[1] Even in suspected ligament or fascia injury, initial x-rays can be beneficial in determining if there is damage or malalignment to bone that needs to be considered during a thorough evaluation.

A trial of conservative care following negative x-rays may be beneficial for some suspected ligament and fascia injuries prior to immediately seeking advanced imaging. Individuals that show improvement over time with conservative care could avoid the additional potential exposure and expense of advanced imaging or unnecessary treatment or surgery. In their 2018 revised Appropriateness Criteria for Acute Hand and Wrist Trauma, the ACR recommended that symptomatic individuals with negative initial x-rays may use a trial of immobilization and repeat x-rays.[2] Current injury rehabilitation guidelines have recommended that individuals with suspected lateral ankle sprains follow a 4-6 week conservative care program with advanced imaging only being performed for those with persistent symptoms despite following the whole program.[3] Furthermore, guidelines also indicate that individuals with suspected plantar fascial pain usually do not require imaging studies unless they fail a comprehensive conservative care program.[4]

When medically necessary, advanced imaging for ligament and fascia injury has demonstrated high accuracy. More superficial ligaments such as those in the hand, wrist and elbow may be appropriately visualized through ultrasound alone. Ultrasound has been shown to be 81% sensitive and 91% specific in detecting Ulnar collateral Ligament injury at the elbow and 96% sensitive and 90% specific at the thumb.[5-7] Ultrasound demonstrated high sensitivity in evaluating heel/foot pain and may have utility in ruling out plantar plate injury.[8]

When further imaging beyond initial x-ray or ultrasound is necessary to investigate potential ligament or fascia injury, MRI is typically considered the standard next image option. ACR recommendations for imaging of the acute elbow, wrist, hand, knee, ankle and chronic foot all support MRI as the next imaging type for ligament or fascia investigation. Due to MRI's sensitivity to different tissues, it can be useful in evaluating not only ligament and fascia, but also any associated stress injury to bone or marrow, edema patterns, syndesmotic injury, meniscal involvement or other soft tissue injury.[2,9-12] Having accurate imaging of all aspects of any injury will aid in appropriate management and treatment planning .

CT imaging may also be useful in some instances, such as if MRI is contraindicated for an individual or when evaluation of bone displacement is desired. When combined with contrast, CT can be helpful in more accurate visualization of malalignment of the small and compact joints of the wrist. CT arthrography has demonstrated sensitivity and specificity equal to, or higher than, MRI or arthroscopy in detection of scapholunate and lunotriquetral ligament injury.[2] CT imaging is supported in suspected "high-ankle" syndesmotic injury, while MRI is often still considered a better option, measurements from CT scans and displayed displacement have been demonstrated to identify syndesmotic injury seen on MRI.[12]

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MS.LM.0031.0

v2.0.2026

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Limb Length Discrepancy (MS-17)

Guideline

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Limb Length Discrepancy (MS-17.1)

MS.LL.0017.1
v2.0.2026

A diagnostic advanced imaging CPT code (e.g., CPT® 73700, CPT® 73701, or CPT® 73702) is not medically necessary for the evaluation of limb length discrepancy.

Either plain radiograph 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.

Evidence Discussion (MS-17)

MS.LL.0017.0
v2.0.2026

The findings of recent systematic reviews support that x-ray is the most valid and reliable method for evaluation of limb length discrepancy. Advanced imaging modalities are not supported in current research as a method to evaluate leg length discrepancy. These technologies are more expensive, can have added risks such as sedation, and increased exposure to radiation. Furthermore, they can have added time it takes an individual to access the technology and may be contraindicated for some that have implantable devices. Full length, anterior-to-posterior x-ray images are recommended. Studies also reported excellent reliability using CT scanogram imaging, which may be an appropriate alternative to x-rays.[1,2]

References (MS-17)

MS.LL.0017.0

v2.0.2026

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Muscle/Tendon Unit Injuries/Diseases (MS-11)

Guideline

Muscle and Tendon Injuries (MS-11.1)

MS.MI.0011.1
v2.0.2026

As outlined in General Guidelines (MS-1.0), initial images and physical exam are required prior to requesting advanced imaging for further investigation and/or treatment planning. See specific details throughout the section regarding any requirements for when conservative care is required prior to requesting advanced imaging.

- Initial plain x-ray of the suspected area must first be obtained after the current episode of symptoms started or changed and results are available to the provider

Muscle belly strains/tears - Advanced imaging is not medically necessary. Advanced imaging will not change the treatment plan for muscle belly strains/tears. There is lack of evidence to support surgical treatment for these injuries. These injuries are nearly always treated through conservative, non-operative, care.

Tendons - Advanced imaging for further investigation of tendon injury and/or pathology is medically necessary as follows:

- MRI without contrast or US for imaging tendons not located in specific joints outlined below is medically necessary when either of the following apply:
  - Suspected partial tendon tear of a specific named tendon
  - Complete tendon tear of a specific named tendon for preoperative planning
- **Shoulder**
  - Impingement – US (CPT® 76881 or CPT® 76882), MRI without contrast (CPT®73221) or MRI with contrast (CPT®73222) or CT with contrast (CPT® 73201) if MRI is contraindicated
    - Failure of 6 weeks of provider-directed conservative treatment, including clinical re-evaluation, occurring after the current episode of symptoms started is required
  - Chronic tendon inflammation/irritation (e.g., tendinitis, bursitis) – US (CPT® 76881 or CPT® 76882) or MRI without contrast (CPT®73221)
    - Failure of 6 weeks of provider-directed conservative treatment, including clinical re-evaluation, occurring after the current episode of symptoms started is required
  - Bicep Tendon (Long Head), complete tear – US (CPT® 76881 or CPT® 76882) or MRI without contrast (CPT®73221)
    - Clinical exam must be inconclusive, or advanced imaging for preoperative planning/surgery is being considered

- Pectoralis Major/Minor complete tear – US (CPT® 76881 or CPT® 76882), MRI without contrast (CPT®73221) or MRI Chest without contrast (CPT®71550)
  - Clinical exam must be inconclusive or for preoperative planning
- Rotator Cuff tendon tear
  - Partial or complete tear from acute injury and surgery is being considered – MRI without contrast (CPT®73221), MRI with contrast (CPT®73222) or CT with contrast (CPT®73201)
  - Partial or complete tear – US (CPT® 76881 or CPT® 76882), MRI without contrast (CPT®73221) or MRI with contrast (CPT®73222) or CT with contrast (CPT®73201) if MRI is contraindicated
    - Failure of 6 weeks of provider-directed conservative treatment, including clinical re-evaluation, occurring after the current episode of symptoms started is required
- Other tendon injury or pathology not otherwise specified above, partial or complete tear – US (CPT® 76881 or CPT® 76882) or MRI without contrast (CPT®73221)
  - Specific tendon must be named for partial tendon tear
  - Complete tears must be in relation to preoperative planning of a specific named tendon

- **Elbow**
  - Chronic tendon inflammation/irritation (e.g., tendinitis, bursitis)
    - Bursitis – US (CPT® 76881 or CPT® 76882), MRI without contrast (CPT® 73221) or MRI without and with contrast (CPT® 73223)
      - Failure of 6 weeks of provider-directed conservative treatment, including clinical re-evaluation, occurring after the current episode of symptoms started is required
    - Tendinitis – US (CPT® 76881 or CPT® 76882) or MRI without contrast (CPT® 73221)
      - Failure of 6 weeks of provider-directed conservative treatment, including clinical re-evaluation, occurring after the current episode of symptoms started is required
    - Epicondylitis, medial or lateral – US (CPT® 76881 or CPT® 76882) or MRI without contrast (CPT® 73221)
      - Symptoms must persist for longer than 6 months despite trial of at least 6 weeks of conservative treatment. Failure of 6 weeks of provider-directed conservative treatment, including clinical re-evaluation, occurring after the current episode of symptoms started is required

- Bicep/Tricep insertion tendon, complete tear – US (CPT® 76881 or CPT® 76882) or MRI without contrast (CPT® 73221)
  - Clinical examination must be inconclusive or imaging is for preoperative planning
- Other tendon injury or pathology not otherwise specified above, partial or complete tear – US (CPT® 76881 or CPT® 76882) or MRI without contrast (CPT® 73221)
  - Specific tendon must be named for partial tendon tear
  - Complete tears must be in relation to preoperative planning of a specific named tendon

- **Wrist and Hand**
  - Chronic tendon inflammation/irritation (e.g., tendinitis) – US (CPT® 76881 or CPT® 76882), MRI without contrast (CPT® 73221 for wrist or CPT® 73218 for hand) or MRI without and with contrast (CPT® 73223 for wrist or CPT® 73220 for hand)
    - Failure of 6 weeks of provider-directed conservative treatment, including clinical re-evaluation, occurring after the current episode of symptoms started is required
  - Other tendon injury or pathology not otherwise specified above, partial or complete tear – US (CPT® 76881 or CPT® 76882), MRI without contrast (CPT® 73221 for wrist or CPT® 73218 for hand) or MRI without and with contrast (CPT® 73223 for wrist or CPT® 73220 for hand)
    - Specific tendon must be named for partial tendon tear
    - Complete tears must be in relation to preoperative planning of a specific named tendon
- **Pelvis**
  - Chronic tendon inflammation/irritation (e.g., tendinitis) – MRI without contrast (CPT® 72195) or MRI right and or left hip without contrast (CPT® 73721)
    - Failure of 6 weeks of provider-directed conservative treatment, including clinical re-evaluation, occurring after the current episode of symptoms started is required
  - Tendon tear, partial or complete – MRI without contrast (CPT® 72195)
    - Specific tendon must be named
  - Athletic Pubalgia - MRI without contrast (CPT® 72195)
    - Failure of 6 weeks of provider-directed conservative treatment, including clinical re-evaluation, occurring after the current episode of symptoms started is required
  - Piriformis Syndrome – This condition is imaged according to the criteria found in the Peripheral Nerve and Neuromuscular Guidelines see: **Focal Neurophathy (PN-2.1)**

- **Hip**
  - Chronic tendon inflammation/irritation (e.g., tendinitis, bursitis) – US (CPT® 76881 or CPT® 76882) or MRI without contrast (CPT® 73721)
    - Failure of 6 weeks of provider-directed conservative treatment, including clinical re-evaluation, occurring after the current episode of symptoms started is required
  - Abductor tear/avulsion – US (CPT® 76881 or CPT® 76882) or MRI without contrast (CPT® 73721)
  - Other tendon injury or pathology not otherwise specified above, partial or complete tear – US (CPT® 76881 or CPT® 76882) or MRI without contrast (CPT® 73721)
    - Specific tendon must be named for partial tendon tear
    - Complete tears must be in relation to preoperative planning of a specific named tendon
  - Piriformis Syndrome – See above in **Pelvis**
- **Knee**
  - Chronic tendon inflammation/irritation (e.g., tendinitis) – US (CPT® 76881 or CPT® 76882) or MRI without contrast (CPT® 73721)
    - Failure of 6 weeks of provider-directed conservative treatment, including clinical re-evaluation, occurring after the current episode of symptoms started is required
  - Quadriceps tendon (distal) complete tear, preoperative planning – US (CPT® 76881 or CPT® 76882) or MRI without contrast (CPT® 73721)
  - Other tendon injury or pathology not otherwise specified above, partial or complete tear – US (CPT® 76881 or CPT® 76882) or MRI without contrast (CPT® 73721)
    - Specific tendon must be named for partial tendon tear
    - Complete tears must be in relation to preoperative planning of a specific named tendon
- **Ankle**
  - Chronic tendon inflammation/irritation (e.g., tibial or peroneal tendon dysfunction, subluxation, Achilles tendinitis) – US (CPT® 76881 or CPT® 76882) or MRI without contrast (CPT® 73721)
    - Failure of 6 weeks of provider-directed conservative treatment, including clinical re-evaluation, occurring after the current episode of symptoms started is required
  - Achilles Tendon, complete tear, preoperative planning – US (CPT® 76881 or CPT® 76882) or MRI without contrast (CPT® 73721)
  - Other tendon injury or pathology not otherwise specified above, partial or complete tear – US (CPT® 76881 or CPT® 76882) or MRI without contrast (CPT® 73721)

    - Specific tendon must be named for partial tendon tear
    - Complete tears must be in relation to preoperative planning of a specific named tendon
- **Foot**
    - Chronic tendon inflammation/irritation (e.g., tendinitis) – US (CPT® 76881 or CPT® 76882) or MRI without contrast (CPT® 73718)
        - Failure of 6 weeks of provider-directed conservative treatment, including clinical re-evaluation, occurring after the current episode of symptoms started is required
    - Tendons, partial or complete tear – US (CPT® 76881 or CPT® 76882) or MRI without contrast (CPT® 73718)
        - Specific tendon must be named for partial tendon tear
        - Complete tears must be in relation to preoperative planning of a specific named tendon

For **inflammatory muscle disease imaging**, please see either: **Muscle Diseases (PN-8.5)** in the Peripheral Nerve and Neuromuscular Disorders Imaging Guidelines or **Inflammatory Muscle Diseases (PEDMS-10.3)** in the Pediatric Musculoskeletal Imaging Guidelines.

Compartment Syndrome (MS-11.2)

MS.MI.0011.2
v2.0.2026

Acute - This is a surgical emergency and advanced imaging not medically necessary as this diagnosis is made clinically by direct measurement of muscle compartment pressure.

Chronic/Exertional - 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.

Evidence Discussion (MS-11)

MS.MI.0011.0
v2.0.2026

Initial evaluation of a patient with a suspected tendon injury should include an accurate history, careful examination and plain radiographs. The American College of Radiology has recommended x-ray as the initial image for evaluation of most acute and chronic injuries.[1] With negative x-rays, suspicion of tendon injury does not always require immediate advanced imaging. Best practice recommendations for MSK pain have stated that imaging be used selectively. Unnecessary imaging can drive up costs of care and may lead to over-medicalization of an individual's symptoms.[2,3] Many muscle and tendon injuries can significantly improve through conservative care without advanced imaging.

After x-rays have been done, and any conservative care recommended has not resulted in a meaningful improvement of symptoms, advanced imaging may be beneficial for further assessment and treatment planning of certain muscle and tendon injuries. Both US and MRI are supported by the American College of Radiology as a next appropriate image in the evaluation of acute and chronic shoulder, elbow, wrist, hip, knee, ankle and foot injuries when initial x-rays are negative or unclear and muscle or tendon involvement is suspected.[4-14] Evidence has shown that both US and MRI have been validated as excellent methods to evaluate the integrity of muscle and tendon, with MRI being reserved for instances of surgical planning, differential diagnosis or assessment of injury too deep for clear visualization by US.[15,16]

Advanced imaging will typically not change the treatment plan for muscle belly strains/ tears. These injuries are most often treated through conservative, non-operative, care. There is limited evidence to support the surgical repair of muscle belly strains/tears.[17]

Initial diagnosis of compartment syndrome is typically based on clinical presentation, perfusion pressure measurements and laboratory results. Acute compartment syndrome is considered a medical emergency for which a thorough clinical assessment and direct pressure measurements of the compartment can result in a diagnosis so the individual can quickly receive emergency care. Advanced imaging does not play a role in the diagnosis or management of this condition and may delay the time to surgical treatment.[18,19] Chronic exertional compartment syndrome can be determined through dynamic intra-compartmental pressure measurements. These are considered gold standard for diagnosis of chronic compartment pressure concerns. MRI has lacked validity as a non-invasive diagnostic tool for this condition. However, MRI may be useful to rule out other possible sources of pain if plain x-rays fail to find a source.[20,21]

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MS.MI.0011.0

v2.0.2026

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Chondral/Osteochondral Lesions (MS-13)

Guideline

Osteochondral Lesions and Fractures (MS-13.1)

MS.OC.0013.1
v2.0.2026

As outlined in General Guidelines (MS-1.0), initial images and physical exam are required prior to requesting advanced imaging for further investigation and/or treatment planning. The following must be met prior to requesting advanced imaging for further investigation and/or treatment planning of suspected osteochondral lesions or fractures (including osteochondritis dissecans):

- Initial plain x-ray imaging of the suspected area must first be performed after the current episode of symptoms started or changed
- If plain x-rays show a non-displaced osteochondral fragment, follow-up imaging should be with plain x-rays. Advanced imaging is not necessary

When the initial x-rays are negative and an osteochondral injury is still suspected or the x-rays and clinical examination suggest an unstable osteochondral injury the following advanced imaging is medically necessary:

- **Elbow** - MRI without contrast (CPT® 73221), MRI with contrast (CPT® 73222), CT without contrast (CPT® 73200) or CT with contrast (CPT® 73201)
- **Knee** MRI without contrast (CPT® 73721), MRI with contrast (CPT® 73722), or CT with contrast (CPT® 73701)
- **Ankle** - MRI without contrast (CPT® 73721) or CT without contrast (CPT® 73700)
- **Other Joints** - MRI without contrast, MRI with contrast (arthrogram), or CT with contrast (arthrogram)
- **Follow-up of healing (including post-operative fixation)** - MRI without contrast or CT without contrast when healing cannot be adequately assessed on follow-up plain x-rays.

Evidence Discussion (MS-13)

MS.OC.0013.0
v2.0.2026

The American College of Radiography (ACR) has recommended that x-ray should be the first imaging test performed to evaluate joint pain suspected to be due to chondral/ osteochondral lesions.[1-3] Open physes have a much higher potential for healing with conservative treatment. So, radiographs may help to exclude other causes of pain and to determine skeletal maturity, which significantly affects prognosis and management of Osteochondritis Dissecans lesions (OCD). Radiographs may also be sufficient for classification of lower grade lesions avoiding unnecessary advanced imaging.[4] In clinical practice, serial radiographs may be sufficient for monitoring healing of juvenile OCD lesions.

In individuals with radiographs positive for Osteochondritis Dissecans (OCD) or subchondral insufficiency fracture, or with negative radiographs but osteochondral fracture is still suspected, MRI may be medically necessary to further evaluate cartilage for additional injuries and for grading of osteochondral fractures and OCD.[1-3] MRI has a high diagnostic value for assessing the stability of lesions, especially in higher grade lesions.[4,5] This makes MRI useful in determining the best method of treatment, be that conservative or surgical.[4,6] Repeat MRI is suggested only if radiographs are not diagnostic for healing and for worsening symptoms.[6] CT without contrast may be medically necessary to evaluate patients with OCD to confirm loose bodies or when MRI is not definitive.[1-3] MR arthrography or CT arthrography is an effective test for locating intra-articular osteochondral fragments, loose bodies and grading chondral and osteochondral lesions. A combination of x-rays and MRI or CT is recommended to best evaluate the stability of lesions.[7]

References (MS-13)

MS.OC.0013.0

v2.0.2026

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Osteonecrosis/Avascular Necrosis (MS-4)

Guideline

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Osteonecrosis/Avascular Necrosis (MS-4.1)

MS.AN.0004.1
v2.0.2026

As outlined in General Guidelines (MS-1.0), initial images and physical exam are required prior to requesting advanced imaging for further investigation and/or treatment planning. The following must be met prior to requesting advanced imaging for further investigation and/or treatment planning of suspected osteonecrosis (avascular necrosis):

- Initial plain x-ray imaging of the suspected area must first be performed after the current episode of symptoms started or changed

When the initial x-rays are negative or equivocal and the clinical symptoms warrant further investigation of osteonecrosis the following advanced imaging is medically necessary:

- MRI without contrast, MRI without and with contrast, or CT without contrast of the area of interest

When the initial x-rays have confirmed osteonecrosis and advanced imaging is needed for further treatment planning the following advanced imaging is medically necessary for the follow situations:

- Shoulder - Humeral head - MRI without contrast (CPT® 73221) or CT without contrast (CPT® 73200)
- Wrist – Lunate/Scaphoid - MRI without contrast (CPT® 73221) or CT without contrast (CPT® 73200)
- Hip – Femoral head - MRI without contrast (CPT® 73721) or CT without contrast (CPT® 73700)
- Knee – Distal Femur - MRI without contrast (CPT® 73721) or CT without contrast (CPT® 73700)
- Ankle – Talus - MRI without contrast (CPT® 73721) or CT without contrast (CPT® 73700)
- Foot – Tarsal Navicular/Metatarsal head - MRI without contrast (CPT® 73718) or CT without contrast (CPT® 73700)

Individuals with acute lymphoblastic leukemia and known or suspected osteonecrosis should be imaged according to guidelines in **Acute Lymphoblastic Leukemia (PEDONC-3.2)** in the Pediatric and Special Populations Oncology Imaging Guidelines.

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)** in the Pediatric and Special Populations Oncology Imaging Guidelines.

Evidence Discussion (MS-4)

MS.AN.0004.0
v2.0.2026

The American College of Radiology Appropriateness Criteria (ACR) for Osteonecrosis (revised 2022) has recommended radiography as the initial imaging study for clinically suspected osteonecrosis. Radiographs are less sensitive for detection of early osteonecrosis but they help to exclude other causes of extremity pain such as fracture, primary arthritis, or tumor. In late stage osteonecrosis, x-rays will also show findings of secondary osteoarthritis.[1,2]When x-rays are negative or equivocal, and osteonecrosis is still suspected, the ACR supports the use of advanced imaging to aid in further diagnosis and treatment planning.[1]

Both CT and MRI are recommended as next step imaging options after plain x-rays are obtained. MRI has been shown to be both highly sensitive and specific to the detection of osteonecrosis. A 2018 meta-analysis demonstrated that MRI was 93% sensitive and 91% specific in the early detection of osteonecrosis of the femoral head.[3] A recent Delphi model to better predict femoral head collapse identified subchondral fracture as a key predictor. CT scans can provide important insights into the structural integrity of subchondral bone allowing for better treatment planning for patients with osteonecrosis.[4] Preoperative CT has been shown to more clearly display the extent of articular collapse than radiographs.[5] Both MRI and CT have been shown to have similar accuracy in displaying femoral head lesions in more advanced stages of osteonecrosis (ARCO stage III or greater).[6]

References (MS-4)

MS.AN.0004.0

v2.0.2026

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Osteoporosis (MS-14)

Guideline

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Osteoporosis (MS-14.1)

MS.OP.0014.1
v2.0.2026

Initial plain x-ray imaging is not required to request advanced imaging for osteoporosis screening.

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 65 years of age or older, Men 70 years of age or older
- Women less than 65 years of age who have the following additional risk factors for osteoporosis:
  - Estrogen deficiency
  - A history of maternal hip fracture that occurred after age 50 years
  - Low body mass (less than 127 lb or 57.6 kg)
  - History of amenorrhea (greater than 1 year before age 42 years)
- Women less than 65 years or men less than 70 years of age who have the following additional risk factors:
  - Current use of cigarettes
  - Loss of height, thoracic kyphosis
- Individuals of any age with the following:
  - Bone mass osteopenia or fragility fractures on imaging studies such as x-rays, CT, or MRI
  - Develop 1 or more insufficiency fractures
- Individuals 50 years of age and older who develop a wrist, hip, spine, or proximal humerus fracture with minimal or no trauma, excluding pathologic fractures.
- Premenopausal females, or males age 20 to 50 years, with risk factors known to potentially alter bone mineral density such as:
  - Chronic renal failure
  - Rheumatoid or other inflammatory arthritis
  - 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 of age and men with surgically or chemotherapeutically-induced castration
- Individuals beginning or receiving long-term therapy with medications known to adversely affect BMD (e.g., anti-convulsant 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 **monitoring/non-screening** 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
- Individuals with 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 monitoring/non-screening 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.

Evidence Discussion (MS-14)

MS.OP.0014.0
v2.0.2026

The primary diagnostic test used to screen for osteoporosis is the central dual x-ray absorptiometry (DEXA) which accurately measures bone mineral density at the hip and lumbar spine. DEXA accuracy and reproducibility has led to the established standards for diagnosis of osteoporosis by the World Health Organization.[1] The USA Bone Health and Osteoporosis Foundation has recommended bone mineral density testing in all women age 65 and older and all men age 70 and older, and in postmenopausal women younger than 65 years and men aged 50-69 years based on their risk factor profile, including if they had a fracture as an adult.[2] The American College of Radiology Appropriateness Criteria supports DEXA as the primary diagnostic choice to screen women >65 years of age and men >70 years of age for osteoporosis, and for postmenopausal women <65 years of age with additional risk factors for fracture.[3] Repeat bone mineral density assessments one to two years after initiating medical therapy for osteoporosis and every two years thereafter, but recognizes that testing more frequently may be warranted in certain clinical situations, and may be needed less frequently in patients without major risk factors or significant bone density loss on initial BMD testing. DEXA is currently the preferred method for monitoring treatment response.[2]

Quantitative CT (QCT) is regarded as a secondary tool after DEXA for screening for osteoporosis. QCT is highly accurate in determining tissue density within a region of interest. Indications for QCT are the same as for DEXA, however DEXA is recommended as the first-line screening and follow-up test for bone density. If DXA is not available, QCT may be used as a secondary technique and for serial/follow-up purposes.[2,3,4] Selected conditions in which QCT is considered superior to DEXA include extremes in body height, BMI >35, clinical scenarios when an increased sensitivity to small changes in trabecular bone density is required, and in patients with advanced degenerative bony changes in the spine.[3] A potential harm of Quantitative CT is increased radiation exposure (1-10 mSv) as compared to <0.1 mSv for DEXA scan. Whereas the radiation dose for both lumbar spine and hip scanning in a DEXA scan is approximately equivalent to that of a chest x-ray.

There is insufficient evidence to support the use of x-ray as a screening tool in patients suspected of having low bone mineral density. Patients whose x-rays report osteopenia and/or fragility fractures should be referred for DEXA for further characterization of bone density. There is also insufficient evidence to support the current use of quantitative ultrasound as a screening tool in patients suspected of having low bone mineral density.[3]

References (MS-14)

MS.OP.0014.0
v2.0.2026

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General Pain (MS-32)

Guideline

General Pain (MS-32.1)

MS.PN.0032.1
v2.0.2026

As outlined in General Guidelines (MS-1.0), initial images and physical exam are required prior to requesting advanced imaging for further investigation and/or treatment planning. See specific details throughout the section regarding any requirements for when conservative care prior to requesting advanced imaging is required. The criteria in this section applies only to general musculoskeletal pain conditions not already specified in any other section of this guideline.

- Initial plain x-ray imaging of the suspected area must first be performed after the current episode of symptoms started or changed and results are available to the requesting provider

Advanced imaging for further investigation of general musculoskeletal pain is medically necessary as follows:

- **Shoulder** - US (CPT® 76881 or CPT® 76882), MRI without contrast (CPT®73221) or CT with contrast (CPT® 73201) if MRI contraindicated
  - Failure of 6 weeks of provider-directed conservative treatment, including clinical re-evaluation, occurring after the current episode of symptoms started is required
- **Elbow** - US (CPT® 76881 or CPT® 76882) or MRI without contrast (CPT® 73221)
  - Failure of 6 weeks of provider-directed conservative treatment, including clinical re-evaluation, occurring after the current episode of symptoms started is required
- **Wrist** - US (CPT® 76881 or CPT® 76882), MRI without contrast (CPT® 73221), MRI with contrast (CPT® 73222), CT without contrast (CPT® 73200) or CT with contrast (CPT® 73201)
  - Failure of 6 weeks of provider-directed conservative treatment, including clinical re-evaluation, occurring after the current episode of symptoms started is required
- **Hand** - US (CPT® 76881 or CPT® 76882), MRI without contrast (CPT® 73218) or MRI without and with contrast (CPT® 73220)
  - Failure of 6 weeks of provider-directed conservative treatment, including clinical re-evaluation, occurring after the current episode of symptoms started is required
- **Pelvis** - MRI without contrast (CPT® 72195) or MRI right and/or left Hip without contrast (CPT® 73721)
  - Failure of 6 weeks of provider-directed conservative treatment, including clinical re-evaluation, occurring after the current episode of symptoms started is required

- Imaging for Sacroiliac and Coccygeal pain is guided by the Spine Imaging Guidelines (Sacroiliac Joint Pain/Sacroiliitis (SP-10.1) and Coccydynia without Neurological Features (SP-5.2))

- **Hip** - US (CPT® 76881 or CPT® 76882) or MRI without contrast (CPT® 73721)
  - Failure of 6 weeks of provider-directed conservative treatment, including clinical re-evaluation, occurring after the current episode of symptoms started is required
- **Knee** - US (CPT® 76881 or CPT® 76882) or MRI without contrast (CPT® 73721)
  - Failure of 6 weeks of provider-directed conservative treatment, including clinical re-evaluation, occurring after the current episode of symptoms started is required
  - For patellofemoral pain or tracking issues where surgery is being considered - MRI without contrast (CPT® 73721) or CT without contrast (CPT® 73700)
    - Failure of 6 weeks of provider-directed conservative treatment, including clinical re-evaluation, occurring after the current episode of symptoms started is required
- **Ankle** - US (CPT® 76881 or CPT® 76882) or MRI without contrast (CPT® 73721)
  - Failure of 6 weeks of provider-directed conservative treatment, including clinical re-evaluation, occurring after the current episode of symptoms started
- **Foot** - MRI without contrast (CPT® 73718)
  - Failure of 6 weeks of provider-directed conservative treatment, including clinical re-evaluation, occurring after the current episode of symptoms started is required
  - For investigation of sesamoid disorders:
    - Failure of 6 weeks of provider-directed conservative treatment, including clinical re-evaluation, occurring after the current episode of symptoms started is required
    - MRI without contrast (CPT® 73718) or CT without contrast (CPT® 73700) of the foot
  - For investigation of Complex Regional Pain Syndrome (CRPS) (Type 1) at the foot:
    - Failure of 6 weeks of provider-directed conservative treatment, including clinical re-evaluation, occurring after the current episode of symptoms started is required
    - MRI Foot without contrast (CPT® 73718)
    - Criteria regarding nuclear medicine imaging of CRPS is found in: **Nuclear Medicine (MS-28)**

Evidence Discussion (MS-32)

MS.PN.0032.0
v2.0.2026

General, unspecific, musculoskeletal pain and trauma may not always present in a definitive manner. An individual may present with symptoms similar to multiple differential diagnoses. Imaging, as part of a comprehensive examination and assessment, can be useful in these situations to help rule-in or -out a certain diagnosis so as to develop a clinical course of action. The American College of Radiology (ACR) has recommended x-ray as the initial evaluation image for the vast majority of non-specific acute[1-7] and chronic[8-14] musculoskeletal pain. Initial x-rays may provide sufficient information, along with the clinical evaluation, to form a diagnosis. These initial images can be helpful in determining if a course of conservative treatment is recommended. In some instances, the initial x-rays or US may help determine a diagnosis or that more advanced images or procedures are appropriate.[15]

Advanced imaging can often demonstrate abnormalities that have no relevance to the patient's symptoms. Studies have shown that advanced imaging may demonstrate musculoskeletal abnormalities that do not affect their quality of life.[16] Focusing on incidental findings can lead to overtreatment through unnecessary referral to medical specialists or unneeded medical procedures. Advanced imaging can have additional risks to the individual beyond those of initial plain images. There are risks associated with additional exposure to radiation. There can also be complications due to implantable devices or metallic foreign bodies in the individual. Risk mitigation needs to be weighed when advanced imaging is being considered, especially in relation to repeat or serial advanced imaging.[17,18] Musculoskeletal complaints may respond to care prior to needing advanced imaging. Current ACR guidance has recommended obtaining initial plain x-rays and having the individual follow a course of provider directed conservative care prior to seeking advanced imaging for many nonspecific complaints.[8-14] The potential clinical benefit of starting conservative care and not needing advanced images or additional procedures may outweigh the potential harm of a brief delay in obtaining said imaging.

MRI is commonly recommended as the next image technology of choice.[1-14] The use of contrast media during imaging will depend on the clinical presentation and the particular tissues suspected to be injured. When x-rays are negative and there is suspicion of soft tissue involvement MRI can be helpful to visualize tissue damage and effusion. CT may also be helpful in situations where MRI is contraindicated, or x-rays were unclear and bony involvement continues to be suspect.[1-14]

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MS.PN.0032.0

v2.0.2026

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Post-Operative Follow-Up (MS-16)

Guideline

Joint Replacement Post-Operative Follow-Up (MS-16.1)

MS.PS.0016.1
v2.0.2026

As outlined in General Guidelines (MS-1.0), the following must be met prior to requesting advanced imaging for further investigation and/or treatment planning of joint replacement post-op symptoms (e.g., aseptic loosening, infection, fracture, pseudotumor, implant performance):

- Plain x-ray imaging of the suspected area must first be performed after the current post-operative episode of symptoms started with results available to the requesting provider
- See specific details throughout the section regarding any requirements for when conservative care prior to requesting advanced imaging is required
- For suspected periprosthetic infection - Joint aspiration culture is the initial evaluation after plain x-ray for a painful joint replacement when periprosthetic infection is suspected
- Criteria regarding any **nuclear medicine imaging** of suspected post-operative joint replacement complications (e.g., aseptic loosening, peri-prosthetic fracture, suspected infection) is found in: **Nuclear Medicine (MS-28)**

Advanced imaging for further investigation of joint replacement post-operative follow-up is medically necessary as follows:

- **Shoulder**:
  - Suspected aseptic loosening or fracture – US (CPT® 76881 or CPT® 76882), MRI without contrast (CPT® 73221), OR CT without contrast (CPT® 73200)
  - Suspected infection with negative or inconclusive aspiration culture – US (CPT® 76881 or CPT® 76882), MRI without contrast (CPT® 73321), MRI without and with contrast (CPT® 73223) OR CT with contrast (CPT® 73201)
  - Possible rotator cuff tear – US (CPT® 76881 or CPT® 76882), MRI without contrast (CPT® 73221) OR CT with contrast (CPT® 73201)
  - Possible nerve injury – US (CPT® 76881 or CPT® 76882) OR MRI without contrast (CPT® 73221)
- **Elbow/Wrist**:
  - Suspected aseptic loosening or fracture – CT without contrast (CPT® 73200)
  - Suspected infection with negative or inconclusive aspiration culture – US (CPT® 76881 or CPT® 76882), MRI without contrast (CPT® 73221), MRI without and with contrast (CPT® 73223) OR CT with contrast (CPT® 73201)

- **Hip**:
  - Suspected aseptic loosening or fracture – CT without contrast (CPT® 73700)
  - Suspected infection with negative or inconclusive aspiration culture – US (CPT® 76881 or CPT® 76882), MRI without contrast (CPT® 73721), MRI without and with contrast (CPT® 73723), CT with contrast (CPT® 73701), OR CT without contrast (CPT® 73700)
  - Suspected particle disease (aggressive granulomatosis) after infection has been excluded – MRI without contrast (CPT® 73721), OR CT without contrast (CPT® 73700)
  - Suspected periprosthetic fracture after non-diagnostic x-ray – CT without contrast (CPT® 73700)
  - Suspected component malposition or heterotopic bone – CT without contrast (CPT® 73700)
  - Suspected metal-on-metal implant with high-risk of performance issues from cup-neck impingement and adverse local tissue reaction (ALTR, with Co and Cr ion levels greater than 10 ppb) – US (CPT® 76881 or CPT® 76882) OR MRI without contrast (CPT® 73721)
  - Suspected Aseptic lymphocytic-dominated vasculitis lesion (ALVAL) pseudotumor surrounding metal-on-metal prosthesis – US (CPT® 76881 or CPT® 76882) OR MRI without contrast (CPT® 73721)
  - Suspected tendinitis/bursitis, abductor injury or other soft tissue abnormality – US (CPT® 76881 or CPT® 76882) OR MRI without contrast (CPT® 73721)
    - Failure of 6 weeks of provider-directed conservative treatment, including clinical re-evaluation, occurring after the current episode of symptoms started is required
  - Possible nerve injury – MRI without contrast (CPT® 73721)
- **Knee**:
  - Suspected aseptic loosening or fracture – MRI without contrast (CPT® 73721) OR CT without contrast (CPT® 73700)
  - Suspected infection with negative or inconclusive aspiration culture – US (CPT® 76881 or 76882), MRI without contrast (CPT® 73721), MRI without and with contrast (CPT® 73723) OR CT with contrast (CPT® 73701)
  - Suspected periprosthetic fracture – MRI without contrast (CPT® 73721), OR CT without contrast (CPT® 73700)
  - Suspected osteolysis or component instability, rotation, or wear – MRI without contrast (CPT® 73721), OR CT without contrast (CPT® 73700)
  - Suspected periprosthetic soft tissue abnormality unrelated to infection (e.g. tendinopathy, arthrofibrosis, patellar clunk, impingement of nerves or soft tissue) - US (CPT® 76881 or CPT® 76882), OR MRI without contrast (CPT® 73721)

    - Failure of 6 weeks of provider-directed conservative treatment, including clinical re-evaluation, occurring after the current episode of symptoms started is required
- **Ankle**:
    - Suspected aseptic loosening or fracture – CT without contrast (CPT® 73700)
    - Suspected infection with negative or inconclusive aspiration culture – US (CPT® 76881 or CPT® 76882), MRI without contrast (CPT® 73721), MRI without and with contrast (CPT® 73723) OR CT with contrast (CPT® 73701)

General Musculoskeletal Post-Operative Follow-Up (MS-16.2)

MS.PS.0016.2
v2.0.2026

As outlined in General Guidelines (MS-1.0), the following must be met prior to requesting advanced imaging for further investigation and/or treatment planning of general musculoskeletal post-operative (post-op) symptoms (e.g., fracture fixation, tendon/ligament repair, labral repair):

- Plain x-ray imaging of the suspected area must first be obtained after the current post-operative episode of symptoms started and results are available to the provider
- Failure of 6 weeks of provider-directed conservative treatment, including clinical re-evaluation, occurring after the current post-op episode of symptoms started

When all of the above criteria have been met, further investigation in symptomatic individuals is medically necessary for post-operative follow-up as follows:

- **Shoulder**:
  - Post rotator cuff repair – US (CPT® 76881 or CPT® 76882), MRI without contrast (CPT® 73221), MRI with contrast (CPT® 73222) OR CT with contrast if MRI contraindicated (CPT® 73201)
  - Post impingement or labral repair - MRI without contrast (CPT® 73221), MRI with contrast (CPT® 73222) OR CT with contrast if MRI contraindicated (CPT® 73201)
- **Elbow**:
  - Post complex fracture surgery – CT without contrast (CPT® 73200)
  - Post soft-tissue surgery – MRI without contrast (CPT® 73221)
- **Wrist**:
  - Post complex fracture surgery – CT without contrast (CPT® 73200)
  - Post instability and/or ligament surgery (e.g., TFCC, DRUJ instability) surgery – MRI with contrast (CPT® 73222)
- **Hand**:
  - Post soft-tissue or complex fracture surgery – MRI without contrast (CPT® 73218) OR CT without contrast (CPT® 73200)
- **Pelvis**:
  - Post complex pelvic ring/acetabular fracture surgery – CT without contrast (CPT® 72192)
- **Hip**:

- Fracture surgery or post-op for avascular necrosis – MRI without contrast (CPT® 73721) or CT without contrast (CPT® 73700)
- Post Femoroacetabular Impingement or labral repairs – MRI with contrast (CPT® 73722)

- **Knee**:
  - Post fracture or dislocation surgery – CT without contrast (CPT® 73700)
  - Post ligament reconstruction or meniscus tear surgery – MRI without contrast (CPT® 73721) OR MRI with contrast (CPT® 73722)
- **Ankle**:
  - Post complex fracture surgery – CT without contrast (CPT® 73700)
  - Post ligament or tendon injury surgery – US (CPT® 76881 or CPT® 76882) OR MRI without contrast (CPT® 73721)
- **Foot**:
  - Post complex fracture surgery – CT without contrast (CPT® 73700)
  - Post ligament, tendon or plantar plate surgery – US (CPT® 76881 or CPT® 76882) OR MRI without contrast (CPT® 73718)

Evidence Discussion (MS-16)

MS.PS.0016.0
v2.0.2026

The American College of Radiology (ACR) has recommended plain x-rays as the initial study for routine follow up of asymptomatic patients and symptomatic individuals who have undergone surgery for musculoskeletal injury.[1-4] Plain x-rays can identify fractures and show signs of hardware loosening, wear, osteolysis or infection. Blood tests and joint aspiration with synovial fluid laboratory analysis may be sufficient to diagnosis post-surgical infection. Joint aspiration with synovial fluid analysis remains the most useful test for confirming the presence or absence of infection and identifying the causative organism.[2-7] When plain x-rays, and laboratory tests as applicable, are negative or inconclusive and there is a suspicion of post-surgical complications, advanced imaging can help to identify what may be the cause of the individual's symptoms.

When there is suspicion of a post-surgical soft tissue abnormality (e.g., tendinitis, tendinopathy, bursitis, arthrofibrosis), a course of conservative care prior to advanced imaging can allow many individuals to improve[8,9], thus eliminating the need for advanced imaging. This may avoid unnecessary exposure to radiation from imaging and additional costs of imaging. If there is failure to improve, advanced imaging would be appropriate. Suspicion of more significant complications following joint surgery may benefit from advanced imaging without a trial of conservative care.

The ACR further recommended MRI, CT, and US as advanced imaging options when further assessing post-surgical complications. Their recommendations vary based on the clinical scenario.[2-4] Complications with implanted hardware (e.g., loosening, component rotation, hardware fracture) may greatly impair an individual's function and may lead to additional negative sequelae if not addressed in a timely manner. MRI has been identified as accurate diagnostic tools in evaluating aseptic loosening following knee replacement.[10] Suspected torn rotator cuff tendons in individuals that have undergone total shoulder arthroplasty may also be difficult to diagnose without advanced imaging due to the various techniques used to release the subscapularis tendon during surgery.[3] MRI has been demonstrated to have good intra- and inter-rater reliability in determining the structural integrity of tendons following surgery.[11,12] Individuals with metal-on-metal hip replacements are at risk for adverse local tissue reactions including metallosis, pseudotumor and generalized synovitis that could result in tissue damage. Prompt evaluation, including advanced imaging, would be appropriate to best mitigate these risks.[13]

References (MS-16)

MS.PS.0016.0

v2.0.2026

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Tissue Growths, Masses and Cysts (MS-10)

Guideline

Soft Tissue Mass and Morton's Neuroma (MS-10.1)

MS.ST.0010.1
v2.0.2026

As outlined in General Guidelines (MS-1.0), the following must be met prior to requesting advanced imaging for further investigation and/or treatment planning of soft tissue masses and Morton's neuroma:

- Initial plain x-ray imaging of the suspected area must first be performed after the current episode of symptoms started. Results of these plain x-rays need to be available to the requesting provider
- Additional documentation of clinical features if specifically stated below
- See specific details throughout the section regarding any requirements for when conservative care prior to requesting advanced imaging is required

Soft Tissue Mass

Plain x-ray is indicated as the initial imaging study, with the exception of individuals with cancer predisposition syndrome (If there is a known or suspected soft tissue mass in an individual with a cancer predisposition syndrome, see: Screening Imaging in **Cancer Predisposition Syndromes (PEDONC-2)** in the Pediatric and Special Populations Oncology Imaging Guidelines). History and physical exam of any palpable soft tissue mass should include documentation of any one or more of the following clinical features:

- Increase in volume/size
- More than 5cm in diameter
- Painful
- Deep or subfascial location

After the initial history, exam and plain imaging have been performed and further investigation is needed the following advanced imaging is medically necessary for evaluation of soft tissue masses:

- MRI without and with contrast, or MRI 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) which are increasing in volume/size, more than 5 cm in diameter, painful or deep or in a subfascial location
  - Surgical planning
- 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 medically necessary for subcutaneous lipoma with no surgery planned

Tarsal Tunnel Syndrome soft tissue mass entrapment (Baxter's Neuropathy)

After the x-rays have been performed and results are available to the provider, and there has been failure of at least 6 weeks of provider-directed conservative treatment, including clinical re-evaluation, occurring after the current episode of symptoms started, the following advanced imaging is medically necessary for preoperative planning if mass is suspected as etiology of entrapment:

- US Foot (CPT® 76881 or CPT® 76882) or MRI Foot without contrast (CPT® 73718)

Morton's Neuroma

After the x-rays have been performed and results are available to the provider, and there has been failure of at least 6 weeks of provider-directed conservative treatment, including clinical re-evaluation, occurring after the current episode of symptoms started, the following advanced imaging is medically necessary for further investigation of Morton's Neuroma for preoperative planning:

- US Foot (CPT® 76881 or CPT® 76882), MRI Foot without contrast (CPT® 73718) or MRI Foot without and with contrast (CPT® 73720)

Bone Lesion (MS-10.2)

MS.ST.0010.2
v2.0.2026

As outlined in General Guidelines (MS-1.0), the following must be met prior to requesting advanced imaging for further investigation and/or treatment planning of suspected abnormal bone growth or lesion:

- Initial plain x-ray imaging of the entire bone containing the lesion must first be performed after the current episode of symptoms started. Results need to be available to the requesting provider.

After the x-rays have been performed and further investigation is needed advanced imaging is medically necessary for the following scenarios:

- Diagnosis uncertain based on plain x-ray appearance - MRI without contrast, MRI without and with contrast, or CT without contrast
- Imaging requested for preoperative planning – MRI without contrast, MRI without and with contrast, or CT without contrast
- Plain x-ray reveals an osteochondroma with clinical concern of malignant transformation - MRI without contrast or MRI with and without contrast
- For Paget's Disease - MRI (contrast as requested) can be considered if the diagnosis (based on plain x-rays and laboratory studies) is in doubt or malignant degeneration is suspected
    - Criteria regarding **nuclear medicine imaging** is found in: **Nuclear Medicine (MS-28)**

Cysts (MS-10.3)

MS.ST.0010.3
v2.0.2026

As outlined in General Guidelines (MS-1.0), the following must be met prior to requesting advanced imaging for treatment planning of soft tissue masses and cysts:

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

After the initial imaging has been performed and further investigation is needed for surgical planning to address ganglion or other musculoskeletal related cysts, (e.g., Popliteal) the following advanced imaging is medically necessary:

- **Ganglion Cyst** - US (CPT® 76881 or CPT® 76882), MRI without contrast or MRI without and with contrast
- **Popliteal (Baker's) Cyst** - US (CPT® 76881 or CPT® 76882), MRI Knee without contrast (CPT® 73721)

Advanced imaging is not medically necessary for:

- Ganglia that can be diagnosed by history and physical examination
- Sebaceous cyst, as these cysts are benign and additional imaging typically will not change the treatment plan

Evidence Discussion (MS-10)

MS.ST.0010.0
v2.0.2026

The American College of Radiology (ACR) has recommended the use of x-rays as the initial image when evaluating suspected bone tumor. They recommended that a complete x-ray of the entire lesion-containing bone be evaluated prior to considering any advanced imaging.[1] Many benign bone tumors have a characteristic appearance on plain x-ray. Along with a relevant history and physical examination, x-rays may be sufficient for diagnosis and would avoid additional cost and risks associated with advanced images. If plain x-rays are equivocal, they may still direct further imaging with the correct modality. Furthermore, plain x-ray may provide complementary information to advanced imaging, allowing for a better overall interpretation. Clearly benign findings on exam (lipoma, ganglion, sebaceous cyst) do not need additional imaging prior to treatment unless the imaging was necessary for surgical management or for a possible malignancy.

When diagnostic uncertainty remains and concerns for malignant degeneration still exist, or imaging is requested for surgical planning, advanced imaging would be medically necessary. MRI is a superior modality for evaluation of many bone tumors. The ACR recommended MRI as the primary modality for advanced imaging of primary bone tumors. MRI can be useful in narrowing down differential diagnoses and in determining the need for biopsy.[1] CT may be appropriate when an individual presents with contraindications to MRI.

Current ACR recommendations have supported plain x-ray as an initial imaging option when evaluating individuals with suspicion of superficial soft tissue masses.[2] X-ray can be helpful in visualizing soft tissue masses and aid in further management planning. It is often the modality of choice for initial imaging. US is being recommended as an excellent triage tool more frequently for soft tissue masses that are more superficial, further supporting the recommendation for its use by the ACR.[3,4]US has been found to have high accuracy in defining superficial (superior to investing fascia) soft tissues masses with a sensitivity of 93% and specificity of 98%.[5] A recent study found that US was more predictive of the histology of lipomatous tumors than the use of predictive clinical indicators.[6]

Common clinical features of soft tissue sarcoma can be helpful in the differentiation of soft tissue masses and decisions for additional biopsy. In many cases, a thorough exam, history and initial imaging may be sufficient to determine a diagnosis and management plan.[7] When clinical findings and initial imaging is insufficient to diagnose suspicious soft tissue masses MRI without and with IV contrast is primarily recommended as the next advanced image of choice.[2-4] MRI capabilities present many advantages to other imaging techniques for the use of advanced diagnostics of soft tissue masses. Improved

contrast, multiplanar views, visualization of involved vascular structures and better demarcation between tissue types/levels (with the aid of contrast agents) are among the most prominent advantages to MRI.[2,3] When MRI is contraindicated, CT imaging without and with IV contrast can provide similarly diagnostic data as MRI and is considered an important adjunct option to MRI.[2]

ACR imaging recommendations supports both plain xray and ultrasound as initial imaging options when evaluating individuals with suspicion of soft tissue cysts.[2] While x-ray findings may not fully demonstrate a small ganglionic mass they can still be beneficial in visualizing the surrounding anatomy and in determining the next steps for care. In a recent systematic review of 941 ganglion cyst cases MRI and US were the most commonly reported imaging study. It was recommended that US can be a beneficial option for triage. However, it was found that MRI was much better at showing the underlying pathoanatomy of masses and their surrounding area than US when evaluating intraneural ganglion cysts.[8] The utility of MRI for preoperative visibility of dorsal wrist ganglion and any associated pathoanatomy has also been demonstrated. MRI would be more useful for preoperative planning.[9]

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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
02/01/2024	Annual evidence-based updates
07/01/2024	Interim evidence-based updates
05/01/2025	Annual evidence-based updates
11/06/2025	Annual evidence-based updates
05/07/2026	Interim evidence-based updates