



UNITEDHEALTHCARE® COMMUNITY PLAN: RADIOLOGY IMAGING COVERAGE DETERMINATION GUIDELINE

Pediatric Chest Imaging Guidelines (For Ohio Only)

V2.0.2026

Guideline Number: CSRAD017OH.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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CSRAD017OH.F
UnitedHealthcare Community Plan Coverage Determination Guideline

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Related Community Plan Policies

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- General Chest Imaging Guidelines

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Application for Ohio OH UHC

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Guideline Development (Preface-1)

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Guideline Development (Preface-1.1)

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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.

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

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

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.

References (Preface-2)

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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.

References (Preface-3)

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Coding Issues (Preface-4)

Guideline

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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.
 - Hydrosalpinx or peritoneal cysts when initial US is indeterminate: See **Complex Adnexal Masses (PV-5.3)** in the Pelvis Imaging Guidelines.
 - Lost IUD (inability to feel or see IUD string) with initial US: See **Intrauterine Device (PV-10.1)** in the Pelvis Imaging Guidelines.
 - Uterine anomalies with initial US: See **Uterine Anomalies (PV-14.1)** in the Pelvis Imaging Guidelines.
 - Infertility: See **Initial Infertility Evaluation, Female (PV-9.1)** in the Pelvis Imaging Guidelines.
 - Abdomen conditions:
 - CT Urogram: See **Hematuria and Hydronephrosis (AB-39)** in the Abdomen Imaging Guidelines.
 - MRCP: See **MR Cholangiopancreatography (MRCP) (AB-27)** in the Abdomen Imaging Guidelines.

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

PRF.CD.0004.2.A

v2.0.2026

- 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

CPT [®]	Description
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

v2.0.2026

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.

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

PRF.CD.0004.5.UOH

v2.0.2026

- 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.

SPECT/CT Imaging (Preface-4.6)

PRF.CD.0004.6.A

v2.0.2026

- 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.

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.

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.

HCPCS Codes (Preface-4.9)

PRF.CD.0004.9.UOH

v2.0.2026

- 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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Whole-Body Imaging (Preface-5)

Guideline

Whole-Body CT Imaging (Preface-5.1)
Whole-Body MR Imaging (Preface-5.2)
PET/MRI (Preface-5.3)
References (Preface-5)

Whole-Body CT Imaging (Preface-5.1)

PRF.WB.0005.1.UOH

v2.0.2026

- 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.

PET/MRI (Preface-5.3)

PRF.WB.0005.3.A

v2.0.2026

- 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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References (Preface-6)

Guideline

References (Preface-6.1)

References (Preface-6.1)

PRF.RF.0006.1.A

v2.0.2026

- 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.

General Guidelines (PEDCH-1)

Guideline

Procedure Codes Associated with Chest Imaging

General Guidelines (PEDCH-1.0)

Pediatric Chest Imaging Age Considerations (PEDCH-1.1)

Pediatric Chest Imaging Modality General Considerations (PEDCH-1.3)

References (PEDCH-1)

Procedure Codes Associated with Chest Imaging

CHP.GG.ProcedureCodes.A
v2.0.2026

MRI	CPT®
MRI Chest without contrast	71550
MRI Chest with contrast (rarely used)	71551
MRI Chest without and with contrast	71552
Unlisted MRI procedure (for radiation planning or surgical software)	76498

MRA	CPT®
MRA Chest (non-cardiac)	71555

CT	CPT®
CT Chest without contrast	71250
CT Chest with contrast	71260
CT Chest without and with contrast (rarely used)	71270
CT Guidance for Placement of Radiation Therapy Fields	77014
Unlisted CT procedure (for radiation planning or surgical software)	76497

CTA	CPT®
CTA Chest (non-coronary)	71275

Nuclear Medicine	CPT®
PET Imaging; limited area (this code not used in pediatrics)	78811
PET Imaging; skull base to mid-thigh (this code not used in pediatrics)	78812
PET Imaging; whole body (this code not used in pediatrics)	78813
PET with concurrently acquired CT; limited area (this code rarely used in pediatrics)	78814
PET with concurrently acquired CT; skull base to mid-thigh	78815
PET with concurrently acquired CT; whole body	78816
Pulmonary Ventilation (e.g., Aerosol or Gas) Imaging	78579
Pulmonary Perfusion Imaging	78580
Pulmonary Ventilation (e.g., Aerosol or Gas) and Perfusion Imaging	78582
Quantitative Differential Pulmonary Perfusion, Including Imaging When Performed	78597
Quantitative Differential Pulmonary Perfusion and Ventilation (e.g., Aerosol or Gas), Including Imaging When Performed	78598

Ultrasound	CPT®
Ultrasound, chest (includes mediastinum, chest wall, and upper back)	76604
Ultrasound, axilla	76882
Ultrasound, breast; <i>unilateral</i> , including axilla when performed; complete	76641
Ultrasound, breast; <i>unilateral</i> , including axilla when performed; limited	76642

General Guidelines (PEDCH-1.0)

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v2.0.2026

- A pertinent clinical evaluation since the onset or change in symptoms, including a detailed history, physical examination, and appropriate laboratory, and basic imaging such as plain radiography or ultrasound should be performed prior to considering advanced imaging (CT, MRI, Nuclear Medicine), unless the individual is undergoing guideline-supported scheduled imaging evaluation. A meaningful technological contact (telehealth visit, telephone call, electronic mail or messaging) since the onset or change in symptoms can serve as a pertinent clinical evaluation.
- Unless otherwise stated in a specific guideline section, the use of advanced imaging to screen asymptomatic individuals for disorders involving the chest is not supported. Advanced imaging of the chest is only supported in individuals who have documented active clinical signs or symptoms of disease involving the chest.
- Unless otherwise stated in a specific guideline section, repeat imaging studies of the chest are not necessary unless there is evidence for progression of disease, new onset of disease, and/or documentation of how repeat imaging will affect individual management or treatment decisions.

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.

Pediatric Chest Imaging Age Considerations (PEDCH-1.1)

CHP.GG.0001.1.A

v2.0.2026

- Many conditions affecting the chest in the pediatric population have different diagnoses than those occurring in the adult population. For those diseases which occur in both pediatric and adult populations, 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 Chest Imaging Guidelines if discussed. Any conditions not specifically discussed in the Pediatric Chest Imaging Guidelines should be imaged according to the General Chest Imaging Guidelines. Individuals who are >18 years old should be imaged according to the General Chest Imaging Guidelines, except where directed otherwise by a specific guideline section.

Pediatric Chest Imaging Modality

General Considerations (PEDCH-1.3)

CHP.GG.0001.3.A

v2.0.2026

- MRI
 - MRI Chest is generally performed without and with contrast (CPT[®] 71552) unless the individual has a documented contraindication to gadolinium or otherwise stated in a specific guideline section.
 - Due to the length of time required for MRI acquisition and the need to minimize individual movement, anesthesia is usually medically necessary for almost all infants (except neonate) and young individuals (age <7 years), as well as older individuals with delays in development or maturity. This anesthesia may be administered via oral or intravenous routes. In this individual population, MRI sessions should be planned with a goal of minimizing anesthesia exposure by adhering to the following considerations:
 - MRI procedures can be performed without and/or with contrast use as supported by these condition-based guidelines. If intravenous access will already be present for anesthesia administration and there is no contraindication for using contrast, imaging without and with contrast is medically necessary if requested. By doing so, the requesting provider may avoid repetitive anesthesia administration to perform an MRI with contrast if the initial study without contrast is inconclusive.
 - Evidence-based literature demonstrates the potential for gadolinium deposition in various organs including the brain, after the use of MRI contrast.
 - The U.S. Food and Drug Administration (FDA) has noted that there is currently no evidence to suggest that gadolinium retention in the brain is harmful and restricting gadolinium-based contrast agents (GBCAs) use is not warranted at this time. It has been recommended that GBCA use should be limited to circumstances in which additional information provided by the contrast agent is necessary and the necessity of repetitive MRIs with GBCAs should be assessed.
 - If multiple body areas are supported by the guidelines for the clinical condition being evaluated, MRI of all necessary body areas should be obtained concurrently.
 - The presence of surgical hardware or implanted devices may preclude MRI.
 - The selection of best examination may require coordination between the provider and the imaging service.
- CT

- CT Chest is generally performed either with contrast (CPT[®] 71260) or without contrast (CPT[®] 71250).
 - There are no generally accepted pediatric indications for CT Chest without and with contrast (CPT[®] 71270).
- CT should not be used to replace MRI in an attempt to avoid sedation unless listed as a recommended study in a specific guideline section.
- The selection of best examination may require coordination between the provider and the imaging service.
- Ultrasound
 - Ultrasound Chest (CPT[®] 76604) or Axilla (CPT[®] 76882) is medically necessary as an initial study for evaluating adenopathy, palpable chest wall lesions, pleural effusion or thickening, patency of thoracic vasculature, and diaphragm motion abnormalities.
 - For those individuals who do require 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.
- Nuclear Medicine
 - Nuclear medicine studies other than PET/CT are rarely used in evaluation of the pediatric chest.
 - Pulmonary Ventilation-Perfusion Imaging (CPT[®] 78582) has been replaced by CTA Chest (CPT[®] 71275) or CT Chest with contrast (CPT[®] 71260), but is medically necessary for evaluation of suspected pulmonary embolism if CT is unavailable.
 - See **Pulmonary Embolism (PE) (CH-25.1)** in the Chest Imaging Guidelines.
 - Pulmonary Perfusion Imaging (CPT[®] 78580) is not medically necessary in lieu of CPT[®] 78582 for initial evaluation of suspected pulmonary embolism, but is medically necessary for follow-up of an equivocal or positive ventilation-perfusion lung scan (CPT[®] 78582) to evaluate for interval change.
 - Pulmonary Ventilation Imaging (CPT[®] 78579) is not medically necessary in lieu of CPT[®] 78582 for evaluation of suspected pulmonary embolism, but is medically necessary for additional evaluation of an abnormal perfusion-only scan (CPT[®] 78580).
 - Pulmonary split crystal function study (CPT[®] 78597 or CPT[®] 78598), also known as Quantitative Differential Pulmonary Perfusion, is medically necessary for preoperative planning of segmental, lobar, or lung resection.
 - Quantitative Differential Pulmonary Perfusion Lung Scan (CPT[®] 78597 or CPT[®] 78598), can be performed post-lung transplant to detect regional perfusion abnormalities.
 - Radiopharmaceutical nuclear medicine imaging of an inflammatory process (CPT[®] 78800, CPT[®] 78801, CPT[®] 78802, or CPT[®] 78803) is rarely performed, but is medically necessary for evaluation of sarcoidosis or toxicity from drug toxicity (cyclophosphamide, busulfan, bleomycin, amiodarone, or nitrofurantoin).

- 3D Rendering
 - 3D Rendering indications in pediatric chest imaging are identical to those in the general imaging guidelines. See **3D Rendering (Preface-4.1)** in the Preface Imaging Guidelines.

The guidelines listed in this section for certain specific indications are not intended to be all-inclusive. Clinical judgment remains paramount and variance from these guidelines may be appropriate and warranted for specific clinical situations.

References (PEDCH-1)

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Lymphadenopathy (PEDCH-2)

Guideline

Lymphadenopathy (PEDCH-2.1)
Reference (PEDCH-2)

Lymphadenopathy (PEDCH-2.1)

CHP.LY.0002.1.A

v2.0.2026

- Axillary lymphadenopathy imaging indications in pediatric individuals are identical to those for adult individuals. See **Axillary Lymphadenopathy (and Mass) (CH-2.2)** in the Chest Imaging Guidelines.
- Supraclavicular adenopathy in pediatric individuals is almost always pathologic, and advanced imaging is medically necessary prior to excisional biopsy. Fine-needle aspiration, while common in adults prior to advanced imaging, is not medically necessary for evaluating lymphadenopathy in pediatric individuals. ANY combination of the following studies are medically necessary for evaluation of supraclavicular adenopathy:
 - CT Chest with contrast (CPT[®] 71260)
 - MRI Chest without and with contrast (CPT[®] 71552)
 - Ultrasound Chest (CPT[®] 76604)
- If malignancy is suspected, refer to the condition specific imaging guidelines as below:
 - Lymphoma: **Pediatric Lymphomas (PEDONC-5)** in the Pediatric Oncology Imaging Guidelines.
 - Soft tissue sarcoma: **Pediatric Soft Tissue Sarcomas (PEDONC-8)** in the Pediatric Oncology Imaging Guidelines.
 - Neuroblastoma: **Neuroblastoma (PEDONC-6)** in the Pediatric Oncology Imaging Guidelines.

Evidence Discussion

In pediatric patients, supraclavicular lymphadenopathy is considered highly suspicious for malignancy and warrants prompt imaging evaluation. Unlike in adults, fine-needle aspiration is not routinely medically necessary prior to imaging in children. Ultrasound (US) remains a first-line modality due to its safety profile, absence of ionizing radiation, and ability to provide real-time soft tissue characterization. US is particularly useful in differentiating cystic from solid lesions and guiding further imaging or biopsy decisions.¹

For axillary lymphadenopathy, pediatric imaging guidelines mirror those of adults, with US being the preferred initial modality. US is non-invasive, widely available, and effective in identifying reactive versus suspicious lymph nodes. It also facilitates image-guided biopsy when needed. CT Chest is generally not medically necessary unless there is a high suspicion of systemic disease or malignancy.¹

Reference (PEDCH-2)

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Mediastinal Mass (PEDCH-3)

Guideline

Mediastinal Mass (PEDCH-3.1)

References (PEDCH-3)

Mediastinal Mass (PEDCH-3.1)

CHP.MM.0003.1.A

v2.0.2026

- The causes of mediastinal masses in pediatric individuals are generally different than those in adults, and therefore, imaging considerations are different. Up to half of all pediatric mediastinal masses are malignant.
- Chest x-ray is medically necessary as an initial study for all individuals with suspected mediastinal mass.
- CT Chest with contrast (CPT[®] 71260) is medically necessary for any mediastinal mass identified on chest x-ray.
 - Masses can be very large and anterior masses frequently cause compression of the trachea and/or mediastinal blood vessels.
- MRI Chest without and with contrast (CPT[®] 71552) is medically necessary to evaluate any of the following findings:
 - a posterior (paravertebral) mediastinal mass on CT Chest that invades the spinal canal
 - CT findings that are inconclusive regarding specific anatomy
 - Large anterior mediastinal masses only when anesthesia is not used to complete the study.
- PET/CT (CPT[®] 78815) is medically necessary prior to biopsy in pediatric individuals if lymphoma is known or strongly suspected or there is evidence of tracheal compression on CT imaging. See **Pediatric Lymphoma (PEDONC-5)** in the Pediatric Oncology Imaging Guidelines.
- MIBG (CPT[®] 78800, CPT[®] 78802, CPT[®] 78803, or CPT[®] 78804) is medically necessary prior to biopsy in pediatric individuals if neuroblastoma is known or strongly suspected. See **Neuroblastoma (PEDONC-6)** in the Pediatric Oncology Imaging Guidelines.
- Ultrasound chest (CPT[®] 76604) is medically necessary in individuals younger than 5 years old to distinguish prominent but otherwise normal thymus from true mediastinal mass.
- A single repeat CT Chest with contrast (CPT[®] 71260) is medically necessary to confirm stability and avoid biopsy when NONE of the following features are present:
 - anterior mediastinal mass
 - enlarged lymph nodes anywhere in the imaging field
 - lymphopenia
 - pleural effusion

Evidence Discussion

In pediatric populations, mediastinal masses require careful imaging evaluation due to the high likelihood of malignancy and the unique anatomical and physiological considerations in children. Chest radiography is considered the initial imaging modality of choice for suspected mediastinal masses, as it is widely available, low-cost, and effective in detecting large masses.⁶

When a mediastinal mass is identified on chest x-ray, cross-sectional imaging with CT Chest with contrast or MRI Chest with and without contrast is usually medically necessary. CT provides excellent anatomical detail and is particularly useful for assessing mass effect on adjacent structures, while MRI is preferred in cases where radiation exposure is a concern or when further soft tissue characterization is needed. MRI is especially valuable in evaluating posterior mediastinal masses or when CT findings are inconclusive.⁶

PET/CT is not routinely medically necessary for initial evaluation but may be considered in specific oncologic contexts such as suspected neuroblastoma.⁶ Ultrasound is generally not medically necessary for mediastinal mass evaluation in older children but may be useful in children under five years of age to differentiate a prominent thymus from a true mass.³

References (PEDCH-3)

v2.0.2026

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Hemoptysis (PEDCH-4)

Guideline

Hemoptysis – Imaging (PEDCH-4.1)

References (PEDCH-4)

Hemoptysis – Imaging (PEDCH-4.1)

CHP.BL.0004.1.A

v2.0.2026

- True hemoptysis is rare in pediatric individuals. A detailed history, physical examination, and appropriate laboratory studies should be performed prior to considering advanced imaging.
 - Aspirated blood from epistaxis or emesis frequently presents as hemoptysis, and history and physical examination will aid in this assessment.
- Chest x-ray is medically necessary as an initial study for stable individuals.
 - Advanced imaging is not medically necessary to evaluate individuals with epistaxis when there is a normal chest radiograph and no personal or family history of underlying lung disease or bleeding disorder.
 - CT Chest with contrast (CPT[®] 71260) or CTA Chest (CPT[®] 71275) is medically necessary for all other pediatric individuals with true hemoptysis.
 - CT Chest without contrast (CPT[®] 71250) is medically necessary for individuals with a documented allergy to CT contrast or significant renal dysfunction.
- MRI is not medically necessary in the evaluation of pediatric hemoptysis.

Evidence Discussion

Hemoptysis in pediatric populations is rare but can be life-threatening, necessitating a structured diagnostic approach. The most common causes include lower respiratory tract infections, bronchiectasis, foreign body aspiration, and congenital heart or vascular anomalies.^{2,3} A detailed clinical history and physical examination are essential to detect true hemoptysis from other causes of bleeding, such as epistaxis or gastrointestinal sources.²

Chest radiography is the recommended initial imaging modality for stable pediatric patients presenting with hemoptysis. It is widely available, low-cost, and can identify parenchymal abnormalities or foreign bodies.^{2,3} If the chest x-ray is normal and there is no history of lung disease or bleeding disorder, advanced imaging may not be medically necessary. However, in cases of true hemoptysis with abnormal radiographic findings or persistent symptoms, CT Chest with contrast or CTA Chest is medically necessary to localize the bleeding source and evaluate for vascular anomalies or infections.^{1,2} MRI is not routinely medically necessary in the evaluation of pediatric hemoptysis.²

References (PEDCH-4)

v2.0.2026

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Cystic Fibrosis and Bronchiectasis (PEDCH-5)

Guideline

Cystic Fibrosis (PEDCH-5.1)

Bronchiectasis Not Associated with Cystic Fibrosis (PEDCH-5.2)

References (PEDCH-5)

Cystic Fibrosis (PEDCH-5.1)

CHP.CF.0005.1.A

v2.0.2026

- Chest x-ray is medically necessary for initial evaluation of acute clinical symptoms in individuals with cystic fibrosis.
- CT Chest without contrast (CPT[®] 71250) or with contrast (CPT[®] 71260) is medically necessary in the setting of any of the following (chest x-ray not required):
 - hemoptysis
 - pneumonia worsening despite antibiotic therapy
 - pleural effusion or empyema
 - suspected fungal pneumonia
 - monitoring treatment changes on bronchiectasis
 - expiratory CT for evaluating small airways disease
 - pre- and post-lung transplant evaluation
 - uncooperative individual
- Low dose CT Chest without contrast (CPT[®] 71250) is medically necessary **every 2 years** for monitoring of bronchiectasis and small airways disease.
- Cystic fibrosis-associated liver disease develops in 5-10% of individuals with cystic fibrosis. Advanced imaging may be medically necessary if concerned for liver disease. See **Liver Disease (PEDAB-16)** in the Pediatric Abdomen Imaging Guidelines.

Evidence Discussion

Chest imaging plays a critical role in the diagnosis and longitudinal management of pediatric patients with cystic fibrosis (CF). Chest x-ray remains the initial imaging modality of choice for evaluating acute respiratory symptoms due to its accessibility, low cost, and ability to detect complications such as pneumonia, pleural effusion, or bronchiectasis.¹

CT Chest without contrast is medically necessary in specific clinical scenarios.^{3,5} CT imaging provides superior anatomical detail and is particularly valuable for assessing bronchiectasis and small airways disease. Low-dose CT protocols are recommended every two years for monitoring disease progression and treatment response.^{2,6}

MRI is not routinely used for pulmonary imaging in CF but may be considered in research settings or when radiation exposure is a concern.⁴

Bronchiectasis Not Associated with Cystic Fibrosis (PEDCH-5.2)

CHP.CF.0005.2.A

v2.0.2026

- Bronchiectasis not associated with cystic fibrosis is rare in pediatric individuals, and imaging indications are identical to those for adult individuals. See **Bronchiectasis (CH-7.1)** in the Chest Imaging Guidelines.

References (PEDCH-5)

v2.0.2026

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Bronchiolitis (PEDCH-6)

Guideline

Bronchiolitis (PEDCH-6.1)

References (PEDCH-6)

Bronchiolitis (PEDCH-6.1)

CHP.BR.0006.1.A

v2.0.2026

Bronchiolitis is a self-limiting viral infection causing inflammation of the small airways, most common in infants under 12 months of age.

- Chest x-ray or chest ultrasound (CPT® 76604) is medically necessary when there is a clinical suspicion of pneumonia or other complications.
- Advanced imaging is not medically necessary for routine evaluation or monitoring of bronchiolitis.
- CT Chest with contrast (CPT® 71260) is medically necessary for the following:
 - pleural effusion or empyema on relevant chest x-ray or chest ultrasound (CPT® 76604)
 - immunocompromised individual with acute pulmonary symptoms
 - abnormality on relevant chest x-ray suggesting condition other than bronchiolitis

Evidence Discussion

Bronchiolitis is a common viral lower respiratory tract infection in infants, particularly under 12 months of age. It is typically self-limiting and managed supportively. Imaging is not routinely medically necessary for diagnosis or monitoring, as clinical evaluation is usually sufficient.¹

Chest x-ray or chest ultrasound is medically necessary only when there is a clinical suspicion of complications such as pneumonia, pleural effusion, or when the presentation is atypical.^{3,6} Lung ultrasound has shown promise as a radiation-free alternative to chest x-ray in evaluating bronchiolitis and its complications, with studies demonstrating good diagnostic accuracy.^{4,5}

Advanced imaging such as CT Chest is not medically necessary in routine bronchiolitis management. However, it may be necessary in specific cases such as immunocompromised patients with acute pulmonary symptoms, or when chest x-ray reveals abnormalities suggesting conditions other than bronchiolitis.⁶

References (PEDCH-6)

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Pneumonia (PEDCH-7)

Guideline

Pneumonia (PEDCH-7.1)

Coronavirus Disease 2019 (COVID-19) (PEDCH-7.2)

References (PEDCH-7)

Pneumonia (PEDCH-7.1)

CHP.PN.0007.1.A

v2.0.2026

- Pneumonia imaging indications in pediatric individuals are very similar to those for adult individuals. See **Pneumonia (CH-13.1)** in the Chest Imaging Guidelines.
- Pediatric-specific imaging considerations include the following:
 - Chest x-ray and/or Ultrasound chest (CPT[®] 76604) is medically necessary when the individual's condition does not respond to standard therapy.
 - CT Chest with contrast (CPT[®] 71260) is medically necessary for:
 - immunocompromised individuals with acute pulmonary symptoms
 - diagnosis of an abscess
 - necrotizing pneumonia cannot be confirmed
 - recurring pneumonia
 - acute complications
 - CT Chest without contrast (CPT[®] 71250) or with contrast (CPT[®] 71260) is medically necessary for individuals with recurrent lower respiratory tract infections.
 - Ultrasound chest (CPT[®] 76604) is medically necessary as an alternative for evaluation of complicated or recurrent childhood pneumonia.

Evidence Discussion

Pneumonia remains a leading cause of morbidity in pediatric populations, and imaging plays a critical role in the diagnosis, management, and evaluation of complications. Chest x-ray is the first line imaging modality for children who do not respond to standard therapy or present with atypical symptoms.^{1,6}

Ultrasound of the chest is increasingly recognized as a valuable alternative to chest radiography, particularly for evaluating complicated or recurrent pneumonia. It is radiation-free, portable, and has demonstrated high diagnostic accuracy in multiple studies.^{3,7,18}

CT Chest is reserved for specific clinical scenarios, including immunocompromised children with acute pulmonary symptoms, suspected abscess or necrotizing pneumonia, recurrent lower respiratory tract infections, or acute complications.^{2,6} CT provides detailed anatomical information and is particularly useful when other imaging modalities are inconclusive. MRI is not routinely used for pneumonia imaging in children due to limited availability and longer acquisition times.¹⁴

Coronavirus Disease 2019 (COVID-19) (PEDCH-7.2)

CHP.PN.0007.2.A

v2.0.2026

- Pediatric imaging for COVID-19 positive individuals are similar to those for adult individuals. See **Coronavirus Disease 2019 (COVID-19) (CH-13.2)** in the Chest Imaging Guidelines.
- Pediatric-specific imaging considerations include the following:
 - chest x-ray is the initial imaging test for all pediatric individuals
 - for concerns involving **Multisystem Inflammatory Syndrome in Children (MIS-C)** see **(PEDCD-12)**

Evidence Discussion

In pediatric populations, chest imaging is not recommended as a screening tool for COVID-19 in asymptomatic individuals or those with mild symptoms unless they are at risk for disease progression.^{19,20} Viral testing remains the gold standard for diagnosis, and imaging should not replace laboratory confirmation.¹⁹

Chest x-ray is the initial imaging modality of choice in children with suspected or confirmed COVID-19 who present with moderate to severe symptoms or worsening respiratory status.^{8, 20} CT is not routinely medically necessary but may be considered in cases with clinical deterioration, suspected complications, or when alternative diagnoses are being considered.^{8,10}

Lung ultrasound has emerged as a useful adjunct in pediatric COVID-19 imaging, particularly in emergency and critical care settings. It offers a radiation-free alternative that can detect pulmonary involvement and guide management decisions.^{9,11}

References (PEDCH-7)

v2.0.2026

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Pediatric Chest Imaging Guidelines (For Ohio Only):

CSRAD017OH.F

UnitedHealthcare Community Plan Coverage Determination Guideline

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Solitary Pulmonary Nodule (PEDCH-8)

Guideline

Solitary Pulmonary Nodule (PEDCH-8.1)

References (PEDCH-8)

Solitary Pulmonary Nodule (PEDCH-8.1)

CHP.PM.0008.1.A

v2.0.2026

The Fleischner Society guidelines for solitary pulmonary nodule management do not apply to pediatric individuals. An incidental solitary pulmonary nodule in a individual representing a primary lung carcinoma has never been reported in the literature. Similarly, an extrathoracic malignancy presenting with an incidental solitary pulmonary nodule in an otherwise healthy individual is very rare.

- CT Chest with contrast (CPT[®] 71260) is medically necessary as a one-time evaluation of a pulmonary nodule incidentally discovered on other imaging.
- Follow-up imaging of an incidental solitary pulmonary nodule in an asymptomatic healthy individual is **not** medically necessary.
 - Follow-up imaging is medically necessary for the following:
 - immunocompromised individuals
 - malignancy (see below)
 - invasive infection
 - new or worsening pulmonary symptoms
- Individuals with a malignant solid tumor who have pulmonary nodules of any size should have imaging according to the guideline section for the specific cancer type. See **Pediatric Oncology Imaging Guidelines** for specific imaging indications.
- This guideline section does not apply to multiple pulmonary nodules, which are imaged according to the underlying disorder in pediatric individuals.

Evidence Discussion

Incidental pulmonary nodules in pediatric populations are rare and differ significantly from adult cases in terms of etiology and clinical significance. Unlike adults, the likelihood of a solitary nodule representing a primary lung carcinoma in a child is exceedingly low.^{1,2}

CT Chest with contrast is medically necessary for a one-time evaluation of an incidental pulmonary nodule discovered on other imaging modalities.⁵ Follow-up imaging is generally not medically necessary in asymptomatic, otherwise healthy children unless specific risk factors are present, such as immunocompromise, known malignancy, invasive infection, or new or worsening pulmonary symptoms.^{5,8}

Studies emphasize the importance of distinguishing benign from potentially concerning nodules based on imaging characteristics and clinical context.^{6,7} The Society for Pediatric Radiology and other expert panels recommend individualized management

strategies that avoid unnecessary radiation exposure while ensuring appropriate follow-up in high-risk cases.^{2,6}

Background and Supporting Information

A **nodule** is any pulmonary or pleural lesion that is a discrete, spherical opacity 2-30 mm in diameter surrounded by normal lung tissue. A larger nodule is called a mass. Entities that are not nodules, and are considered benign, include non-spherical linear, sheet-like, two-dimensional or scarring opacities.

References (PEDCH-8)

v2.0.2026

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Positive PPD or Tuberculosis (PEDCH-9)

Guideline

Positive PPD or Tuberculosis (PEDCH-9.1)
References (PEDCH-9)

Positive PPD or Tuberculosis (PEDCH-9.1)

CHP.TB.0009.1.A

v2.0.2026

- Positive PPD and tuberculosis imaging indications in pediatric individuals are similar to those for adult individuals.
 - See **PPD or TB (Mycobacterium tuberculosis and Nontuberculous Mycobacterial Pulmonary Disease [NTM-PD]) (CH-14.1)** in the Chest Imaging Guidelines.
- Pediatric-specific imaging considerations include the following:
 - MRI Spine with and without contrast of the symptomatic spine level is medically necessary in individuals with concern for spinal involvement of tuberculosis.
 - MRI Chest with and without contrast (CPT® 71552) can be considered as a radiation-free alternative to chest CT in pediatric individuals.

Evidence Discussion

In pediatric populations, imaging plays a critical role in the diagnosis and management of tuberculosis (TB) and nontuberculosis mycobacterial pulmonary disease (NTM-PD). Chest radiography remains the first-line imaging modality for children with suspected TB, particularly in those with a positive tuberculin skin test or interferon-gamma release assay.^{1,12}

While chest x-ray is useful for detecting active TB, its sensitivity is limited, especially in early or latent disease. In cases where chest x-ray findings are equivocal or when complications are suspected, CT Chest provides superior anatomical detail and is recommended.^{9,10} CT is particularly valuable in those with persistent or recurrent symptoms.⁸

MRI is increasingly considered as a radiation-free alternative to CT in pediatric patients, especially for evaluating spinal involvement.^{7,13} MRI Chest with and without contrast may be used in select cases where radiation exposure is a concern.

Background and Supporting Information

- Chest x-ray can be useful as the initial imaging study when TB is suspected.

References (PEDCH-9)

v2.0.2026

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Asthma (PEDCH-10)

Guideline

Asthma (PEDCH-10.1)

References (PEDCH-10)

Asthma (PEDCH-10.1)

CHP.AS.0010.1.A

v2.0.2026

- Chest x-ray and/or Ultrasound chest (CPT[®] 76604) is medically necessary to further evaluate respiratory distress when the individual's condition does not respond to standard therapy.
- Advanced imaging is not medically necessary for routine evaluation or monitoring of asthma.
- CT Chest without (CPT[®] 71250) or with (CPT[®] 71260) contrast is medically necessary for the following:
 - pleural effusion or empyema on relevant chest x-ray
 - immunocompromised individual with acute pulmonary symptoms
 - abnormality on relevant chest x-ray suggesting condition other than asthma, including suspected foreign body
 - asthma and poor response to bronchodilators or conventional inhaled corticosteroid therapy in whom associated conditions, such as allergic bronchopulmonary aspergillosis and eosinophilic pneumonia, can mimic asthma

Evidence Discussion

In pediatric asthma, imaging is not routinely medically necessary for diagnosis or monitoring, as clinical evaluation and response to therapy are typically sufficient. However, chest x-ray or ultrasound may be medically necessary when a child presents with respiratory distress that does not respond to standard therapy.^{1,5}

Chest radiography is useful in identifying complications or alternative diagnoses such as pneumonia, pneumothorax, or foreign body aspiration.^{3,4} Lung ultrasound has emerged as a promising tool for evaluating asthmatic pneumonia and other complications, offering a radiation-free alternative to chest x-ray.^{6,8}

Advanced imaging such as CT Chest is not medically necessary for routine asthma evaluation but may be necessary in specific cases. These include poor response to bronchodilators or corticosteroids, suspected allergic bronchopulmonary aspergillosis, eosinophilic pneumonia, or when chest x-ray reveals abnormalities inconsistent with asthma.^{5,7}

Health Equity Considerations

Asthma is the most common chronic disease among the pediatric population, caused by inflammation and muscle tightness around the airways. Symptoms include cough, wheeze, shortness of breath, and chest tightness. The disease can be mild or severe for intermittent periods of time. Asthma is treated by inhaled medications, delivering

the medication directly to the lungs. The main types of inhalers are bronchodilators and steroids.⁹

Non-Hispanic Black children have a higher asthma prevalence than non-Hispanic White children as evidenced by increased emergency department visits, school absences, and long-term lung function impairment.¹⁰ Factors related to this discrepancy include poor quality housing with issues including broken home infrastructure, as well as environmental exposure to cigarette smoke, mold, rodents, and insects.¹¹ Financial limitations are an additional determinant in accessing consistent healthcare and environmental modifications to manage asthma and to prevent emergency department visits and hospitalizations. Many of these factors related to the higher prevalence in non-Hispanic Black children are modifiable, such as the environment and lack of healthcare. To address inequities and modifiable factors, interventions are needed by key stakeholders on a community and individual level specific to impacted racial and ethnic groups.¹²

References (PEDCH-10)

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Pectus Deformities (PEDCH-11)

Guideline

Pectus Deformities (PEDCH-11.1)

References (PEDCH-11)

Pectus Deformities (PEDCH-11.1)

CHP.PD.0011.1.A

v2.0.2026

- CT Chest without contrast (CPT[®] 71250), MRI Chest with and without contrast (CPT[®] 71552), or MRI Chest without contrast (CPT[®] 71550) is medically necessary in individuals with a pectus deformity for any of the following:
 - preoperative planning
 - significant cardiac depression after chest x-ray and echocardiography (CPT[®] 93306)
 - evidence of pulmonary impingement after chest x-ray and pulmonary function tests (PFTs) if there is increasing shortness of breath
 - Note: It may not be possible to obtain PFTs in individuals younger than 9 years old.
 - evaluation of congenital heart disease or Marfan's syndrome when suspected

Evidence Discussion

Pectus deformities, including pectus excavatum and pectus carinatum, are common congenital chest wall abnormalities in pediatric populations. Imaging plays a critical role in the diagnosis, preoperative planning, and assessment of cardiopulmonary impact.^{1,2}

In cases of significant cardiac depression or pulmonary impingement identified on chest x-ray and echocardiography or pulmonary function tests, advanced imaging with CT or MRI is medically necessary.⁸ CT Chest is frequently used for preoperative planning due to its ability to provide detailed anatomical information and calculate indices such as the Haller Index. However, due to concerns about radiation exposure, MRI is increasingly favored in pediatric patients. MRI offers high-resolution imaging without radiation exposure and is particularly useful for evaluating cardiac compression and thoracic abnormalities.^{4,7} MRI is also beneficial in assessing patients with congenital heart disease or syndromic conditions such as Marfan's syndrome.^{3,5}

References (PEDCH-11)

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Breast Masses (PEDCH-12)

Guideline

Breast Masses (PEDCH-12.1)

Breast Masses (PEDCH-12.1)

CHP.MS.0012.1.A

v2.0.2026

See **Pediatric Breast Masses (PEDONC-17)** in the Pediatric Oncology Imaging Guidelines.

Vascular Malformations (PEDCH-13)

Guideline

Vascular Ring (PEDCH-13.1)

Other Vascular Malformations (PEDCH-13.2)

References (PEDCH-13)

Vascular Ring (PEDCH-13.1)

CHP.VM.0013.1.A

v2.0.2026

- Chest x-ray is the recommended initial study in individuals with respiratory symptoms. A chest x-ray is not medically necessary for individuals diagnosed with a vascular ring on prenatal imaging studies.
- Barium esophagram is the recommended initial study in individuals with feeding difficulties.
- CT Chest with contrast (CPT[®] 71260), CTA Chest (CPT[®] 71275), MRA Chest (CPT[®] 71555), or MRI Chest without contrast (CPT[®] 71550) in individuals with known or suspected vascular ring is medically necessary after prenatal imaging studies, chest x-ray, or barium esophagram.
- Echocardiogram is medically necessary to rule out associated congenital heart disease.
 - CPT[®] 93303, CPT[®] 93306, CPT[®] 93320, and CPT[®] 93325 are medically necessary for initial evaluation of individuals with vascular ring and no prior echocardiograms.

Evidence Discussion

Vascular rings are congenital anomalies of the aortic arch system that can encircle and compress the trachea and esophagus, leading to respiratory and feeding difficulties in pediatric patients. Early and accurate imaging is essential for diagnosis and surgical planning.^{1,2}

Chest x-ray is typically the initial imaging modality in children presenting with respiratory symptoms, although it may be normal or nonspecific. Barium esophagram is recommended in children with feeding difficulties, as it can demonstrate esophageal compression suggestive of a vascular ring.^{3,4}

Advanced imaging with CT Chest, CTA, MRA, or MRI Chest is medically necessary in children with known or suspected vascular rings following initial imaging. These modalities provide detailed anatomical information about the vascular structures and their relationship to the airway and esophagus. MRI is particularly advantageous in pediatric populations due to the absence of radiation.^{5,8} Echocardiography is also essential to evaluate for associated congenital heart disease, which may coexist with vascular rings.⁷

Background and Supporting Information

Vascular rings generally present with either respiratory symptoms (stridor, wheezing, tachypnea, cough) or feeding difficulties (dysphagia, slow feeding, hyperextension of the

head while feeding, weight loss, failure to thrive), but can also be discovered incidentally on imaging obtained for other purposes.

Other Vascular Malformations (PEDCH-13.2)

CHP.VM.0013.2.A

v2.0.2026

See **Pulmonary Arteriovenous Malformations (PEDCH-14.2)** for Pulmonary AVMs.

See **Vascular Anomalies (PEDPVD-2)** in the Pediatric Peripheral Vascular Disease Imaging Guidelines.

References (PEDCH-13)

v2.0.2026

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Congenital Chest Diseases (PEDCH-14)

Guideline

Congenital Cystic Lung Diseases (PEDCH-14.1)
Pulmonary Arteriovenous Malformations (PEDCH-14.2)
Congenital Diaphragmatic Hernia (PEDCH-14.3)
Pulmonary Sequestration (PEDCH-14.4)
References (PEDCH-14)

Congenital Cystic Lung Diseases (PEDCH-14.1)

CHP.CD.0014.1.A

v2.0.2026

- This section includes common congenital cystic lung lesions such as:
 - bronchogenic cyst
 - congenital pulmonary airway malformation (congenital cystic adenomatoid malformation)
 - congenital lobar overinflation
- CT Chest with contrast (CPT[®] 71260) is medically necessary when a cystic lung lesion is suspected.
- MRI Chest with and without contrast (CPT[®] 71552) is medically necessary if CT is inconclusive or if requested for pre-operative planning.

Evidence Discussion

Congenital cystic lung diseases encompass a spectrum of developmental anomalies including bronchogenic cysts, congenital pulmonary airway malformations, and congenital lobar overinflation. Early and accurate imaging is essential for diagnosis, surgical planning, and monitoring.^{1,2}

CT Chest is the primary imaging modality for evaluating suspected cystic lung lesions due to its high spatial resolution and ability to delineate lesion morphology and vascular anatomy.^{11,18} MRI of the chest is medically necessary when CT findings are inconclusive or when detailed preoperative planning is required, particularly to avoid radiation in younger patients.^{12,13} MRI is especially useful in evaluating complex lesions and their relationship to adjacent structures, and it provides superior soft tissue contrast without radiation exposure.^{14,17}

Background and Supporting Information

- Cystic lung disease may be first identified on prenatal ultrasound, or discovered incidentally on chest x-ray.

Pulmonary Arteriovenous Malformations (PEDCH-14.2)

CHP.CD.0014.2.A

v2.0.2026

- Pulmonary arteriovenous malformations (PAVMs) are vascular structures that most commonly result from abnormal communication between pulmonary arteries and pulmonary veins.
 - Chest x-ray is medically necessary as an initial imaging modality for individuals with known AVMs, or individuals presenting with hypoxemia and/or hemoptysis.
 - CTA or MRA is medically necessary in individuals with known AVM or abnormal chest x-ray suggesting AVM for treatment planning.

Evidence Discussion

Pulmonary arteriovenous malformations (PAVMs) are rare vascular anomalies that can lead to significant clinical symptoms such as hypoxemia and hemoptysis in pediatric populations. Early and accurate imaging is essential for diagnosis and treatment planning.^{1,2}

Chest x-ray is the recommended initial imaging modality for children presenting with symptoms or known AVMs. While it may not detect small or atypical lesions, it provides a useful screening tool.⁴

CTA and MRA are medically necessary for further evaluation when chest x-ray findings are abnormal or when a known AVM requires treatment planning. These modalities offer detailed visualization of vascular anatomy. CTA is considered the gold standard for defining vascular structures, while MRA is preferred in younger patients to avoid radiation.^{5,12}

Congenital Diaphragmatic Hernia (PEDCH-14.3)

CHP.CD.0014.3.A

v2.0.2026

- Congenital diaphragmatic hernia (CDH) is a defect in the diaphragm which may allow the abdominal organs to enter the chest cavity, and may lead to compromised pulmonary function or may be associated with congenital heart disease.
 - Over 90% of the hernias occur in the posterolateral diaphragm (Bochdalek hernia) typically on the left side.
 - Most of the rest of the hernias are in the anteromedial diaphragm (Morgagni hernia).
- The vast majority of CDH are diagnosed prenatally (see **Fetal MRI [PV-15.1]**) in the Pelvis Imaging Guidelines), or as an inpatient shortly after delivery.
- If there is clinical concern for CDH, chest x-ray and/or US Chest (CPT[®] 76604) is medically necessary as the initial imaging study.
- CT Chest with contrast (CPT[®] 71260) or MRI Chest with and without contrast (CPT[®] 71552) is medically necessary when chest x-ray and/or US are inconclusive, or if requested for treatment planning.

Evidence Discussion

Congenital diaphragmatic hernia (CDH) is a developmental defect of the diaphragm that allows abdominal organs to herniate into the thoracic cavity, potentially impairing lung development and function. Most cases are diagnosed prenatally or shortly after birth, but imaging remains essential for diagnosis and treatment planning.^{1,7}

Chest x-ray and ultrasound are the recommended initial imaging modalities when CDH is suspected postnatally. These modalities are effective in identifying herniated abdominal contents within the thoracic cavity and assessing lung volume.^{8,9}

When initial imaging is inconclusive or further anatomical detail is required for surgical planning, CT chest or MRI chest is medically necessary. CT provides excellent spatial resolution, while MRI offers a radiation-free alternative, particularly beneficial in neonates and infants.^{10,12}

Advanced imaging also aids in identifying associated anomalies such as congenital heart disease or pulmonary hypoplasia. Structured imaging protocols and multidisciplinary collaboration are essential for optimal diagnosis and management of CDH.^{11,18}

Pulmonary Sequestration (PEDCH-14.4)

CHP.CD.0014.4.A

v2.0.2026

- Pulmonary sequestration imaging indications in pediatric individuals are similar to those for adult individuals.
 - See **Pleural-Based Nodules and Other Abnormalities (CH-17.1)** in the Chest Imaging Guidelines.
- Pediatric-specific imaging considerations include the following:
 - CTA Chest (CPT® 71275) is the gold standard for diagnosing pulmonary lung abnormalities.
 - CT Chest with contrast (CPT® 71260) and MRI Chest without contrast (CPT® 71550) are alternative imaging modalities that can be used for diagnosis.

Evidence Discussion

Pulmonary sequestration is a rare congenital lung malformation characterized by nonfunctional lung tissue that lacks normal communication with the tracheobronchial tree and receives systemic arterial blood supply. In pediatric populations, early and accurate diagnosis is critical to avoid complications such as recurrent infections, respiratory distress, and misdiagnosis with other thoracic anomalies. CTA remains the gold standard for diagnosis, offering high-resolution visualization of abnormal vascular supply and lesion morphology, which is essential for surgical planning and clinical management.^{12,18}

Studies have demonstrated that CT and CTA provide reliable identification of both intralobar and extralobar sequestration in children, with high sensitivity for detecting systemic arterial supply and venous drainage.²⁰ MRI may serve as a complementary modality, especially in cases where radiation exposure is a concern, although its diagnostic accuracy for vascular anomalies is generally lower than CTA.²¹

Imaging plays a critical role in differentiating pulmonary sequestration from other congenital lung malformations such as congenital pulmonary airway malformation and bronchogenic cysts.^{13,14}

References (PEDCH-14)

v2.0.2026

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Policy History and Instructions for Use

Guideline

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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