UNITEDHEALTHCARE® COMMUNITY PLAN: RADIOLOGY IMAGING COVERAGE DETERMINATION GUIDELINE

Pediatric Chest Imaging Guidelines (For Ohio Only)

V1.0.2025

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Application (for Ohio Only)

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

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Guideline Development (Preface-1)

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Guideline Development (Preface-1.1)

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, 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.
- UnitedHealthcare supports the Choosing Wisely initiative (**https:// www.choosingwisely.org/**) by the American Board of Internal Medicine (ABIM) Foundation and many national physician organizations, to reduce the overuse of diagnostic tests that are low value, no value, or whose risks are greater than the benefits.

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

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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 will be considered 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 supported.[1]

Legislative Mandate

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

References (Preface-2)

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

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Clinical Information (Preface-3)

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Clinical Information (Preface-3.1)
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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 includes, but is not limited to, the following:
    - Pertinent clinical evaluation should include a recent detailed history, physical examination[20] since the onset or change in symptoms, and/or laboratory and prior imaging studies.
      - Condition-specific guideline sections may describe additional clinical information which is required for a pertinent clinical evaluation.
      - The Spine and Musculoskeletal guidelines require x-ray studies from when the current episode of symptoms has started or changed.
      - 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[19] should be imaged according to the Pediatric Imaging Guidelines if discussed in the condition-specific guideline sections. Any conditions not specifically discussed in the Pediatric Imaging Guidelines should be imaged according to the General Imaging Guidelines. Individuals who are >18 years old should be imaged according to the General Imaging Guidelines, except where directed otherwise by a specific guideline section.

General Imaging Information

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

Ultrasound

- Diagnostic ultrasound uses high-frequency sound waves to evaluate soft tissue structures and vascular structures utilizing 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.[1]
- Enteric contrast (oral or rectal) is sometimes used in abdominal imaging. There is no specific CPT® code which refers to enteric contrast.
- The appropriate contrast level and anatomic region in CT imaging is specific to the clinical indication, as listed in the condition-specific guideline sections.
- CT should not be used to replace MRI in an attempt to avoid sedation unless it is listed as a recommended study 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.[2]
- Both contrast CT and MRI may be considered to have the same risk profile with renal failure (GFR <30 mL/min).
- The use of CT contrast should proceed with caution in pregnant and breastfeeding individuals. There is a theoretical risk of contrast toxicity to the fetal and infant thyroid. The procedure can be performed if the specific need for that contrast-enhanced procedure outweighs risk to the fetus. Breastfeeding individuals may reduce this risk by choosing to pump and discard breast milk for 12-24 hours after the contrast injection.
- CT without contrast may be appropriate if clinical criteria for CT with contrast are met AND the individual has/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, without and with contrast.
  - Non-contrast imaging offers excellent tissue definition.
  - Imaging without and with contrast is commonly used when needed to better characterize tissue perfusion and vascularization.
    - Most contrast is gadolinium based and causes T2 brightening of the vascular and extracellular spaces.
    - Some specialized gadolinium and non-gadolinium contrast agents are available, and most commonly used for characterizing liver lesions.
  - MRI with contrast only is rarely appropriate and is usually used to better characterize findings on a recent inconclusive non-contrast MRI, commonly called a completion study.
  - MRI contrast is contraindicated in pregnant individuals.
  - More specific guidance for MRI contrast usage, including exceptions to this general guidance, can be found throughout the condition-specific guidelines.
- MRI may be preferred in individuals with renal failure and in individuals allergic to intravenous CT contrast.
  - Both contrast CT and MRI may be considered to have the same risk profile with renal failure (GFR <30 mL/min).[2]
  - Gadolinium can cause Nephrogenic Systemic Fibrosis (NSF). The greater the exposure to gadolinium in individuals with a low GFR (especially if on dialysis), the greater the chance of individuals developing NSF.
  - Multiple studies have demonstrated potential for gadolinium deposition following the use of gadolinium-based contrast agents (GBCAs) for MRI studies.[3-7] The U.S. Food and Drug Administration (FDA) has noted that there is currently no evidence to suggest that gadolinium retention in the brain is harmful and restricting

gadolinium-based contrast agents (GBCAs) use is not warranted at this time. It has been recommended that GBCA use should be limited to circumstances in which additional information provided by the contrast agent is necessary and the necessity of repetitive MRIs with GBCAs should be assessed.[8]

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

Positron Emission Tomography (PET)

- PET is a nuclear medicine study that uses a positron emitting radiotracer to create cross-sectional and volumetric images based on tissue metabolism.
- Conventional imaging (frequently CT, sometimes MRI or bone scan) of the affected area(s) drives much of initial and restaging and surveillance imaging for malignancy and other chronic conditions. PET is not indicated for surveillance imaging unless specifically stated in the condition-specific guideline sections.
- PET/MRI is generally not supported, see **PET-MRI (Preface-5.3)**.

- PET is rarely performed as a single modality, but is typically performed as a combined PET/CT.
  - The unbundling of PET/CT into separate PET and diagnostic CT CPT® codes is not supported, because PET/CT is done as a single study.
- PET/CT lacks the tissue definition of CT or MRI, but is fairly specific for metabolic activity based on the radiotracer used.
- 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 recent 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 indicated examination has been ordered for individuals, it may be possible to avoid exposing them to unnecessary risks.[9,10] To avoid these unnecessary risks, the precautions below should be considered:
  - The results of initial diagnostic tests or radiologic studies to narrow the differential diagnosis should be obtained prior to performing further tests or radiologic studies.
  - The clinical history should include a potential indication such as a known or suspected abnormality involving the body part for which the imaging study is being requested. These potential indications are addressed in greater detail within the applicable guidelines.

  - The results of the requested imaging procedures should be expected to have an impact on individual management or treatment decisions.
  - Repeat imaging studies are not generally necessary unless there is evidence of disease progression, recurrence of disease, and/or the repeat imaging will affect an individual's clinical management.
- Pre-operative imaging/pre-surgical planning imaging/pre-procedure imaging is not indicated if the surgery/procedure is not indicated. Once the procedure has been approved or if the procedure does not require prior authorization, the appropriate pre-procedural imaging may be approved.

References (Preface-3)

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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) recommends that it is best to document the physician's supervision or participation in the 3D reconstruction of images.
- These two codes differ in the need for and use of an independent workstation for post-processing.
  - CPT® 76376 reports procedures not requiring image post-processing on an independent workstation.
  - CPT® 76377 reports procedures that require image post-processing on an independent workstation.
- These 3D rendering codes should not be used for 2D reformatting.
- Two-dimensional reconstruction (e.g., reformatting an axial scan into the coronal plane) is now included in all cross-sectional imaging base codes and is not separately reimbursable.
- The codes used to report 3D rendering for ultrasound and echocardiography are also used to report the 3D post processing work on CT, MRI, and other tomographic modalities.
- Providers may be required to obtain prior authorization on these 3D codes even if prior authorization is not required for the echocardiography and/or ultrasound procedure codes. It may appear that UnitedHealthcare pre-authorizes echocardiography and/or ultrasound when, in fact, it may only be the 3D code that needs the prior authorization.
- CPT® codes for 3D rendering should not be billed in conjunction with computer-aided detection (CAD), MRA, CTA, nuclear medicine SPECT studies, PET, PET/CT, Mammogram, MRI Breast, US Breast, CT Colonography (virtual colonoscopy), Cardiac MRI, Cardiac CT, or Coronary CTA studies.

- CPT® 76377 (3D rendering requiring image post-processing on an independent workstation) or CPT® 76376 (3D rendering not requiring image post-processing on an independent workstation) can be considered in the following clinical scenarios:
  - Bony conditions:
    - Evaluation of congenital skull abnormalities in newborns, infants, and toddlers (usually for pre-operative planning)
    - Complex fractures (comminuted or displaced)/dislocations of any joint (for pre-operative planning when conventional imaging is insufficient)
    - Spine fractures, pelvic/acetabulum fractures, intra-articular fractures (for pre-operative planning when conventional imaging is insufficient)
    - Pre-operative planning for other complex surgical cases
    - Complex facial fractures
  - Pre-operative planning for other complex surgical cases
  - Cerebral angiography
  - Pelvis conditions:
    - Uterine intra-cavitary lesion when initial US is equivocal: See **Abnormal Uterine Bleeding (AUB) (PV-2.1)** and **Leiomyoma/Uterine Fibroids (PV-12.1)** in the Pelvis Imaging Guidelines.
    - Hydrosalpinxes or peritoneal cysts when initial US is indeterminate: See **Complex Adnexal Masses (PV-5.3)** in the Pelvis Imaging Guidelines.
    - Lost IUD (inability to feel or see IUD string) with initial US: See **Intrauterine Device (PV-10.1)** in the Pelvis Imaging Guidelines.
    - Uterine anomalies with initial US: See **Uterine Anomalies (PV-14.1)** in the Pelvis Imaging Guidelines.
    - Infertility: See **Initial Infertility Evaluation, Female (PV-9.1)** in the Pelvis Imaging Guidelines.
  - Abdomen conditions:
    - CT Urogram: See **Hematuria and Hydronephrosis (AB-39)** in the Abdomen Imaging Guidelines.
    - MRCP: See **MR Cholangiopancreatography (MRCP) (AB-27)** in the Abdomen Imaging Guidelines.

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

PRF.CD.0004.2.A

v1.0.2025

- 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® 19085 and CPT® 19086

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

CPT® 75989

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

CPT® 77011

- A stereotactic CT localization scan is frequently obtained prior to sinus surgery. The dataset is then loaded into the navigational workstation in the operating room for use during the surgical procedure. The information provides exact positioning of surgical instruments with regard to the individual's 3D CT images.[3]
- In most cases, the 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 biopsy.
  - CPT® 19085 would be appropriate for the first breast biopsy site and CPT® 19086 would be appropriate for additional concurrent biopsies.

CPT® 77013 (CT) and CPT® 77022 (MR)

- These codes include the initial guidance to direct a needle electrode to the tumor(s), monitoring for needle electrode repositioning within the lesion, and as necessary for multiple ablations to coagulate the lesion and confirmation of satisfactory coagulative necrosis of the lesion(s) and comparison to pre-ablation images.
  - **NOTE:** CPT® 77013 should only be used for non-bone ablation procedures.
    - CPT® 20982 includes CT guidance for bone tumor ablations.
  - Only codes representing percutaneous surgical procedures should be billed with CPT® 77013 and CPT® 77022. It is inappropriate to use with surgical codes for open, excisional, or incisional procedures.
- CPT® 77012 and CPT® 77021 (as well as guidance codes CPT® 76942 [US], and CPT® 77002 - CPT® 77003 [fluoroscopy]) describe radiologic guidance by different modalities.
  - Only one unit of any of these codes should be reported per individual encounter (date of service). The unit of service is considered to be the individual encounter, not the number of lesions, aspirations, biopsies, injections, or localizations.

Unlisted Procedures/Therapy Treatment Planning (Preface-4.3)

PRF.CD.0004.3.UOH
v1.0.2025

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

- These unlisted codes should be reported whenever a diagnostic or interventional CT or MR study is performed in which an appropriate anatomic site-specific code is not available.
  - A Category III code that describes the procedure performed must be reported rather than an unlisted code if one is available.
- CPT® 76497 or CPT® 76498 (Unlisted CT or MRI procedure) can be considered in the following clinical scenarios:
  - Studies done for navigation and planning for neurosurgical procedures (i.e., Stealth or Brain Lab Imaging)[1,2]
  - Custom joint arthroplasty planning (not as 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 (CH-1.7)** in the Chest Imaging Guidelines.

Therapy Treatment Planning

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

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

PRF.CD.0004.5.UOH

v1.0.2025

- 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 indicated for treatment planning purposes. See **Unlisted Procedure Codes in Oncology (ONC-1.5)** in the Oncology Imaging Guidelines.
- It is inappropriate to report CPT® 76380, in conjunction with other diagnostic CT codes, to cover 'extra slices' in certain imaging protocols.
  - There is no specific number of sequences or slices defined in any CT CPT® code definition.
  - The AMA, in **CPT® 2019**, does not describe nor assign any minimum or maximum number of sequences or slices for any CT study.
    - A few additional slices or sequences are not uncommon.
    - CT imaging protocols are often influenced by the individual's clinical situation. Sometimes the protocols require more time and sometimes less.

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SPECT/CT Imaging (Preface-4.6)

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

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

PRF.CD.0004.7.UOH

v1.0.2025

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

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Quantitative MR Analysis (Preface-4.8)

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- Category III CPT® codes for quantitative analysis of multiparametric-MR (mp-MRI) data with and without an associated diagnostic MRI have been established. Quantitative mp-MRI uses software to analyze tissue physiology of visceral organs and other anatomic structures non-invasively. At present, these procedures are primarily being used in clinical trials and there is no widely recommended indications in clinical practice. As such, these procedures are considered to be investigational and experimental for coverage purposes.
  - CPT® 0648T (without diagnostic MRI) and CPT® 0649T (with diagnostic MRI) refer to data analysis with and without associate imaging of a single organ, with its most common use being LiverMultiScan (LMS).
    - See **Fatty Liver (AB-29.2)** in the Abdomen Imaging Guidelines.
  - CPT® 0697T (without diagnostic MRI) and CPT® 0698T (with diagnostic MRI) refer to data analysis with and without associate imaging of a multiple organs, with its most common use being CoverScan.
  - Volumetric and quantitative MRI analysis of the brain (CPT® 0865T or CPT® 0866T) lack sufficient specificity and sensitivity to be clinically useful. Its use is limited to research studies and is otherwise considered to be not medically necessary in routine clinical practice.

HCPCS Codes (Preface-4.9)

PRF.CD.0004.9.UOH

v1.0.2025

- 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.[6]
  - 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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4. ACR Radiology Coding Source™ March-April 2007 Q and A. American College of Radiology. https://www.acr.org/Advocacy-and-Economics/Coding-Source/ACR-Radiology-Coding-Source-March-April-2007-Q-and-A
5. Chung CY, Alson MD, Duszak R, Degnan AJ. From imaging to reimbursement: what the pediatric radiologist needs to know about health care payers, documentation, coding and billing. *Pediatr Radiol*. 2018;48(7):904-914. doi:10.1007/s00247-018-4104-1
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Whole-Body Imaging (Preface-5)

Guideline

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

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Whole-Body CT Imaging (Preface-5.1)

PRF.WB.0005.1.UOH

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

Whole-Body MR Imaging (Preface-5.2)

PRF.WB.0005.2.A

v1.0.2025

- Whole-body MRI (WBMRI) is, with the exception of select cancer predisposition syndromes and autoimmune conditions discussed below, generally not supported at this time due to lack of standardization in imaging technique and lack of evidence that WBMRI improves 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)**, or **Infantile Myofibromatosis (PEDONC-2.18)** in the Pediatric and Special Populations Oncology Imaging Guidelines.
  - Cancer staging and restaging:
    - While the feasibility of WBMRI has been established, data remain conflicting on whether WBMRI is of equivalent diagnostic accuracy compared with standard imaging modalities such as CT, scintigraphy, and PET imaging.
    - Evidence has not been published establishing WBMRI as a standard evaluation for any type of cancer.
  - Autoimmune disease:
    - WBMRI can be approved in some situations for individuals with chronic recurrent multifocal osteomyelitis.
      - For additional information, see **Chronic Recurrent Multifocal Osteomyelitis (PEDMS-10.2)** in the Pediatric Musculoskeletal Imaging Guidelines.

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PET-MRI (Preface-5.3)

PRF.WB.0005.3.A

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

References (Preface-5)

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References (Preface-6)

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References (Preface-6.1)

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References (Preface-6.1)

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

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Copyright Information (Preface-7)

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Copyright Information (Preface-7.1)

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Copyright Information (Preface-7.1)

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Trademarks (Preface-8)

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Trademarks (Preface-8.1)

Trademarks (Preface-8.1)

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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

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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; *unilateral*, including axilla when performed; complete	76641
Ultrasound, breast; *unilateral*, including axilla when performed; limited	76642

General Guidelines (PEDCH-1.0)

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- 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.

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Pediatric Chest Imaging Age Considerations (PEDCH-1.1)

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- Many conditions affecting the chest in the pediatric population are 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[15] 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
v1.0.2025

- 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 required 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 may be appropriate 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.
      - Recent 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 indicated 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 are appropriate 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) are generally not appropriate in lieu of CPT® 78582 for initial evaluation of suspected pulmonary embolism, but is appropriate for follow up of an equivocal or positive recent ventilation-perfusion lung scan (CPT® 78582) to evaluate for interval change.
  - Pulmonary Ventilation Imaging (CPT® 78579) is not appropriate in lieu of CPT® 78582 for evaluation of suspected pulmonary embolism, but is appropriate 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 indicated for preoperative planning of segmental, lobar, or lung resection.
  - Quantitative Differential Pulmonary Perfusion Lung Scan (CPT® 78597 or CPT® 78598), can be performed for post lung transplant individuals 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 indicated 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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5. Goh Y, Kapur J. Sonography of the pediatric chest. *J Ultrasound Med*. 2016 May;35(5):1067-1080.
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Lymphadenopathy (PEDCH-2)

Guideline

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

Lymphadenopathy (PEDCH-2.1)

CHP.LY.0002.1.A

v1.0.2025

- 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 indicated prior to excisional biopsy. Fine needle aspiration, while common in adults prior to advanced imaging, is inappropriate for evaluating lymphadenopathy in pediatric individuals. ANY of the following studies are appropriate for evaluation of supraclavicular adenopathy in individuals:
  - CT Chest with contrast (CPT® 71260)
  - MRI Chest without and with contrast (CPT® 71552)
  - Ultrasound Chest (CPT® 76604)
- If malignancy is suspected, see the appropriate 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.

Reference (PEDCH-2)

v1.0.2025

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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

v1.0.2025

- The causes of mediastinal masses in individuals are generally different than those in adults, and the imaging considerations are different. Up to half of all pediatric mediastinal masses are malignant.[7]
- Chest x-ray is indicated as an initial study for all individuals with suspected mediastinal mass.
- CT Chest with contrast (CPT® 71260) is indicated for any pediatric individual with a 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 indicated for any pediatric individual with:
  - a posterior (paravertebral) mediastinal mass on CT Chest that invades the spinal canal
  - CT findings are inconclusive regarding specific anatomy
  - MRI should not be used for individuals with large anterior mediastinal masses if anesthesia is necessary to complete the study.
- PET/CT (CPT® 78815) is indicated 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 indicated and is supported 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 appropriate 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 appropriate to confirm stability and avoid biopsy for individuals with NONE of the following features:
  - anterior mediastinal mass
  - enlarged lymph nodes anywhere in the imaging field
  - lymphopenia
  - pleural effusion

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References (PEDCH-3)

v1.0.2025

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3. Trinavarat P and Riccabonna M. Potential of ultrasound in the pediatric chest. *Eur J Radiol*. 2014; 83(9):1507-1518.
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5. Manson DE. Magnetic resonance imaging of the mediastinum, chest wall and pleura in children. *Pediatr Radiol.* 2016;46(6):902-915.
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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

v1.0.2025

- True hemoptysis is rare in pediatric individuals, and 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 indicated as an initial study for stable individuals.
  - Advanced imaging is not indicated for individuals with epistaxis and a normal chest radiograph and no personal or family history of underlying lung disease or bleeding disorder.
  - CT Chest with contrast (CPT® 71260) is indicated for all other pediatric individuals with hemoptysis.
    - CT Chest without contrast (CPT® 71250) for individuals with a documented allergy to CT contrast or significant renal dysfunction.
- MRI is not indicated in the evaluation of pediatric hemoptysis.

References (PEDCH-4)

v1.0.2025

1. Gupta A, Sands M, Chauhan NR. Massive hemoptysis in pulmonary infections: bronchial artery embolization. *J Thorac Dis*. 2018;10(S28):S3458-S3464. doi: 10.21037/jtd.2018.06.147.
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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

v1.0.2025

- Chest x-ray is the primary study for initial evaluation of acute clinical symptoms in individuals with cystic fibrosis.
- CT Chest without contrast (CPT® 71250) or with contrast (CPT® 71260) is indicated for the following (without initial chest x-ray):
  - 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
- Low dose CT Chest without contrast (CPT® 71250) is indicated **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 appropriate if concerned for liver disease. See **Liver Disease (PEDAB-16)** in the Pediatric Abdomen Imaging Guidelines.

Bronchiectasis Not Associated with Cystic Fibrosis (PEDCH-5.2)

CHP.CF.0005.2.A

v1.0.2025

- 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)

v1.0.2025

1. Egan M, Shechter MS, Voynow JA. Cystic fibrosis. Chapter 432. In: Kliegman RM, St. Geme JW III, Blum NJ, Shah SS, Tasker RC, Wilson KM, eds. *Nelson Textbook of Pediatrics*. 21st ed. 2020:2282-2297.
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Bronchiolitis (PEDCH-6)

Guideline

Bronchiolitis (PEDCH-6.1)
References (PEDCH-6)

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Bronchiolitis (PEDCH-6.1)

CHP.BR.0006.1.A
v1.0.2025

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

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

References (PEDCH-6)

v1.0.2025

1. House SA, Ralston SL. Chapter 418: Wheezing in infants: bronchiolitis. In: Kliegman RM, St. Geme JW III, Blum NJ, Shah SS, Tasker RC, Wilson KM, eds. *Nelson Textbook of Pediatrics*. 21st ed. 2020:2217-2220.
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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

v1.0.2025

- 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 indicated when the individual's condition does not respond to standard therapy.
  - CT Chest with contrast (CPT® 71260) for immunocompromised individuals with acute pulmonary symptoms.
  - CT Chest without contrast (CPT® 71250) or with contrast (CPT® 71260) for individuals with recurrent lower respiratory tract infections.
  - Ultrasound chest (CPT® 76604) for evaluation of complicated or recurrent childhood pneumonia.

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

CHP.PN.0007.2.A
v1.0.2025

- 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)**

References (PEDCH-7)

v1.0.2025

1. Kelly MS and Sandora TJ. Chapter 428: Community-acquired pneumonia. In: Kliegman RM, St. Geme JW III, Blum NJ, Shah SS, Tasker RC, Wilson KM, eds. *Nelson Textbook of Pediatrics*. 21st ed. 2020:2266-2274.
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3. Andronikou S, Goussard P, Sorantin E. Computed tomography in children with community-acquired pneumonia. *Pediatr Radiol*. 2017;47(11):1431-1440. doi: 10.1007/s00247-017-3891-0.
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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
v1.0.2025

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) as a one-time evaluation for all individuals with a pulmonary nodule incidentally discovered on other imaging.
- Follow up imaging of incidental solitary pulmonary nodules in asymptomatic healthy individuals is not necessary.[6]
  - Follow up imaging is indicated 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.

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)

v1.0.2025

1. Assefa D and Atlas A. Natural history of incidental pulmonary nodules in children. *Pediatr Pulmonol.* 2015;50(5):456-459.
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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

v1.0.2025

- 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 is appropriate at symptomatic levels in individuals with concern for spinal involvement of tuberculosis.

Background and Supporting Information

- Chest x-ray can be useful as the initial imaging study when TB is suspected[5]

References (PEDCH-9)

v1.0.2025

1. Cameron LH, Starke, JR. Chapter 242: Tuberculosis (Mycobacterium tuberculosis). In: Kliegman RM, St. Geme JW III, Blum NJ, Shah SS, Tasker RC, Wilson KM, eds. *Nelson Textbook of Pediatrics*. 21st ed. 2020:1564-1582.
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5. Andronikou S, Miranda-Schaeubinger M, Goussard P, et al. Changes in the Role of Chest Radiographs for Diagnosing and Managing Children with Tuberculosis: the 2022 World Health Organization Consolidated Guidelines on Tuberculosis. *Pediatr Radiology*. 2023;53:566-570. doi. 10.1007/s00247-022-05544-y.

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Asthma (PEDCH-10)

Guideline

Asthma (PEDCH-10.1)
References (PEDCH-10)

Asthma (PEDCH-10.1)

CHP.AS.0010.1.A

v1.0.2025

- Chest x-ray and/or Ultrasound chest (CPT® 76604) is indicated when the individual's condition does not respond to standard therapy, to identify complications, such as pneumonia or to rule out other causes of respiratory distress.
- Advanced imaging is not indicated for routine evaluation or monitoring of asthma, but CT Chest without (CPT® 71250) or with (CPT® 71260) contrast is appropriate for the following:
  - pleural effusion or empyema on recent chest x-ray
  - immunocompromised individual with acute pulmonary symptoms
  - abnormality on recent 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

References (PEDCH-10)

v1.0.2025

1. Liu AH, Spahn JD, and Sicherer SH. Chapter 169: Childhood asthma. In: Kliegman RM, St. Geme JW III, Blum NJ, Shah SS, Tasker RC, Wilson KM, eds. *Nelson Textbook of Pediatrics*. 21st ed. 2020:1186-1209.
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5. *American College of Radiology ACR Appropriateness Criteria*® Pneumonia in the Immunocompetent Child. New 2019.

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Pectus Deformities (PEDCH-11)

Guideline

Pectus Deformities (PEDCH-11.1)
References (PEDCH-11)

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Pectus Deformities (PEDCH-11.1)

CHP.PD.0011.1.A

v1.0.2025

- CT Chest without contrast (CPT® 71250), MRI Chest with and without contrast (CPT® 71552), or MRI Chest without contrast (CPT® 71550) is indicated in individuals with a pectus deformity for:
  - preoperative planning
  - significant cardiac displacement 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 in those individuals with pectus deformities

References (PEDCH-11)

v1.0.2025

1. Buziashvili D, Gopman JM, Weissler H, Bodenstein L, Kaufman AJ, Taub PJ. An Evidence-Based Approach to Management of Pectus Excavatum and Carinatum. *Ann Plast Surg*. 2019;82(3):352-358. doi: 10.1097/sap.0000000000001654.
2. Frantz FW. Indications and guidelines for pectus excavatum repair. *Curr Opin Pediatr.* 2011;23(4):486-491.
3. Koumbourlis AC. Chest wall abnormalities and their clinical significance in childhood. *Paediatr Resp Rev*. 2014;15(3):246-255.
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5. Marcovici PA, Losasso BE, Kruk P, Dwek JR. MRI for the evaluation of pectus excavatum. *Pediatr Radiol*. 2011;41(6):757-758. doi: 10.1007/s00247-011-2031-5.
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7. Sun J, Chen C, Peng Y, et al. Comparison of magnetic resonance imaging and computed tomography to measure preoperative parameters of children with pectus excavatum.*Pediatr Investig*. 2019;3(2):102-109. Published 2019 Jun 25. doi:10.1002/ped4.12132.

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Breast Masses (PEDCH-12)

Guideline

Breast Masses (PEDCH-12.1)

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Breast Masses (PEDCH-12.1)

CHP.MS.0012.1.A
v1.0.2025

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

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Vascular Malformations (PEDCH-13)

Guideline

Vascular Ring (PEDCH-13.1)
Other Vascular Malformations (PEDCH-13.2)
References (PEDCH-13)

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Vascular Ring (PEDCH-13.1)

CHP.VM.0013.1.A
v1.0.2025

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.

- Chest x-ray is the recommended initial study in individuals with respiratory symptoms. A chest x-ray is not needed 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) or MRA Chest (CPT® 71555) in individuals with known or suspected vascular ring after prenatal imaging studies, chest x-ray, or barium esophagram.
- Echocardiogram is appropriate to rule out associated congenital heart disease.
  - CPT® 93303, CPT® 93306, CPT® 93320, and CPT® 93325 is appropriate for initial evaluation of individuals with vascular ring and no prior echocardiograms.

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Other Vascular Malformations (PEDCH-13.2)

CHP.VM.0013.2.A
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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)

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Congenital Chest Diseases (PEDCH-14)

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

Congenital Cystic Lung Diseases (PEDCH-14.1)

CHP.CD.0014.1.A
v1.0.2025

- 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 appropriate when a cystic lung lesion is suspected.
- MRI Chest with and without contrast (CPT® 71552) is appropriate if CT is inconclusive or if requested for pre-operative planning.

Background and Supporting Information

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

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Pulmonary Arteriovenous Malformations (PEDCH-14.2)

CHP.CD.0014.2.A

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

Congenital Diaphragmatic Hernia (PEDCH-14.3)

CHP.CD.0014.3.A

v1.0.2025

- 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 indicated as the initial imaging study.
- CT Chest with contrast (CPT® 71260) or MRI Chest with and without contrast (CPT® 71552) is appropriate when chest x-ray and/or US are inconclusive, or if requested for treatment planning.[11]

References (PEDCH-14)

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Policy History and Instructions for Use

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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